Chapter III
Obligations under International Law of Armed Conflict

1- Introduction

The law applicable to armed conflict is widely known as international humanitarian law (IHL). International humanitarian law also called the law of armed conflict and previously known as the law of war is a special branch of international law governing situations of armed conflict. IHL applies “in all cases of declared war or of any other armed conflict which may arise between two or more of High Contracting Parties, even if the state of war is not recognized by one of them.” It is also applicable in the situation of non-international armed conflicts, i.e. a confrontation not between two States, but between the government and a rebel movement.

The IHL rules governing the environmental aspect of armed conflict, however, is a new, dynamic and rapidly growing area of international law. Until relatively recently, international law did not consider environmental protection as a distinct goal of the law

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1 International organizations, universities and even states prefer to use the expression of international humanitarian law, where as the other two expressions- “law of Armed conflict” and “law of war” – are more commonly used by the armed forces. See ICRC, International Humanitarian Law: Answer to Your Questions, New Delhi: ICRC Publication, 2002, p.5.
3 Ibid, art. 3. See also M. K. Balachandran & Rose Varghes (eds.) (1999), Introduction to International Humanitarian Law, ICRC, New Delhi.
4 In contrast to the relatively new body of treaties governing the environmental consequences of armed conflict, moral and religious codes that have sought to prevent or minimize the environmental impacts of wartime actions have a long history as long as has devastated the environment. Even in biblical times, Deuteronomy commanded:

When you are at war, and lay siege to a city for a long time in order to take it, do not destroy its trees by taking the axe to the, for they provide you with food; you shall not cut them down. The trees of the field are not men that you should besiege them. But you may destroy or cut down any trees that you know do not yield food, and use them in siege-works against the city that is at war with you, until it falls.


Similarly, the Qur’an prohibits Muslims from harming trees in a jihad, a Muslim holy war. (M.I.H.Farooqi, Plants of the Quran (Lucknow: Sidrah Publishers, 1992), p.25) The Buddhist and Hindu principle of ashima mandates avoiding unnecessary harm, and cultivating a respect for the environment, which may apply in both peace and war. (See Ranchar Prime, Hinduism and Ecology: Seeds of Truth, (New York:Cassell, 1992)
of the war. Military activities were not perceived as a threat to environment, although, in fact, various tactics of scorched earth and crop destruction throughout the history of warfare did serious harm to environment, there were occasional expression of concern all along about harm done to animals or environmental surroundings and accordingly some legal measures taken which were vague, not directly focusing on environment.

In response to activities harming surroundings, it could be said that for the first time, the St. Petersburg Declaration on explosive projectiles, indirectly, provided a legal basis for environmental protection during armed conflicts. The Declaration declared that “[t]he only legitimate object which States should endeavor to accomplish during war is to weaken the military forces of the enemy.” While this principle does not rule out all environmental disruption, it does indicate the illegality of such kind of actions that lack a clear military purpose.

The next step was 1899 and 1907 Hague Conventions and Declarations. These Conventions and Declarations contain provisions with an environmental character. Considering that safeguarding belligerent property interests includes an element of environmental protection, there are several provisions in the Hague regulations that relate to environmental damage and environmental protection. The 1907 Hague Convention IV Respecting the Laws and Customs of War on Land states in Article 55 that:

The occupying State shall be regarded only as administrator and usufructuary of public buildings, real estate, forests and agricultural estates belonging to the hostile State, and situated in the administer them in accordance with the rules of usufruct.

Article 23 (g) states that it is specially forbidden ‘to destroy or seize the enemy’s property, unless such destruction or seizure is imperatively demanded by the necessities of war.'

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6 Declaration Renouncing the Use, in Time of War, of Explosive Projectiles under 400 Grammas Weight, signed in St. Petersburg, Dec. 11, 1864, reprinted in: Rules of International Humanitarian Law and Other Rules Related to the Conduct of Hostilities, pp. 159-160.
Then, the 1925 Geneva Protocol on Gas and Bacteriological Warfare provided one basis for asserting the illegality of forms of chemical warfare having a harmful effect on the environment; and later the 1949 Geneva Convention IV Relating to the Protection of Civilian Persons in Time of War carried forward in somewhat more straightforward the principle outlined in Article 55 of St. Petersburg Declaration (the Geneva protocol and Conventions will be discussed in detailed below).

There was, however, little concern about the environment destruction per se until the Vietnam War. The international efforts primarily focused on the protection of individual and its belongings during the war. Efforts to place the issue of military activities on the agenda of the United Nations Conference on the Human Environment,\(^9\) held in Stockholm in 1972, were not successful, mainly because of U.S. objections that inspired from its sensitivity to criticism arising against its actions of environmental destruction during the Vietnam War.

Therefore, the Conference Declaration (Known as Stockholm Declaration) in its proclamation section avoided associating serious environmental dangers explicitly with military activities. However, the declaration, in its principles section, clearly acknowledged environmental consequences of nuclear and other weapons of mass destruction. Principle 26 of the declaration states:

"Man and his environment must be spared by nuclear and other weapons of mass destruction. States must strive to reach prompt agreement, in the relevant international organs, on the elimination and complete destruction of such weapons."\(^{10}\)

Principle 21 of the declaration seeks to reconcile sovereign rights with environmental protection:

"States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities\(^8\)

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\(^8\) *Ibid*, Article 23 (g).


\(^10\) *Ibid*. 

76
within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.\textsuperscript{11}

Subsequent to these efforts, and in response to the US actions in the Vietnam War, it was for the first time that the international community adopted treaties directly related to the protection of the environment in the time of war. Those were the 1976 Convention on the Prohibition of Military or Any Other Hostile Use of Environment Modification Techniques (ENMOD)\textsuperscript{12} and the 1977 Additional Protocol I and II to the Geneva Convention of 1949.\textsuperscript{13}

In this chapter, in addition to examining general principles of international environmental law of armed conflict, an inquiry on the provisions of these treaties specifically and directly related to the environmental protection during armed conflict will be done. Further more, legal constraints found in a variety of other treaties and international custom protecting property, civilian objects, and cultural heritage in wartime, will be highlighted. These legal constraints also provide protection without even mentioning the word “environment”. The different provisions can be divided generally into those governing targeting choices and those that govern weapons choices. Both the regimes can be useful for addressing different aspects of wartime environmental protections.

II. General Principles

Arguably, general principles of international environmental law of armed conflict fill much of the prescriptive gaps in the conventional law regime. General principles are particularly important in law of armed conflict because of the non-party status of certain pivotal global players, most notably the United States, in the relevant treaty regimes.

\textsuperscript{11} Ibid.

\textsuperscript{12} Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques (The ENMOD Convention), 1976, Rules of International Humanitarian Law and Other Rules Relating to the Conduct of Hostilities

Perhaps, the fundamental provision that inspired the general principles is Article 22 of the Hague Convention IV, which provides that “the right of belligerents to adopt means of injuring the enemy is not unlimited.”\(^\text{14}\) It is believed that from this broad underlying proposition, four principles have evolved:

1. The requirement of military necessity;
2. The requirement of proportionality;
3. The obligation not to cause unnecessary suffering;
4. The obligation to distinguish between military and civilian targets.\(^\text{15}\)

**A. Military Targets**

A customary principle that enjoys a degree of autonomous normative value is that of “military objective”. This principle clearly (albeit indirectly) restricts the ability of warring parties to deliberately damage the natural environment – but only to the extent that elements or regions of the natural environment are not legitimate military target. Accordingly, during armed conflict, damage should be limited to the combatants and military targets only. Civilians or civilian objects should be immune from being attacked by the parties to the armed conflict. For example, schools, hospitals, worship places, parks, bridges and dams should not be attacked. Therefore, indiscriminate warfare including carpet bombing or an attack likely to cause collateral damage to civilian population or objects is illegal per se.

The 1977 Geneva Protocol (I) Additional to the Geneva Convention of 1949 contains detailed rules in regards to the application of this principle. The Protocol defines military objectives, as:

Those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.\(^\text{16}\)

\(^{14}\) Article 22, Hague Convention IV Respecting the Laws and Customs of War on Land, note 7.


\(^{16}\) Article 52 (2), Additional Protocol I, note 13.
This definition confirms that an objective must yield real and definite military gains in order to be attacked.

Despite this definition, however, the principle has proven somewhat controversial. The ICRC has taken a restrictive approach, ruling out any advantage that is arguably "potential or indeterminate". In contrast, the United States supports a relatively liberal interpretation of military objective. The Commanders' Handbook on the Law of Naval Operation states that "[e]conomic targets that indirectly but effectively support and sustain the enemy's war-fighting capability may ... be attacked."17

The outcome of these two divergent approaches in the environmental context clearly appears in the oil example. Certain states depend heavily on oil exports to finance their military. In such cases, oil indirectly but effectively supports war-fighting capability; yet the direct nexus between oil profits and actual military operations is somewhat attenuated. According to a restrictive interpretation, the oil is a civilian (economic) target, and must not be attacked. By the liberal approach, however, it is a valid target which may be attacked so long as the resulting collateral environmental damage is proportionate to the military advantage. As a non-party to Protocol I, the United States can attempt to avoid the dispute by simply arguing that directness (definite military advantage) is not an element of the customary international law principle of military objective, and thus not relevant to US operations. Contrary, states that view the article as declaratory of customary law would characterize the debate as bearing on the operations of all states; parties to Protocol I or not.

The application of this principle, however, is not an easy task, especially when military commanders protect their combatants and targets by placing them under the cover of civilian objects. For example, during World War I the Germans were using a particular church belfry as a sniper's post in a town in the Rhineland, making it a legitimate military target for the allies.18 Similarly, during Gulf War II, Saddam Hussein, in order to protect some strategic sites from the coalition' attack, recurred to this illegal


18 Ruth Wedgwood (1999), Responding to Terrorism, the Strike Against Bin Laden, YALE L. INT'L, vol. 24, p. 559-569.
method of warfare. He placed some Western citizens, which he described as "Iraq's guests", as a human shell around these sites. Later he placed a civilian shelter on top of a military communication centre in Ameriyya, which thus become a legitimate military target, attack on which caused "an estimated 200-300 casualties". 19 Similar incidences are taking place frequently in Afghanistan, as the Taliban insurgents used to take shelter among civilians, making them a legitimate target for military attacks by coalition forces. Therefore, under the means of attacking military targets or combatants, the environment will be frequently subject to military atrocities.

In sum, the rule was created to confine military operations to military targets, though, the application of this rule is not an easy task, especially when military commanders protect their combatants and targets by placing them under the cover of civilian objects. In such a situation, armed forces may go, to minimum extent possible, beyond this rule, in order to eliminate an enemy's force.

B. Military Necessity

Military necessity is the principle that forbids destructive acts unnecessary to secure a military objective. The classic formulation of this principle is expressed by U.S. Military Tribunal in the Hostage Case, as such that "the destruction of property must be imperatively demanded by the necessities of war. Destruction as an end in itself is a violation of international law. There must be some reasonable connection between the destruction of property and the overcoming of the enemy forces." 20

This principle is introduced in a number of international humanitarian law conventions, including the Geneva Conventions of 1949 21 and 1977 Protocol I Additional to the 1949 Geneva Conventions. 22

20 See, Jay E. Austin and Carl E Bruch, note 4, p. 102; The Hostage Case Trial of Wilhelm List and Others, United States Military Tribunal, Nuremburg, available [Online: Web], URL: http://www.ess.uwe.ac.uk/WCC/List1.htm;
In its official Gulf War Report, the US Department of Defense dismissed the possibility that Iraq's destruction of Kuwaiti oil wells and release of oil into the Gulf had any but negligible military utility, concluding that Iraq violated the principle of military necessity. The report suggested that the Iraqis may have hoped to hinder amphibious operations or disrupt Coalition operation by fouling desalination plants. However, it labeled the effect as negligible. The report went to assert that:

As the first Kuwaiti oil wells were ignited by Iraqi forces, there was public speculation the fires and smoke were intended to impair Coalition forces' ability to conduct both air and ground operations, primarily by obscuring visual and electrooptical sensing devices. Review of the Iraqi actions makes it clear the oil well destruction had no military purpose, but was simply punitive destruction at its worst. For example, oil well fires to create obscurants could have been accomplished simply through the opening of valves; instead, Iraqi forces set explosive charges on many wells to ensure the greatest possible destruction and maximum difficulty in stopping each fire.

The report asserting that the fact that the wells were only set ablaze in Kuwait is further evidence of malevolent intent.

Expressed in this way, however, the principle is capable of divergent interpretations. According to an interpretation, "the doctrine of military necessity would justify any act that helped bring about victory, even if the act was not necessary for victory. It would merely have to help." The other interpretation asserts the principle implies that the act in question is done in such a vital situation, without which victory could not have been achieved. These divergent interpretations along with the considerable uncertainty in regard to the requisite amount of military advantage will prevent the principle from operating in practice as a deterrent. As a result, every wanton destruction would be justified under this principle, by super power belligerents. Some commentators even argued that if the law of environmental warfare were clear the

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23 US Department of Defense, Conduct of the Persian Gulf War, pp. 625-26, In; Jay E. Austin and Carl E. Bruch, note 4, p. 102.
24 Ibid.
26 Ibid.
environment would still not be sufficiently protected, because of the doctrine of military necessity. This issue will be discussed in next section with more details.

The principle of proportionality requires that military actions not cause injury to civilian (incidental injury) or damage to civilian objects (collateral damage) disproportionate to the anticipated military advantage likely to result. In other word the proportionality principle requires the comparison of between two elements, the military target and the environment effects. Before to destroying a natural resource site by military activity, the military authority should balance the expected environmental harm vis-a-vis the military advantages expected to be gained. Whenever the environmental damage outweighs the military benefits, the military operation should be avoided. Even when the enemy misuses the civilians, the “attacking forces are still obliged to meet the test of whether predictable harm would be proportional to military advantage”. If the harm is “excessive in relation to the concrete and direct military advantage anticipated,” it is considered a war crime.

The 1977 Additional Protocol to the Geneva Conventions of 1949 intents to codify, in Article 52, the principle of proportionality as such:

Those who plan or decide upon an attack shall ... take all feasible precautions in the choice of means and methods of attack with a view to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects.

According to this Article, proportionality in the choice and use of weapons is required only in relation to civilian targets. This means that once a target is classified as yielding military gain, any means of warfare may be employed against it regardless of the principle of proportionality. However as supported by the Hand Book of the law of Warfare Armed Forces published by the International Red Cross Committee in 1987, the

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31 Ibid.
32 Additional Protocol I, note 13, Article 57(2) (a) (ii).
better view is that the rule of proportionality applies in relation to the target whether it is military or civilian. In Rule 389 the Hand Book states: “The rule of proportionality shall be respected. All action is proportionate when it does not cause ... damage which is excessive in relation to the value of the expected result of the whole military operation.” This statement clearly expresses the requirement of proportionality without reference to the nature of the target.

C. The Choice of Methods or Means of Warfare is not Unlimited

Article 22 of The Hague Convention (IV) Respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land, (1907) provides that “the right of belligerents to adopt means of injuring the enemy is not unlimited.” Similarly, article 35 (1) of the Additional Protocol I to the Geneva Conventions of 1949 states that “in any armed conflict, the right of the parties to the conflict to choose methods or means of warfare is not unlimited.”

Accordingly, the use of the natural resources, crude oil, as a weapon in wars by Iraqi military forces, in 1991 and in 2003, would present a violation to the principle of limiting the choice of methods or means of warfare. Similarly, using cluster bombs by Allied forces during the 1991 and 2003 wars against Iraq should be interpreted as another violation to this principle.

D. Unnecessary Suffering

The St. Petersburg Declaration of 1868 prohibited the employment of arms which “uselessly aggravate the suffering of disabled men, or render their death inevitable.” This was reiterated in Article 23 (e) of the regulation annexed to the 1907 Hague Convention (IV) in what was to become a classical principle of customary international

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36 Declaration Renouncing the Use, in Time of War, of Explosive Projectiles under 400 Grammas Weight, *note* 6.
law: “it is specially forbidden ... to employ arms, projectiles, or material calculated to cause unnecessary suffering.” It is most likely the word “suffering” intended to suggest that the principle is concerned with unnecessary harm to persons, excluding property damage or damage to natural environment. The 1977 Protocol (1) Additional to the Geneva Convention of 1949, in Article 35 (2), and the 1981 Inhumane Weapons Convention, in the Preamble, also assert the prohibition of the employment of weapons, projectiles and material and methods of warfare of a nature to cause “superfluous injury or unnecessary suffering.

There is no need to mention that the word “injury” is not limited to personal harm. It includes property damage, environmental damage, or damage to any thing as indicated by the Webster’s Third New International Dictionary: “Injury...the act or result of inflicting on a person or some thing that cause loss, pain, distress, or impairment.”

Despite being clear that this principle is applicable on superfluous environmental damage, the practical utility of a principle expressed in such general terms has been under question. States practice shows that no common consent has ever evolved among States as to actual normative value of the principle. Yet, in cases of extremely excessive injury the applicability of the principle is absolute:

Article 23 as it stands now plays in practice a normative role ... in extreme cases (such as cases where the cruel character of a weapon is so manifest that no body would deny it, or where evidence can be produced of gross, reputed, and large-scale violations of the principle).

For instance, the use of oil-well fires by the Iraqis during the Gulf War, which has had adversary impacts on the plant health, animal and human life in the region, is an example in which the applicability of the principle is not deniable.

37 1907 Hague Convention, Article 23 (c). note 7.
38 Injury, Webster’s Third New International Dictionary.
40 Ibid.
III. Treaty Laws

A number of treaty instruments include a kind of environmental protection during armed conflict. Some of these instruments provide protection for one environmental element or more, without addressing the environmental protection in general. Examples include the protection of private and public properties, and the protection of cultural heritage. Some other instruments address environmental protection more broadly. Here these instruments will be examined, starting from those addressing environmental protection more broadly.

1. The ENMOD Convention 1976

The first of these agreements that address environmental protection during armed conflict in a broad and direct way is the 1976 UN Convention on the Prohibition of Military or Any Other Hostile Use Environmental Modification Techniques (hereinafter, the ENMOD Convention 1976). This accord, deals essentially, not with damage to the environment, but with the use of the forces of the environment as weapons.

1. General Obligations

This treaty prohibits the use of environmental modification techniques as a weapon during armed conflict. Article I of the Convention provides that:

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

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41 The ENMOD Convention was adopted by the United Nations General Assembly in 1976 and entered into force in October 1978. It consists of ten articles and an Annex concerning the Consultative Committee of Experts. No complaints have ever been brought under ENMOD and it only has 70 states parties (less than half of the world's states). There have been two review conferences, one in 1984 and one in 1992. This is far less frequent than provided for in the Convention. The review conferences developed 'understandings'. It is reprinted in: Rules of International Humanitarian Law and Other Rules Related to the Conduct of Hostilities, note 8, pp. 173-179, also available [Online: Web], URL: isrc.org/Web/Eng/siteeng0.nsf/HTML/57JR8J/$FILE/1976_ENMOD.pdf.

This Article also requires that Parties undertake not to assist, encourage or induce any State, group of States or international organization to engage in such activities.\textsuperscript{43}

Article II provides that the term ‘environment modification techniques’ used in Article I:

... refers to any techniques 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.

\section*{II. Scope and Conditions}

According to the ENMOD Convention, not every use of an environmental modification technique is prohibited. This Article in combination with articles II and III includes a number of important conditions that have to be met.

Firstly, the action requires intent. The forbidden action must be “deliberate” and mere collateral damage resulting from an attack against a military objective is not included. Consequently, a bombing of a chemicals factory leading to toxic air pollution would not count under the ENMOD Convention.\textsuperscript{44}

Secondly, it must manipulate a natural process. A non-exhaustive list illustrating the types of natural processes covered by this treaty was outlined in an Understanding that was attached to the ENMOD Convention. These include “earthquakes, tsunamis, an upset in the ecological balance of a region, changes in weather patterns (clouds, precipitation, cyclones of various types and tornadic storms); changes in climate patterns; changes in ocean currents; changes in the state of the ozone layer; and changes in the state of the ionosphere.”\textsuperscript{45}

Thirdly, Article I contains the threshold criteria, requiring that alleged violation be either “widespread, long-lasting or severe”. If one of these requirements is met, the

\begin{footnotesize}
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\item[\textsuperscript{43}] \textit{Ibid}, Article 1(2).
\item[\textsuperscript{45}] \textit{Ibid}, p. 526.
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exception of military necessity cannot be claimed. 46 This will be discussed in further detail below.

Fourthly, Article I also requires that the environmental modification techniques be for military or hostile purposes. It does not matter whether resort to an environmental modification technique is made for offensive or defensive purposes. 47 Thus, Peaceful and non-hostile uses are expressly outside the scope of the Convention. 48 Provided no damage or injury results from such techniques, it would be permitted, for example, to initiate fog dispersal in order to facilitate aircraft takeoffs and landings or clear enemy targets for bombing. 49

Fifthly, the destruction, damage or injury must be inflicted on another state party to the ENMOD Convention. It makes no different that state is belligerent or a neutral one, provided that it is contracting party to the convention. Thus, the destruction, damage or injury does not come within the scope of the ENMOD Convention if it affects only:

- The territory of the acting state (i.e. when the victim is the state’s own national).
- The territory of state not party to the ENMOD Convention.
- Areas outside the jurisdiction of all states, like the high seas, unless, of course, the destruction on the high seas affect the shipping of a state party to the ENMOD Convention. 50

It is undisputed that the Convention applies to armed conflicts between States Parties. However, its application to the situation in which a State Party attacks a non-State Party is still unclear. Various interpretations exist, including the restrictive view that the ENMOD’s applicability should only be amongst State Parties in order to be an incentive for ratification and avoid the situation in which a State would gain the benefits

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48 Article III (1) of The ENMOD Convention expressly provided that “Provisions of this convention shall not hinder the use of environmental modification techniques for peaceful purposes and shall be without prejudice to the generally recognized principles and applicable rules of international law concerning such use.”


50 See Yoram Dinstein, note 44, p. 529.
of ENMOD without having to abide by its rule. To support this view, it is argued that proposals were rejected during drafting that the Convention apply as an *erga omnes* obligation. An alternative interpretation allows limited protection to non-State Parties in situations where they have been encouraged or assisted by States Parties to undertake actions that contravene the Convention. Such a situation would be a violation of Article I (2) of the Convention and could result in action being brought against the State Party.

### III. Enforcement Mechanism

The ENMOD Convention, can be said, has introduced three enforcement mechanisms.

First of all the Convention invokes the responsibility of states. Under Article 1, "each state party" undertakes not to engage in hostile environmental modification against "other state parties".

State responsibility under the Convention, however, does not include any obligation to make reparation or monetary compensation. Instead, Article 5 (2) obligates the UN. General Secretary to convene a Consultative Committee of Experts at the unilateral request of any state. The Committee is required to assess the situation and present a summary of its findings of fact. The Committee's findings will have a political impact and result in encouraging the offending state to make reparation so as to re-establish its credibility in international community. However, it seems that this is a very soft instrument, as the Committee is not authorized to draw legal conclusions to vote on "matters of substance" or to impose liability.

Second, Article directs states to enact domestic legislation to enforce the Convention in the areas under their jurisdiction or control. However, in a war situation perpetrators are not likely to be concerned about the domestic laws, as the domestic law institutions are working government orders.

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52 *Ibid*.
53 *Ibid*, Article 1, the ENMOD Convention, *note* 41.
55 *Ibid*.
56 *Ibid*, Article 4, the ENMOD Convention, *note* 41.
Thirdly, Article 5 (3) entails any state to party to “lodge a complaint with the Security Council of the United Nations.” If the Security Council decides that the complaining state “has been harmed or is likely to be harmed,” then every other state is obliged to provide assistance or support in accordance with the ... Charter of the United Nations.” This provision, however, does not provide more than what is entitled under Chapter VII of the UN. Charter, according to which, UN. Security Council has the power to interfere. But, the Council's power is conditional on the existence of a “threat to the peace, breach of the peace or act of aggression and this condition will not be satisfied in the case of an act of hostile environmental modification.

IV. Status of the Treaty

There is no consensus whether the ENMOD provisions have reached the status of customary international law. However, it is broadly accepted that the use of environment as a weapon should be banned. The military manuals of some States indicate that it applies to States Parties. Indonesia, which is not party to the Convention, applies the treaty principles in its military manual. Furthermore, the ENMOD rule has been included in the Guideline on the Protection of the Environment in Times of Armed Conflict, a document that the United Nations General Assembly invited all States to disseminate widely. The US has stated that the Convention reflected "the international community's consensus that the environment itself should not be used as an instrument of war." In addition, during a debate at the meeting of the General Assembly's Sixth Committee in 1991, Sweden referred to the destruction of the environment by the Iraqi forces in the First Gulf War as being "an unacceptable form of warfare in the future."

57 Ibid, Article 5 (3).
58 Ibid, Article 39.
59 See Anthony Leiber, note 15, p. 84.
61 Ibid.
62 Ibid.
63 Ibid.
64 Ibid, p.156.
Canada supported this view, stating that "the environment as such should not form the object of direct attack".  

2. Additional Protocol I 1977

The second law of war instrument directly referring to the environment and addresses environment protection during armed conflict in a broad way is the Protocol Additional to the Geneva Conventions 1949, and Relating to the Protection of Victims of International Armed Conflicts (hereinafter, Additional Protocol I 1977) which came into force in 1977. As with the ENMOD Convection, these rules were inspired by the environmental devastation of the Vietnam War.

I. General Obligations

The Protocol provides direct protection for the environment during armed conflict in two provisions.

Articles 35 and 55 deal specifically with the question of damage to the natural environment, which is distinct from the manipulation of the forces of the environment as weapon addressed in the ENMOD Convention. Article 35, which is in a section on "Methods and Means of Warfare" provides:

1- In any armed conflict, the right of the parties to the conflict to choose methods and means of warfare is unlimited.

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65 Ibid.
66 The Protocol Additional to the Geneva Conventions 1949, and Relating to the Protection of Victims of International Armed Conflicts adopted on June 8, 1977 by the Diplomatic Conference on the Reaffirmation and Development of international humanitarian law applicable in Armed Conflicts. The protocol entered into force on December 7, 1979 (six months after its adoption by the conference) and is binding for a country six months after it has ratified it. As of 14 January 2007 it had been ratified by 167 countries, with the United States, Israel, Iran, Pakistan and Afghanistan and Iraq being notable exceptions. However, the United States, Iran and Pakistan signed it on 12 December 1977 with the intention of ratifying it. The U.S. Main reason for objection is that the protocol extends Geneva Conventions protection to those it regards being "unlawful combatants" and terrorists. The U.S. has to date not ratified Protocol I although much of its central precepts have been incorporated into the U.S. Army's Field Manual, The Law of Land Warfare. For a list of current Protocol I signatories, available [Online: Web], accessed on 20 August, 2008, URL: http://www.icrc.org/ihl.nsf/WebSign?ReadForm&id=470&ps=P.
2- It is prohibited to employ weapons, projectiles and materials 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 widespread, long-term and severe damage to the natural environment.67

This Article prohibits States Parties to use methods or means of warfare causing “widespread”, long-term and severe damage to the natural environment”. This Article deals with situations in which such damage to the natural environment is produced by the international use of warfare and where such consequences are foreseeable.

The second provision referring specifically to damage to the environment states:

1- Care shall be taken in warfare to protect 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 and the survival of the population.

2- Attacks against the natural environment by way of reprisals are prohibited.68

This Article representing a governing principle that requires that the effects or repercussions of permitted actions do not result in escalating or otherwise producing the prohibited “widespread, long-term and severe damage to the natural environment.

As the word “intended” and phrase “may be expected” imply, mere inadvertent collateral environmental effect of an attack does not come within the scope of the prohibition.69 As long as the damage to the natural environment and prejudice to the

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67 Ibid., Article 35.
68 Ibid., Article 55.
health and survival of the population is neither intended nor expected the Protocol is not
violated. 70

Article 35 sets out the general rule applicable to all acts of warfare, whereas
Article 55 is intended to protect the civilian population from the effects of warfare on the
environment. In both cases the following are prohibited: (a) attacks on the environment as
such, and (b) using the environment as an instrument of warfare. Article 35, paragraph 3,
and Article 55 prohibit only such damage to the environment as is "widespread, long-
term and severe", thereby making it clear that not all damage to the environment is
outlawed. Indeed, damage to the environment is unavoidable in war. The point at issue,
therefore, is where to set the threshold.

Unlike many other clauses of the Protocol, article 55(1) employs the expression
“population” unaccompanied by the adjective “civilian”. This underscores that the whole
population, whether combatant or non-combatant, is alluded to. 71

The Protocol does not define the phrase “natural environment”. The ICRC Commentary
suggests that it “should be understood in the widest sense to cover biological
environment in which a population is living”- i.e. the fauna and flora – as well as
“climate elements”. 72 In addition to addressing specifically damage to the natural
environment, this Protocol contains extensive provisions protecting the civilian
population and civilian objects. Many of them, while not mentioning the environment by
name, do in fact prohibit certain forms of military action destructive of the environment.

Article 48, entitled “'basic Rule”, states:

The parties to the conflict shall at all times distinguish between the civilian
population and combatants and between civilian objects and military objectives and
accordingly shall direct their operations only against military objectives.”

Article 54, on “general protection of Civilian Objects,” similarly provides a
framework for protecting civilian objects:

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70 Ibid.
71 Ibid.
Protocol of 8 June, 1977 to the Geneva Conventions of 12 August 1947,(Geneva; ICRC/Martinus
It is prohibited to attack, destroy, remove or render useless objects indispensable to the survival of the civilian population, such as foodstuffs, agriculture areas for the production of foodstuffs, crops, livestock, drinking water installations and supplies and irrigation works, for the specific purpose of denying them for their sustenance value to the civilian population or to the adverse Party, whatever the motive, whether in order to starve out civilians, to cause them to move away, or for any other motive.

Thus, Protocol I's protection of environment is not at all restricted to the two articles that actually mention the environment. Similarly, in article 56, dealing with "Protection of Works and Installations Containing Dangerous Forces," paragraph 1 state: Works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Other military objectives located at or in the vicinity of these works or installations shall not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.

This article is qualified by the second paragraph, which in effect says that the protection it offers ceases if the military objective in question is used in regular, significant, and direct support of military operations. Thus, the article does not give total immunity from attack. Where hydro electric generating stations or nuclear power plants are contributing to a grid in regular, significant, and direct support of military operations, militarily necessary attacks against them are not prohibited. Despite this qualification, during the 1980s the US government argued that the article gave too great a degree of immunity to dams, dikes, and nuclear electrical generating stations. A further US criticism was that the provisions of Article 56 could be construed as preserving "the right of a defender to release dangerous forces to repel an attacker."\footnote{For a detailed and impressive critique of Article 56 see W. Hays Parks, "Air War and the Law of War", \textit{Air Force Law Review}, Vol. 32, 1990, pp. 221-281.}
II. Implementation Mechanism

First of all, Article 7 of the Additional Protocol I, provides for meetings of the High Contracting Parties to consider problems concerning the application of the Conventions and of the Protocol. It was pursuant to this provision that Switzerland, the depositary of the Conventions and the Protocols, convened an International Conference for the Protection of War Victims, held in Geneva from 30 August to 1 September 1993. That extraordinary meeting, replacing in part the International Conference of the Red Cross and Red Crescent, which had been unable to meet since 1986, provided an opportunity to tackle the main implementation problems of the moment and to propose remedies.

Another point is the greater degree of responsibility assigned to commanders. Under Article 87, commanders are required “to prevent and, where necessary, to suppress and report to competent authorities breaches of the Conventions and of this Protocol”. This is a just and heavy responsibility, but one which is not sufficiently well known and is therefore neither duly observed nor complied with.

Article 90 of Protocol I bring a new control mechanism to international humanitarian law: the International Fact-Finding Commission. The 1949 Conventions did include the idea of an inquiry, but it was never put into effect. The Fact-Finding Commission constitutes an effort to remedy the shortcomings of the Conventions system, making it mandatory in particular to accept an inquiry concerning any allegation of a serious violation of international humanitarian law. This is a new and powerful means of imposing respect for international humanitarian law. It still has two weaknesses, however: first, a State is not bound by simply acceding to the Protocol; it has to make a declaration specifically accepting the Commission’s competence. By 31 October 1997, out of 148 States party to Protocol I, only 50 had made such a declaration. This is why a major promotion effort still needs to be made. The other weakness concerns its material competence, for the Commission is empowered to inquire only into situations falling within the scope of Protocol I, which is international armed conflicts. Yet most of the

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74 On the role of the Conference, see Articles 8-11 of the Statutes of the International Red Cross and Red Crescent Movement.

tragedies of recent times have taken place in the course of civil wars or hybrid situations of violence. Therefore, an effort should now be made to extend the Commission’s field of competence.

The fourth and last development is the extension of acts qualified as grave breaches or war crimes, defined in Articles 11 and 85 of Protocol I. These new war crimes include:

- Attacks on the civilian population or on individual civilians.
- Attacks against works or installations containing dangerous forces (such as nuclear energy).
- Forced deportations or transfers of population; Attacks against monuments constituting the cultural or spiritual heritage of people;
- Denial of the right to a fair and regular trial.

The acts thus, designated by the Protocols, together with the serious breaches listed in the Conventions, constitute an appropriate penal response to the most reprehensible acts committed in wartime.

III. Status of the Treaty

Can Protocol’s key rules on the environment be said to reflect customary law, and thus be binding anyway? A number of the general rules that have implications for the environment, including Article 48 and much of Article 52, are widely accepted as customary law. There is also no doubt that articles 35 (3) and 55 (1) constitute an innovation in international humanitarian and environmental law at the time of their adoption and they are binding on States Parties to the Protocol. However, it is unclear whether these provisions are considered to be part of customary international law.

There is ample evidence showing that it has reached such status, as causing such damage to the environment has been expressly prohibited in many state military

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77 Yoram Dinstein, note 44, p. 532.
manuals and legislated as an offence in a number of States. Before the ICJ in the Nuclear Weapons Cases, States argued that they considered Articles 35(3) and 55 to be customary, and that any party to a conflict must observe them, or must avoid using methods or means of warfare that would destroy or could have disastrous effects on the environment. The United States also stated that “US practice does not involve methods of warfare that would constitute widespread, long-term and severe damage to the environment.” The three criteria in Article 35(3) were also reflected in the war crimes provisions of the Rome Statute.

There is also considerable practice negating the customary status of these Protocol provisions. In the Nuclear Weapons case, the United Kingdom and the United States both argued against the customary status of the Article and the Court itself appeared to consider the rule not being of customary law. The Court in the above mentioned Nuclear Weapons Advisory Opinion enunciated that the provisions of the protocol “provide additional protection for the environment” and “[t]hese are powerful constraint for all the States having subscribed to these provisions.” In 2000, the Committee Established to Review the NATO Bombing Campaign against the Federal Republic of Yugoslavia stated that article 55 “may reflect current customary international law, however noted that the International Court of Justice appeared to suggest that it does not”.

A major difficulty in establishing the customary status of these Protocol provisions is the position of the French, United Kingdom and United States. They have persistently objected to these rules forming customary law as they apply to nuclear weapons. They have each indicated through military manuals or reservations to the Protocol upon ratification that the rules apply to them only in regards to conventional weapons, but not

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78 See for example, Argentina, Australia, Canada, Germany, Kenya, New Zealand, Russia, United Kingdom, and United States.
79 See For example, the legislation of Australia, Azerbaijan, Belarus, Canada, Congo, Croatia, Germany, Netherland, New Zealand, and U.K.
80 See United States, Letter from Department of the Army to the Legal Advisor of the US Army forces deployed in the Gulf Region. See, J.M. Henckaerts & L. Doswald-Beck, note 47, p. 171
nuclear weapons.\textsuperscript{84} It seems most likely therefore that the position of the ICRC in the Study on Customary International Humanitarian Law is the correct approach. It concluded in light of such statements and practice, Article 35 (3) and 55 are of customary nature only in regards to conventional weapons, but not nuclear weapons.\textsuperscript{85}

At any event, of all the law of war sources which have been cited, Protocol I has the strongest provisions limiting damage to the environment. As has been seen, these provisions are not limited to one or two articles but permeate many parts of the agreement. However, because some important states are not yet parties, and because of doubts about the customary law status of some of its provisions, there is a need for caution about the extent to which it should be applied as a basis for proclaiming the illegality of certain acts of environmental implication.\textsuperscript{86}

IV. Comparing ENMOD Convention and Additional Protocol I

It is important to be aware that these two treaty regimes have different applications, purposes and thresholds, with no substantive overlap.

The Protocol focuses on the natural environment regardless of the weapon that is used. The ENMOD Convention, on the other hand, aims to prevent hostile use of environmental modification techniques.\textsuperscript{87} The Protocol can be said to be protecting the environment (‘environment as the victim’), whereas the ENMOD Convention protects the manipulation of the environment (‘environment as a weapon’). Furthermore, the Protocol protects the environment from unintentional and incidental damage, provided that damage can be expected, whereas the ENMOD Convention only protects against deliberate damage inflicted during the course of warfare.\textsuperscript{88}

Protocol I is narrower in scope than the ENMOD Convention. The Protocol applies only to international armed conflicts\textsuperscript{89} Non-international conflict is governed by its counterpart instrument Protocol II.\textsuperscript{90} The ENMOD Convention, however, is applicable in to any situation in which an environmental modification technique is intentionally

\begin{small}
\textsuperscript{84} J.M. Henckaerts & L. Doswald-Beck, note 61, p. 134.
\textsuperscript{85} Ibid.
\textsuperscript{86} Adam Roberts, note 75, p. 64
\textsuperscript{87} Ibid, p. 59.
\textsuperscript{88} Yoram Dinstei, note 44, p. 541
\textsuperscript{89} Article 1 para. 3 of the Additional Protocol I, note 13.
\textsuperscript{90} Additional Protocol I, note 13.
\end{small}
resorted to for military or hostile purposes and inflicts considerable injury to on another state party. The Convention covers the case of a non-international armed conflict, where the weapon is used intentionally against a domestic foe and causes cross - broader environmental damage to another state party.91

The threshold of the two treaties differs. The Protocol takes a cumulative approach, requiring that the affect on the environment is "widespread, long-term, and severe". The ENMOD Convention, however, provides that either of those three criteria are satisfied, requiring only that the affect on the environment be 'widespread, long-term, or severe'. The Convention therefore has a broader application. Further more; the two treaties bearing different meanings to the three threshold requirements. The meaning of these terms in the ENMOD Convention was the subject of a 1976 Understanding of the Committee on Disarmament at Geneva.92 In conformity with the Understanding, 'widespread' encompasses a geographic area of several hundred square kilometers; 'long lasting' requires the effect to last for a period of months, or over a season; 'severe' involves serious or significant disruption or harm to human life, natural and economic resources or other assets. In contrast to the ENMOD Convention, no definitions were provided for. In contrary, the mentioned Understanding explicitly states that its definitions are intended "exclusively" for the ENMOD Convention and they do not "prejudice the interpretation of the same or similar terms" when used in any other international agreement.

Despite such differences in these treaties, they are generally viewed as complementary and dealing with different areas of the law.

3. The Hague Conventions Respecting the Laws and Customs of War on Land of 1899 and 1907

The 1899 and 1907 Hague Conventions93 provide that "the right of belligerents to adopt means of injuring the enemy in not unlimited." 94 Article 23 (g) of the 1907 Hague

91 See Yoram Dinstein, note 44, p.540.
92 Adam Robert, note 75, p. 58.
93 The Hague Conventions are part of The Hague law, which is consisting of the treaties adopted by the Hague conferences. The First Hague Peace Conference that held in 1899 resulted in three conventions: for the peaceful adjustment of international differences; regarding the laws and customs of war on land; and for the adaptation of maritime warfare of the 1864 Geneva
Convention prohibits the destruction or seizure of the enemy's property, unless it is imperatively demanded by the necessities of war.95

Some Scholars consider Article 23 (g) of the 1907 Hague Convention as an adequate instrument for protection of the environment, because the environmental resource of a country is the property of a state or of its citizens, which the Article seeks to protect.96 It can, however, be argued that this provision, does not offer real protection to environment, as it justifies the wanton destruction of the environment, when military necessity arises. For Example, in World War II, the German General Lothar Rendulic ordered the evacuation of all the inhabitants in Finmark province, Norway, and destroyed all villages.97 The Tribunal exculpated him on the basis that military necessity justified his action at that time.

Likewise, Article 23 (a) of the 1907 Hague Convention prohibits the use of poisonous weapons, stating that it is “specially forbidden to employ poison or poisoned weapons.” Article 23 (b) also prevents the unnecessary suffering of civilians and combatants.98

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Convention. There were also three declarations: to prohibit the launching of projectiles and explosives from balloons or by other similar new methods; to prohibit the use of projectiles, the only object of which is the diffusion of the asphyxiating or deleterious gases; and to prohibit the use of bullets which expand or flatten easily in the human body (dum-dum bullets). A second Hague Peace Conference was held in 1907. This conference revised the three 1899 conventions and adopted ten new conventions: respecting the limitation of the employment of force for the recovery of contract debts; relative to the opening of hostilities; relative to the status of the enemy merchant ships at the out-break of hostilities; respecting the rights and duties of neutral powers and persons in case of war on land; relative to the conversion of merchant ships in to warships; relative to the laying of automatic submarine contact mines; respecting bombardment by naval force in time of war; relative to the creation of an international prize court; and concerning the rights and duties of neutral powers in naval war. The 1899 declaration prohibiting the discharge of projectiles and explosives from balloons was also revised. See Keith Suter, An International Law of Guerrilla Warfare: the Global Politics of Law – Making, Palgrave Macmillan (May 1984), p.5-6.


96 The Hague Convention (IV) Respecting the Laws and Customs of War on Land, Oct. 8, 1907, annex art. 23 (g), note 7.


Moreover, both the 1899 and 1907 Hague Conventions put the invaders in the position of "administrator and usufructuary of the public buildings, real property, forests and agricultural works belonging to the hostile state and situated in the occupied country" and require the invaders to "protect the capital of these properties." The Annexed Regulations of the 1899 Hague Convention II and the Annexed Regulations of the 1907 Hague Convention IV have enumerated more actions to be prohibited, including actions that cause unnecessary suffering or destroy the enemy’s property, towns and cultural artifacts. Under these Regulations, it is prohibited to destroy or seize the enemy’s property, unless such destruction or seizure is imperatively demanded by the necessity of war. In addition, Article 27 of the Annexed Regulations of the 1899 Hague Convention II and the Annexed Regulation of the 1907 Hague Convention (IV) provide protection for the cultural monuments and charitable enterprises.

In order to update the humanitarian provisions, 42 years later, the Geneva Law appeared. It included much more specific environmental protection provisions and became the source for more effective humanitarian protection including environment.

4. 1949 Geneva Conventions

The four 1949 Geneva Conventions are concerned above all with the task of protection of victims of war. However, one of these agreements, 1949 Geneva Convention IV (the Civilian Convection) contains a large numbers of provisions bearing on the protection of environment. It builds on the similar provisions of the 1907 Hague Regulations in such matters as its general prohibition of pillage (Article 33), and in several provisions of the section on occupied territories, especially Article 53: "Any destruction by the occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social

99 Ibid., art. 23; The Hague Convention (II) of 1899, Annex, note 94, art. 23.
100 Ibid.
101 The Hague Convention (II) of 1899 and its annex, note 94, art. 23 (1) (g); The Hague Convention (IV) and its annex, note 7, art. 23 (1) (g).
102 The Hague Convention (II) of 1899, Annex, art. 27; The Hague Convention (IV) of 1907, Annex, art. 27.
or co-operative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military organizations.”

The ICRC commentary on this article contains the following assessment on the question of “scorched earth” policies:

A word should be said here about operations in which military considerations require recourse to a “scorched earth” policy, i.e. the systematic destruction of whole areas by occupying forces withdrawing before the enemy. Various rulings of the courts after the Second World War held that such tactics were in practice admissible in certain cases, when carried out in practice admissible in certain cases, when carried out in exceptional circumstances purely for legitimate military reasons. On the other hand the same rulings severely condemned recourse to measures of general devastation whenever they were wanton, excessive or not warranted by military operations.  

Article 147 of 1949 Geneva Convention IV and similar articles in Conventions I and II, confirm that grave breaches of the Convention include “extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly”. This provision has some application in armed conflict generally, as well as in occupied territory. Such prohibited destruction could include much that has serious environmental effects.

These provisions were the basis for charge of war victim against ten German civilian administrators of Polish forests during a period of belligerent occupation (1939-1944) in the course of World War II. Nine of these Germans were accused of war crimes by the United Nations War Crimes Commission at Nuremberg, because of their implementation of a Nazi policy “of ruthless exploitation of Polish forestry”, which was treated as “pillaging”, and involves “the wholesale cutting of Polish timber to an extent far from what was necessary to preserve the timber resources of the country.”

A critical question that arise from the cited provisions of the 1907 Hague Regulations and of the 1949 Geneva Convention IV concerns the extent to which the term “property” can be interpreted to encompass public goods (not necessarily under specific ownership) such as common land, forests, the atmosphere, water resources, and

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the open seas. Assuming that “property” can be interpreted in a broad manner, the cited provisions may constitute the strongest ground for asserting the illegality of a great deal of wanton environmental destruction in war.

The fact that this prohibition is contained in a treaty that has virtually universal acceptance by states, and is indisputably in force in international wars, adds to its significance. However, note that Article 53 of the 1949 Geneva Convention IV (quoted above) permits a belligerent to destroy property to the extent “rendered absolutely necessary by military operation”. Such a criterion confines the legal prohibition to wanton or superfluous destruction. This is a subjective criterion; hence the regulatory effects are likely to be modest. Only in retrospect, and then by victors in relation to losers in war, would wanton destruction of natural surroundings or resources seem to create a basis for legal accountability. As a result, unconditional security interests on the basis of military necessity would prevail environmental consideration and lead to the disregard of environmentally destructive effects.106

5. The 1954 Hague Convention

The 1954 Convention for the Protection of Cultural Property in the Event of Armed Conflict [hereinafter 1954 Hague Convention]107 adopted in the backdrop of widespread and massive destruction, looting and pillage of European cultural heritage during the Second World War. Its purpose was to prevent destruction and theft of cultural material that have become common in modern warfare.108 The Convention, comprising 40 articles represents the first international attempt to constitute a comprehensive legal framework to protect cultural property, as an important element of environment, during armed conflict.

The Convention applicable in international109 as well as non-international110 armed conflicts, seeks to protect a broad range of objects, including groups of historic buildings,

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106 Ibid.
109 The 1954 Hague Convention, note 107, Article 18 (1).
110 Ibid, Article 19 (1).
archaeological sites, and centers containing a large amount of cultural property. Provides two tiers of protection for this element of the environment: general protection and special protection. Provisions pertaining to general protection have been dealt with in Chapter I, containing Articles 1 to 7 of the Convention and Chapter II, comprising of Articles 8 to 11, regulates the concept of special protection.

In the event of an armed conflict, section 4 provides for the protection by imposing various obligations on the State parties. During an armed conflict State parties are under an obligation to show respect for cultural property situated within their own territory as well as within the territory of other state parties. They are refrained from using such cultural property and its immediate surroundings or appliances in use for its protection for purposes which are likely to expose it to destruction or damage. They are also required to refrain from any act directed by way of reprisals against cultural property.

The Convention provides for possible panel action against violations of the treaty as follows:

\[\text{The High Contracting parties undertake to talk, within the framework of their ordinary criminal jurisdiction, all necessary steps and impose penal or disciplinary sanctions upon those persons, of whatever nationality, who commit or order to be committed a breach of the present Convention.}^{113}\]

The above provision itself does not provide any punishment to those who violate the term of the Convention. It encourages State parties to prosecute and impose panel sanctions on violator by adopting appropriate domestic legislation. As it argued that inconsistency in implementation of domestic laws could result in a chaotic system where traffickers would prefer to work in countries with more lenient legislation. Thus the main problem with this Convention, which exposed more by the war in the former Yugoslavia, has been the lack of effective mechanism for responding to violations.

The Second Hague protocol, opened for signature at the Hague on May 17, 1999, supplements the 1954 Convention in a number of ways, which include elaborating the

\[\text{\textit{Ibid}, Article 4 (1).}^{111}\]
\[\text{\textit{Ibid}, Article 4 (4).}^{112}\]
\[\text{\textit{Ibid}, Article 6.}^{113}\]
\[\text{Joshua M. Zelig, note 105, pp. 297-298.}^{114}\]
principles of individual criminal responsibility and universal jurisdiction, and establishing regular procedure for implementation.

6. 1972 Biological Weapon Convention

The Biological Weapons Convention\textsuperscript{115} completely prohibits developing, producing, stockpiling, or otherwise acquiring or retaining all bacteriological (biological) and toxin weapons, and associated weapons, equipment, or means of delivery. Such weapons are of a type that could have a serious impact on the environment, not least by rendering large areas uninhabitable. The mechanisms for monitoring the implementation are minimal, apart from the explicit provision in Articles VI and VII for UN Security Council involvement in receiving and acting upon complaints of violations.

7. 1980 Protocol annexed to the Convention on Conventional Weapons

The preamble of the UN Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects\textsuperscript{116} repeats the exact words of protocol I, Article 35(3), which were quoted in full above; and also recalls a number of other general principles which could have a bearing on environmental damage. Protocol on Prohibition or Restrictions on the Use of Incendiary Weapons [hereinafter Protocol III] annexed to the Conventional Weapons also has bearing on protection of environment. The Protocol deals with incendiary weapons, in its Article 2 (4), states that:


It is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives.

This is a very limited provision, applying only to "forests or other kinds of plant cover" and granting protection not against attacks in general but only those by incendiary weapons. Furthermore, the protection terminates upon the enemy's utilization of the forest for cover, concealment or camouflage. It also provides that if the forest is used in military operations, it is a legitimate target. Even though this provision has a very narrow application, it is significant because it protects a specific portion of the environment from a particular type of weapon. The Protocol however is not accepted as customary international law.

8. 1993 Chemical Weapons Convention (CWC)

The Chemical Weapon Convention similarly prohibits all development, production, stockpiling, etc. of a wide range of weapons of a type that could have a serious impact in the environment. The seventh preambular paragraph of the CWC recognizes "the prohibition, embodied in agreements and relevant principles of international law, of the use of herbicides as a method of warfare."

The herbicides (chemical defoliants), for the first time, used by the United States during the Vietnam War for military purposes; i.e., in order to prevent the freedom of movement and deny enemy to take sanctuary in dense forests, which caught wide attention. It was conceded by the United States that resort to herbicide can come under the ENMOD prohibition, but only if it upsets the ecological balance of a region. Even this proposition was challenged on the ground that though it is destructive of one element

118 Yoram Dinstein, note 44, p. 537.
120 Ibid, 7th preambular paragraph.
121 See Yoram Dinstein, note 44, pp. 538-539.
of environment, does not reach at the level of a “manipulation of natural process”. Consequently, herbicides omitted from the definition of banned chemical weapons, though it was kept on the preamble. Interestingly, the United States - although did not accept the inclusion of herbicides under the CWC’s prohibitions - has "formally renounced the first use of herbicides in time of armed conflict", except within US installations or around their defensive perimeters. What is of greater importance however, according to Dinstein, is the reference to 'relevant principles of international law' as this creates an "inescapable connotation" that the prohibition of use of herbicide in armed conflict is now embodied in customary international law.

9. 1997 Ottawa Anti-Personnel Mine Convention

The Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction,\textsuperscript{122} concluded at Oslo on September 18, 1997 and opened for signature in Ottawa in December 1997, goes further, prohibiting all use, development, production, stockpiling, and transfer of anti-personnel mines. Its Article 5 provides for clearance of mined areas. Since the treaty provides for a total ban of anti-personnel mines by participating states, it prohibits the use of such weapons in civil as well as international wars. However, it does not limit all types of landmines, and many major countries (China, India, Pakistan, Russia, and the United States) are not parties.

10. 1998 Rome Statute

The Statute of the international Criminal Court (ICC), adopted in Rome on July 17, 1998,\textsuperscript{123} is of course not primarily concerned with defining new crime, but rather with seeing to implementation of existing law. Its useful summary of war crimes (Article 8) is

\textsuperscript{122} The Ottawa Treaty or the Mine Ban Treaty, formally the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, bans completely all anti-personnel land mines (AP-mines). As of 2007; it has been signed/accessioned by 158 countries. Thirty-seven states, including the China, India, Russia and the United States, are not party to the Convention. See \url{http://www.icrc.org/Web/eng/siteeng0.nsf/html/57JR4X}.

\textsuperscript{123} The Statute of the international Criminal Court (ICC), UN Doc. A/Conf.183/9 (1998), reprinted in: Rule of International Humanitarian Law and Other Rules Relating to the Conduct of Hostilities, note 7, pp. 94-102, available also [Online:Web], URL: \url{www.icc-cpi.int/library/about/officialjournal/Rome_Statute_120704-EN.pdf}
essentially based on existing treaty law. It refers to several prohibitions that have relevance to environmental protection. These include, as provided in the 1949 Geneva Convention IV: “extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly.” The Statute summary of provisions of Protocol I includes “intentionally directing attacks against civilian objects, which are not military objective.” And also:

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 concrete and direct overall military advantage anticipated.\textsuperscript{124}

This is similar to the provision in the Protocol, but there is a significant modification as regards the protection of the environment:

The Statute requires both intention and knowledge of the outcome, while the Protocol requires either intention or expectation. Thus, according to the Statute, an individual criminal responsibility and liability for punishment will be established if the individual acting with both knowledge and intent.\textsuperscript{125}

\textbf{IV. Soft International Law}

Soft law is recognized as a significant element of public international law and a very rich source for the environmental law. Soft law rules are not compulsory and do not bring any binding commitment. Nevertheless, they have legal significance: the development of soft law rules can facilitate the eventual adaptation of hard law. In particular, “the basic role of soft law is to raise expectation of conformity with legal norms, and to create uniformity in the creation of these norms. Once there is compliance with a uniform legal norm, the formation of binding hard law is a relatively simple task.”\textsuperscript{126}

\textsuperscript{124} \textit{Ibid}, Article 8 para. 2 (b) (IV).
\textsuperscript{125} See Yoram Dinstein, \textit{note} 44, p. 536.
States are the bodies that are capable of creating hard law as well as soft law. The soft law, however, can also be created by NGOs.\textsuperscript{127} For instance, the International Association (ILA), the Institute of International Law (IIL), IUCN or ICRC can propose or adopt soft law rules. Non-binding agreements, voluntary code of conduct for transnational corporations, and resolutions of international organizations, such as U.N. General Assembly resolutions are the examples of soft international law rules.\textsuperscript{128}

A further protection of the environment can be found in soft international law. Broad statements issued at international conferences. Principle 21 of the Stockholm Declaration of 1972 and Principle 2 of the Rio Declaration 1992 express the common conviction of States concerned that they have a duty "to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."\textsuperscript{129}

Furthermore, principle 23 of the Rio Declaration states:

The environment and natural resources of people under oppression, domination and occupation shall be protected.\textsuperscript{130}

Principle 24 states:

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.\textsuperscript{131}

The 1982 World Charter for Nature adopted by UN General Assembly by a vote of 118 in favor and 1 against (with 18 abstentions), in its first operative section Para. 5 states that "nature shall be secured against degradation caused by warfare or other hostile activities." Paragraph 11 also seems relevant:

\textsuperscript{127} Ibid., p. 182.
\textsuperscript{128} Blaine Sloan (1987), General Assembly Resolutions Revisited (Forty Years Later), BRIT. Y. B. INT’L L. vol. 39, p. 106.
\textsuperscript{130} Rio Declaration, Principle 23.
\textsuperscript{131} Rio Declaration, Principal 24.
Activities which might have an impact on nature shall be controlled, and the best available technologies that minimize significant risk to the nature or other adverse effect shall be used; in particular:

(a) Activities which are likely to cause irreversible damage to nature shall be avoided;
(b) Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed.\(^\text{132}\)

The International Court of Justice (ICJ) in the *Nuclear Weapon Case* made special note of the UN General Assembly Resolution on the Protection of the Environment in Times of Armed Conflict\(^\text{133}\), which affirms that environmental considerations constitute one of the elements to be taken in to account in the implementation of the principles of the law applicable in armed conflict.

The Resolution also upholds that "destruction of the environment, not justified by military necessity and carried out wantonly, is clearly contrary to existing international law".\(^\text{134}\)

Among the international soft law rules the ICRC Guidelines is of particular significance.

**ICRC Guidelines**

As it become clear, there are many rules, drown from a wide variety of sources that have bearing on the environmental protection during armed conflict. During the 1990\(^5\), however, it was widely noted that there is a shortage of clear and succinct summaries of their provisions. The majority of international lawyers who looked at the matter, United Nations and ICRC favored the course that there is no need to negotiate a new convention,

but rather a particular effort should be made to increase compliance with existing rules and to improve their implementation.\textsuperscript{135}

On 9 December 1991, the United Nations General Assembly concluded its deliberations on item 140 of its agenda ("Exploitation of the environment as a weapon in times of armed conflict and the taking of practical measures to prevent such exploitation") with the adoption of decision 46/417, in which the General Assembly suggested further consideration of environmental protection in war time, in conjunction with the ICRC.\textsuperscript{136}

The ICRC, accordingly, convened a meeting of experts on the protection of the environment in time of armed conflict, held in Geneva in April 1992, and on June 30 submitted a report to the UN General Assembly. This report emphasized the need to observe existing law in this area, and the ICRC's continued willingness to address the matter. The report argued that existing law was sufficient to adequately protect the environment and that any deficiencies were generally due to improper implementation. It was viewed that new codification efforts would "be of dubious value and could even be counter-productive," although it was acknowledged that existing law may benefit from further elaboration, clarification and development. It also identified a number of issues for further research and action.\textsuperscript{137}

On the basis of this report, UN General Assembly, in November 1992, adopted a resolution which was the General Assembly's most important pronouncement on the subject.\textsuperscript{138} It recognized the importance of the 1907 Hague Convention IV and the 1949 Geneva Convention IV, as well as later agreements. The resolution in its preamble unambiguously stated "that destruction of the environment, not justified by the military

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\textsuperscript{136} UN General Assembly in its Decision 46/417 of Dec.9, 1991, requested the Secretary General to report on activities undertaken in the framework of the ICRC regarding protection of the environment in time of armed conflict. See also GA Res. 46/54 of the same date, which referred to the Draft Code of Crimes against the Peace and Security of Mankind, adopted by the International Law Commission, Article 26 of which sought to declare criminal "an individual who willfully cause or orders the causing of widespread, long-term and severe damage to the natural environment." Y.B. United Nations, Vol. 45, 1991, pp.823; 848-849.


necessity and carried out wantonly, is clearly contrary to existing international law," and then in its operational part announced that the General Assembly:

Urges States to make all measures to ensure compliance with the existing international law applicable to the protection of the environment in times of armed conflict;
Appeals to all States that have not yet done so to consider becoming parties to the relevant international conventions;
Urges States to take steps to incorporate the provisions of international law applicable to the protection of the environment into their military manuals and to ensure that they are effectively disseminated.\(^{139}\)

After 1992, the UN General Assembly put the issue on a back-burner called “United Nations Decade of International Law,” and remained content to express support for work done under ICRC auspices. The ICRC, following two further meetings of experts in January and June 1993, produced a new report defining the content of existing law, identifying problems of implementation, suggesting what actions need to be taken, and drawing up model guidelines for military manuals.\(^{140}\) These ICRC/UNGA guidelines, as revised in 1994 in the light of comments from governments, are a useful summation of existing law.\(^{141}\) In resolutions in 1993 and 1994, the General Assembly particularly supported the emphases on guidelines for such manuals; and in 1994 it in effect endorsed the guideline

The Guidelines, as mentioning at its introductory part, are intended as a tool to facilitate the instruction and training of armed forces in regards to the protection of the natural environment: an often neglected area of international humanitarian law. They are nothing more and nothing less than a summary of the existing applicable international

\(^{139}\) Ibid.


\(^{141}\) The revised ICRC/UNGA text, “Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict,” was issued as an annex to UN Doc. A/49/323 (Aug. 19, 1994).
rules which must be known and respected by members of the armed forces.\textsuperscript{142} The Guidelines drafted by the ICRC should not be considered as a blueprint for a new codification. Their sole aim is to contribute in a practical and effective way to raising awareness of a precious asset which merits respect and protection even - or especially - in time of armed conflict.

The guidelines have considered the principle of distinction and the principle of proportionality as the general principles of international law applicable in armed conflict provide protection to the environment. Accordingly, only military objectives may be attacked and no methods or means of warfare which cause excessive damage shall be employed. It also provided that “International environmental agreements and relevant rules of customary law may continue to be applicable in times of armed conflict to the extent that they are not inconsistent with the applicable law of armed conflict.”\textsuperscript{143}

Then, the guidelines highlights some specific rules that governing environmental protection. These include:

\begin{itemize}
\item[a.] Destruction of the environment not justified by military necessity violates international humanitarian law. Under certain circumstances, such destruction is punishable as a grave breach of international humanitarian law.
\item[b.] States should avoid to make forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives; attack on objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas or drinking water installations, if carried out for the purpose of denying such objects to the civilian population; attacks on objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas or drinking water installations, if carried out for the purpose of denying such objects to the civilian population; and attacks on objects indispensable to the survival of the civilian population, such as foodstuffs, agricultural areas or drinking water installations, if carried out for the purpose of denying such objects to the civilian population;
\item[C.] The indiscriminate laying of landmines is prohibited. The location of all pre-planned minefields must be recorded.
\end{itemize}

\textsuperscript{142} \textit{Ibid}, para. 1.
\textsuperscript{143} \textit{Ibid}, para. 5.
D. Employing methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment and thereby prejudice the health or survival of the population is prohibited.

E. The 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 is prohibited.  

The Guidelines, finally, on the basis of international humanitarian law treaties, provide various mechanisms - some of them very complex - for implementing these rules. Among these mechanisms it is worth mentioning the following: (1) the international responsibility of States to respect and ensure respect for the obligations under international law applicable in armed conflict; (2) the principle of individual criminal responsibility; (3) the obligation of States to ensure that the provisions of the Geneva Conventions and their Additional Protocols are known as widely as possible; (4) the International Fact-Finding Commission; (5) specific functions assigned to the ICRC to interpret and monitor the implementation of international humanitarian law.

The Guideline is a soft instrument per se. Most of its provisions, however, represent customary international law and thus, they are binding and their breach arise the question of liability.

V. Application of Rules in Civil Wars

Since 1945 at least, civil wars have been much more common than interstate wars. There are many reasons which cause such conflict: Often, however, it is the non-observance of the rights of minorities or other human rights by a dictatorial regime. Another case is the crumbling of all government authority in the country, as a result of which various groups fight each other to come to power. In some cases of such confrontations, they have had serious environmental consequences. They have contributed, for example, to severe famine and to rendering land unusable through the wholesale distribution of antipersonnel mines. Many counter-insurgency campaigns have involved use of defoliants and other measures to make land inhospitable to guerrillas.

144 Ibid, para. 8-12.
The implementation of rules of restraint is often difficult in civil wars, for three reasons. First, such wars are often conducted by forces with minimal training and weak command structures. Second, the aim of parties in such wars is often to drive peoples from their homes and land, an aim which in itself is likely to involve violations of the law of war. Finally, governments and their foreign allies may feel free to engage in actions that would be more open to question if carried out beyond their national borders, and is an undeniably international war. Further, governments may consider their internal adversaries to be criminals, not lawful belligerents.

In formal legal terms, most law-of-war treaties have little or no application to internal conflicts. Before the mid-twentieth century, the principle international agreements governing the law of war covered only armed conflict between states and had no formal bearing on non-international armed conflicts.\(^{146}\)

Certain international agreements have established a basic written regime, which provides that fundamental humanitarian principles may be applicable in non-international armed conflicts. Common Article 3 of the four 1949 Geneva Conventions states that in the case of an armed conflict not of an international character occurring in the territory of one of parties to the Conventions, each party to the conflict shall be bound to apply, as a minimum, certain fundamental humanitarian provisions; but these provisions do not include any provision that protect property or the environment.

The 1977 Additional Protocol II relating to non-international conflicts\(^{147}\) is intended to develop and supplement common Article 3 of the 1949 Geneva Conventions without modifying its existing conditions of application. The provisions of Protocol II with most relevance to environmental protection are Article 14 (protection of objects indispensable to the survival of the civil population) and Article 15 (protection of works and installations containing dangerous forces). These legal provisions are minimal.

\(^{146}\) Adam Robert, The Law of War and Environmental Damage, In: Jay E. Austin and Carl E. Bruch (eds.), note 4, p. 75-76.

The 1996 Amended Protocol II annexed to the 1980 Convention on Certain Conventional Weapons (CCW), states in Article 1 that it applies not only to international armed conflicts, but also "to situations referred to in Article 3 common to the Geneva Conventions of 12 August 1949"—that is, to civil wars. This constitutes a remarkable extension of the scope of application of the CCW Convention, reflecting the huge international concern about the indiscriminate effects of mine lying.

The 1997 Ottawa Anti-Personnel Mine Convention, by committing the states parties not to use, develop, stockpile, or transfer such weapons "under any circumstances," applies equally to civil and international wars.

The 1988 Statute of the international Criminal Court contains within Article 8 a succinct outline of war crimes in non-international armed conflicts. A few bear on the environment, including a prohibition of pillaging and a qualified prohibition of destruction of property: "Destroying or seizing the property of an adversary unless such destruction or seizure be imperatively demanded by the necessities of the conflict."

Of course, apart from the specific provisions mentioned above and despite the fact that the range of international rules binding to non-international conflicts is undeniably limited, insurgent or government authorities involved in civil wars may unilaterally or by agreement declare that they accept at least certain provisions of the law of war, such as the 1949 Geneva Conventions and the law of the war may thereby be relevant to non-international conflict.

VI. The Shortcomings of the Existing Legal Framework

As mentioned earlier, there is a prevailing consensus among international law experts that existing legal norms provide an adequate foundation for environmental protection during armed conflict. This approach appears to be based on several lines of

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150 The Statute of the international Criminal Court (ICC), note 123.
reasoning, *inter alia* and first of all, that the existing framework provide a workable and practical balance between environmental protection goal and the requirements of the military necessity principle; and second, that if the existing norms fully implemented the environmental protection will be strengthened and thus, the greater energy should be devoted to implementation of the existing standards. Furthermore, nay farther restriction in favor of environmental protection would make the important governments, especially that of the United States, to keep them out the process.\(^\text{151}\)

It is certainly true that more work can be done in regard to the implementation of existing environmental norms during war time to protect environment. However, such an outcome seems unattainable on the basis of the existing framework of vague and scattered legal norms and there is a need to adopt a special new convention dedicated exclusively to the subject of environmental protection in war time. The present legal framework does not provide a realistic basis for an acceptable level of implementation in war conditions. It can be said that the existing framework leads to an arbitrary and ad-hoc pattern of enforcement that often tends to be punitive in character.

This section tries to clarify the gaps and limitations that there are in the existing legal framework and challenges that there are on the way to implementation of the existing norms. Then, on the basis of this assessment final conclusion will be drawn.

Difficulties and limitations in the existing legal norms and challenges in the implementation of these norms fall in to four categories: (a) prescriptive and definitional vagueness; (b) normative gap; (c) goal dissonance and (d) enforcement challenges.

**A. Prescriptive and Definitional Vagueness**

The international legal norms for environmental protection during wartime suffer extensively from definitional vagueness. There are many terms that used to setup standard of unacceptable harm but they are surrounded by definitional conundrum.

1. "Widespread", "long-term" and "severe"

\(^{151}\) See Richard Falk, "The Inadequacy of the Existing Legal Approach to Environmental Protection," in: Jay E. Austin & Richard Falk (eds.), *note* 4, p. 137.
Protocol I, ENMOD Convention and The Statute of ICC have used the terms "Widespread", "long-term" and "severe" to establish the norms of prohibited harm to environment. The terminology is generally undefined in Protocol I and The Statute of The ICC and ill-defined in ENMOD. With regard to the Protocol, the ICRC Commentary and other sources of negotiating history provide no indication of what the terminology was intended to mean beyond what is provided by Rapporteur that 'long-term” was understood as measured in decades, which is also vague. The adjective “severe” and “widespread” were left unexplained. On its face, so too is ENMOD. The Committee on Disarmament appended an understanding to ENMOD when forwarding to it to the General Assembly in September 1976, according to which “widespread” encompassing an area on the scale of several hundred square kilometers: “long-lasting” means lasting for a period of months, or approximately a season” and “severe” involving serious or significant disruption or harm to human life, natural and economic resources or other assets.\textsuperscript{152} However this definition is also somewhat problematic. Whereas the definition of 'widespread” and “long-term” are relatively clear, the words “serious or significant” add vagueness of “severe”. As the standard is stated in the disjunctive, this question may be arisen that when would disruption or harm be serious but not significant, or significant but not serious?

The other problem with the compounding terminology is the conjunctive presentation in Protocol I and disjunctive construction in ENMOD. According to Protocol I the threshold of permissible environmental harm is breached when the damaged incurred is widespread and long-term and severe. It sets a much higher standard of injury than ENMOD, which prohibits modification of the environment in such a way as to cause widespread and long-term or severe destruction, damage or injury. Must notably, environmental harm which clearly exceeds two of the standards may not meet the third. For example, the destruction of all members of a species which occupies a limited region

may be "long-term" and "severe" since it is irreversible. But, if the range the species is restricted, the definition of "widespread" might not be satisfied.\textsuperscript{153}

With this confusing prescription, it would be difficult for policy makers and military commanders to foresee accurately when the potential environmental destruction of proposed operation is likely to be judged a breach of either the Protocol I or ENMOD proscription. It is possible that state practice develop such that while generating harm to environment through their operations engage in auto-interpretation leading to environmental harm thresholds so high that violation rarely, if ever, occurs.

That ambiguity is extremely problematic in regard to the application of the ICC Statute, in the criminal context, where the principle of legality requires crimes to be "as specific and detailed as possible. The Article 8(2)(b)(iv) prohibits committing "widespread, long-term and severe damage to the natural environment, but neither the Rome Statute nor its Elements of Crimes defines those terms. As currently written, the Article is too general to provide a safe yardstick for the work of the Court. As a result, it is almost impossible to predict what types of environmental damage the ICC will consider sufficiently devastating to justify conviction.\textsuperscript{154}

From a scientific point of view, another problem with the "widespread, long-term and severe damage" requirement arises. As Tara Weinstein has pointed out regarding the Gulf War:

The ambiguity of these terms is compounded by the scientific difficulties inherent in measuring environmental destruction. In the Kuwaiti oil fields example, the initial reports were extraordinary-devastated ecosystems and farmlands, degraded air quality, and polluted water. In actuality, it not only takes time to assess long-term consequences, but, as with this example, the environmental damage may turn out to be less severe than anticipated. Furthermore, it is greatly disputed how much of the damage arose from Iraqi action and how much was attributable to coalition forces. Finally, environmental damage is hard to assess in terms of

\textsuperscript{153} Micheal N. Schmitt, "War and Environment: Fault Lines in the Perspective Landscape", in Jay E. Austin and Carl E. Bruch, note 4, p. 108.

severity, and given nature's ability to heal itself, difficult to measure in terms of longevity.\textsuperscript{155}

2. The Proportionality Test

Even if "widespread, long-term and severe damage "requirement was more explicitly defined, the expansiveness of its proportionality test would still limit its ability to protect the environment during armed conflict. In the law of armed conflict, the seminal balancing test is the principle of proportionality, the customary international law principle codified in Protocol I Article 51 and 57, Article 8(2)(b)(iv) of the Statute of the ICC and other legal instruments.

There are two basic problems with this standard. First of all, the proportionality standard is weighted far too heavily against finding an attack disproportionate. Optimally, normative balancing test should balance like values. However, proportionality tests are heterogeneous, balancing military against humanitarian values. Proportionality test requires that when expected unavoidable harm to civilians and civilian property exceeds the extent to which the target's damage and destruction foster all military aims, the operation must be canceled or a less destructive weapon system or tactic be employed. In the abstract, this prescription appears easy. In practice, however, the dissimilarity of the military and humanitarian value categories confounds the determination. What, for example, is the value of an aircraft, command and control facility, communication node, or tank in terms of human lives? The crippling of how many children is justified by the destruction of a motor pool in the vicinity of a school?

Contextual paradigm intensifies the problem of proportionality determination. Diminished electrical generating instrument, for instance, is of far greater important in an urban, industrialized area than a remote, rural village. Destruction of a land used for agricultural production is more devastating to a nation that produces its own food than one that relies on food import. If a coastal area is fouled by oil, the collateral damage is likely to be more severe if the site is a poor country's fishing ground, than if it is used for recreation by a wealthy state.

The relative uncertainty surrounding environmental damage aggravates analytical complexity. For example, after Iraq had threatened to use the oil weapon but before it had

\textsuperscript{155} Ibid.
done so, portents of environmental doom were heard from many sites,\textsuperscript{156} which later found by international scientific community that it was exaggerated.\textsuperscript{157} The problem is that a decision maker cannot benefit from post-factum assessments of collateral damage. They must act and be judged; on the evidence in hand at the moment decision is made. Thus, this most protective of normative principle proves difficult to apply.

Second critical limitation of the proportionality test is that it is based on purely subjective determination, making it nearly impossible to find that a perpetrator "knew" her attack would be disproportionate. According to Article 8(2)(b)(iv) of the statute of the ICC a perpetrator violates the proportionality principle only if:

The perpetrator knew that the attack would cause incidental ... widespread, long-term and severe damage to the natural environment and that such ... damage would be of such an extent as to be clearly excessive in relation to the concrete and direct overall military advantage anticipated.

In other words, a perpetrator who launches an attack that is objectively disproportionate will only be criminally responsible under Article 8(2)(b)(iv) if she (1) knew in advance that the attack would cause "widespread, long-term and severe" environmental damage; (2) subjectively foresaw little military advantage to the attack; and (3) consciously concluded that, as a result, the attack would be "clearly excessive." All three requirements, however, are problematic, because it is difficult to imagine how the Court could ever conclude that a perpetrator knew in advance that her intended attack would cause "widespread, long-term and severe damage" to the nonhuman environment. First, as discussed above, the terms "widespread," "long-term," and "severe" are not defined in the Rome Statute and have been defined differently by the other international agreements, ENMOD and Protocol I, that contain similar terms. In the absence of a fixed definition, it is extremely unlikely that a military commander would ever consciously conclude that her intended attack would cause "widespread, long-term and severe

\textsuperscript{156} "Scientists warn of Environmental Disaster from a Gulf War," \textit{Reuters}, Jan. 2, 1991 (warning by an experienced engineer that igniting oil installations could result in the generation of smoke equal to that if a nuclear explosion, thereby blocking out sunlight and causing temperatures to drop by as much as 68 degrees.)

\textsuperscript{157} "State of the Environment: Updated Scientific Report if the Environmental Effects of the Conflict between Iraq and Kuwait," Governing Council of the UN Environment Program, 16th Sess., UN Doc. UNEP/GC.17/inf.9 (1999), pp.12-13 (asserting that global climate was unaffected and no serious human health problem occurred.)
damage" to the nonhuman environment. At most she might be aware that her intended attack would cause some amount of environmental damage, which cannot satisfy the Article's requirements. Second, even if the terms "widespread," "long-term and severe" were clearly defined, the uncertainty inherent in predicting how much environmental damage an attack would cause would still make it very difficult for the Court to conclude that the commander "knew" her attack would lead to widespread, long-term and severe damage.

3. Principle of Military Necessity

Among this group that suffers from definitional imprecision, the most significant is the customary international law principle of military necessity, as codified in Article 23 (g) of Hague IV, Article 53 of Geneva IV Convention, and Article 54 (5) of Additional Protocol to Geneva Conventions. Under this principle, any employment of environmentally hazardous methods must be justified by military necessity. In practice, however, the inherent generality and vagueness surrounded the military necessity may expose the principle to divergent interpretations and wholesale exploitation and avoidance and as a result prevent it from operating as effective deterrent during the course of battle. It was the reason some have argued that even if the law of war was clear, the environment would still not be sufficiently protected.

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158 The Hague Convention (IV) Respecting the Laws and Customs of War on Land, 1907, reprinted in Rules of International Humanitarian Law and Other Rules Relating to the Conduct of Hostilities (New Delhi: ICRC, 2005). Article 23 (g) of the Hague Convention IV States that it is forbidden "[t]o destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war." Article 54 states that "submarine cables connecting an occupied territory with a neutral territory shall not be seized or destroyed except in the case of absolute necessity."

159 Convention (IV) Relative to the Protection of Civilian Person in Time War, Geneva, 12 August 1949 (Geneva IV Convention), available [Online: Web] http://www.icrc.org.ihl.nsf/full/380. Article 53 of the Geneva IV provides that "Any destruction by the occupying Power of real or personal property belonging individually or collectively to private persons, or to the State, or to other public authorities, or to social or co-operative organizations, is prohibited, except where such destruction is rendered absolutely necessary by military organizations."

160 Article 54 (5) qualifies Article 54 (2) by allowing for a scorched earth policy to be legitimately adopted in that foodstuffs and agriculture may be destroyed even though these may be indispensable to the survival of the civilian population if this is required by imperative military necessity. For the text of the Protocol see note 66.

With referring to treaties, there might be asked by some one, for instance, that when is destruction of environment, either directly or indirectly, imperatively demanded? Use of adjective “imperatively” in the treaties would suggest a relatively high degree of necessity, according to its definition as “absolutely necessary, urgent, [and] compelling.” Yet the Hostage Case clarified the phrase by requiring “some reasonable connection between the destruction of the property and the overcoming of the enemy forces.” This would be appearing to be a much lower standard of necessity than that of “imperatively demanded” standing alone.

Taking the “reasonable connection” clarification at face value, there would be difficult to determine how direct the advantage that accumulated has to be, and, if directed enough, how likely the advantage sought is to occur. Consider an example from the Gulf War. Assume that Iraq released oil in to the Persian Gulf to hinder possible US Marine Corps amphibious operations by fouling the engines of landing craft and disrupting Marine activities along the shore. The advantage sought is quite direct- the target of the spill is enemy force itself. On the other hand, if the intent was simply to demoralize the Kuwaiti population through the specter of millions of dollars of their natural resources being poured aimlessly into the Gulf, then the relationship between the act and anticipated advantage would likely be judged overly attenuated. The problems with regard to the determining directness are the fact that very different motivations may potentially underlie acts causing environmental damage. In the absent of an express statement in relation to the purpose of the actions, the subjective intent behind an act is difficult to be showcased: for instance, malevolent intent was ascribed to the Iraqis during the Gulf War, but the evidence thereof was largely circumstantial.

Along the same lines as the ambiguity of the “imperatively demanded” standard, when is an action rendered so absolutely necessary by military operations that the limits placed on occupying forces in Article 53 of Geneva IV become inoperative? Absolute necessity logically suggests a conditional threat: if a force does not take particular actions likely to cause otherwise forbidden harm to occupied territory, X will happen. But what is

163 The Hostage Case Trial of Wilhelm List and Others, United States Military Tribunal, Nuremberg, available [Online: Web], accessed on 20 Dec. 2008, URL: http://www.ess.uwe.ac.uk/WCC/List1.htm;
the X to which the exception applies? In other words, what condition of absolute necessity in occupied territory would release an occupier from its duty to refrain from destroying real or personal property? It is difficult to answer this question.

More troubling is a relative lack of understanding about the nature of effects on the environment. Today, it is possible to predict the direct effects of a conventional weapon system attack with impressive exactitude. Consider an attack on a building, the destruction of which has been determined to be reasonably connected with the overcoming of the enemy (the Hostage Case standard). Mission planners can reliably determine the type and number of weapons to use against building based on known accuracy and destructive force. However, as demonstrated with the oil spills and fires during the Gulf War, environmentally based attacks may involve unleashing untried or directionally random forces. As a result, military necessity calculations are frustrated due to difficulties in assessing the extent to which the tactic employed will yield militarily useful outcomes.164

The risks of normative imprecision grow at the time of judgment on reasonableness and necessity. A commander's application of military necessity is based on the facts as he knows them at the time of decision, after sufficient attempts to gain all possible information.165 Reviewing a commander's decision, including information he knew and was available at the time of the decision, is not the most effective means of protecting the environment.166

After all, of vital importance in this area is the fact that military necessity, historically, has been used as justification for attacks against the environment (For instance, military necessity was used to justify attacks on dams in North Korea.167) and is legalized to justify attacks on environment.168 With the ambiguities surrounding military

166 Eric Talbot Jensen, note 11, p. 178.
necessity, the principle will fall as an instrument for justification of environmental destruction, particularly by heg powers, rather than working as limitation.

To summarize, existing law simply does not provide military commanders sufficient notice of what degree of environmental destruction is prohibited.

B. Normative Gaps

The aforesaid limitations concentrated on challenges in understanding what the applicable law means. There is also limitation on the scope of the prescriptive landscape. First of all, in considering the specific prescriptions, very high thresholds for the application of the treaty have been set. According to Protocol I prohibitions of Articles 35 (3) and 55, the damage must be widespread, long-term and severe. None of these criteria alone will suffice. In its part, ENMOD possess a lower threshold of applicability; its terms have been defined much more liberally; the most notable example is “long-term” expression which measured in terms of seasons. Moreover, according to ENMOD satisfaction of any of the three criteria suffices to activate the prohibition. However, ENMOD only covers techniques that involve manipulating environmental processes. Such actions in warfare are rare, environmental damage mostly results from military methods and means of combat.

The non-specific environmental provisions that could be interpreted as extending to the environment mostly face similar limitations. Article 23 (g) of The Hague IV exclusively applies to damage of enemy property.\(^{169}\) It would not cover damage occurring on either neutral territory or in the global commons such as the exclusive economic zone, high seas, international airspace, and space. Article 55 of the Hague IV has also problem of restrained application, coming in to effect only during periods of occupation and only for acts committed by an occupier against state property.\(^{170}\) Article 53 of the Geneva IV similarly addresses only damage occurring at the hands of an occupying force, although it applies to all properties, not only belonging to the state.\(^{171}\)

\(^{169}\) Convention IV Respecting the Laws and Customs of War on Land (Hague IV), note 7, Article 23 (g).

\(^{170}\) Ibid, Article 55.

\(^{171}\) Geneva Convention (IV) 1949, note 159, Article 53.
Although, the non-specific environmentally prohibitions in Protocol I possess greater protective promise, the non-participation of the United States – the world sole remaining super power – limits the convention's direct efficacy.\textsuperscript{172} Those Articles that set forth principles of military necessity and proportionality\textsuperscript{173} are difficult to apply for reasons outlined before. Much more precise are Articles 54 and 56. By limiting attacks on objects indispensable to the survival of the civilian, the former extends protection explicitly to such components of the environment as agricultural areas, livestock and water supplies, and implicitly to objects such as fuel, electricity and lines of communication essential to providing sustenance to the civilian population, destruction of which would place the environment at risk. Article 54, however, does not apply in a number of situations. For instance, objects may be destroyed where the survival of the civilian population is not at stake, as in the case that there is large food reservation available or in the case that fields are burned to create barriers to an advancing force without having excessive civilian suffering.

Article 56 provides protection to dams, dikes and nuclear electrical generating stations which might release dangerous forces if attacked. However, the list in the Article is exhaustive, not illustrative\textsuperscript{174} and thus, it extends only to dams, dikes and nuclear electrical generating stations.

The condition of the customary international law principles of necessity and proportionality is the same as treaties. They are widely applicable but suffer from vagueness explained easier.

\textbf{C. Goal Dissonance}

Motivations for protecting the natural or none human environment can generally be divided in to two categories: anthropocentric and ecocentric.

The anthropocentric approach evaluates environment on the basis of what it offers to humankind such as food, shelter, fuel, and clothing. This approach focuses on the

\textsuperscript{172} Michael N. Schmitt, "War and Environment: Fault Lines in the Prescriptive landscape", in: Jay E. Austin and Carl E. Bruch (eds.), note 4, p. 123.
\textsuperscript{173} See Article 51, 52 and 57 of the Additional Protocol I to the Geneva Convention 1949, note 13.
\textsuperscript{174} Michael N. Schmitt, "War and Environment: Fault Lines in the Prescriptive landscape", in: Jay E. Austin and Carl E. Bruch (eds.), note 4, p. 126.
environment's ability to make life possible. Beyond providing survival benefits, the environment merits protection because of its impact on the quality of human life. For instance, natural preserves or endangered species must be safeguarded due to their aesthetic value. Thus, anthropocentrism possesses a strong utilitarian flavor.

The ecocentric approach, however, insists that the value of protecting the nonhuman environment is not depend on the utilities that it has for human beings. According to the ecocentric view, "the entire environment deserves protection, even those elements that play no role in human survival, because nonhuman species and entire ecosystems exist not merely as elements in an anthropocentric utilitarian calculus or as extensions of human moral characteristics, but as entities with moral value in their own right."[175]

Until the Vietnam War, the environment was viewed in entirely anthropocentric terms. The absence of any mention of the environment in instrument governing the conduct of hostilities clearly is evidence of the fact. Whatever degree of protection the environment received derived from existing protection of civilian and civilian objects.[176]

In the aftermath of the environment destruction of that war, however, the environment became a cognitive reality. The most notable example is Article 35 (3) of The Additional Protocol I to the 1949 Geneva Conventions which specifically prohibit wartime environmental damage regardless of whether any harm is done to human interests. Under this Article, the attack would be forbidden regardless of its effects on humankind.

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[176] Convention Respecting the Laws of Customs and War on Land (Hague IV), for example, contains two articles that function to protect the nonhuman environment: Article 23 prohibits acts that "destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war," and Article 55 requires an occupying state to act responsibly as an "administrator and usufructuary of . . . real estate, forests and agricultural estates ... in the occupied country." Neither article, however, recognizes the intrinsic value of environment to be protected. Instead, both are solely concerned with ensuring that belligerents do not deprive enemy populations of the natural resources they need to survive. Article 23 applies only to "enemy property" (real estate, agricultural lands, and the like); unowned property remains unprotected. The 1949 Geneva Conventions are similarly limited. Although none of the Conventions mention the word "environment," Article 53 of the Fourth Geneva Convention provides some protection for the nonhuman environment by prohibiting "[a]ny destruction by the Occupying Power of real or personal property belonging individually or collectively to private persons, or to the state, or to other public authorities, or to social or cooperative organizations ... except where such destruction is rendered absolutely necessary by military operations." However, like Hague IV, Article 53 applies only to land that is owned by individuals or by the state; the occupying power remains free to destroy wild lands that are not being used for human survival.
However, what is interesting is that although Article 35(3) of Protocol I is itself genuinely ecocentric, Article 55 emphasizes that countries must avoid using destructive means and methods of warfare because "damage to the natural environment" will "prejudice the health or survival of the population." Article 57(3) specifically privileges the human over the non-human, providing that "[w]hen a choice is possible between several military objectives for obtaining a similar military advantage, the objective to be selected shall be that the attack on which may be expected to cause the least danger to civilian lives and to civilian objects."

ENMOD Convention also can showcase ecocentric trend, in which state parties agreed that "military or any other hostile use of environmental modification techniques having widespread, long lasting, or severe effects" is an impermissible means of warfare. However, the agreement remains partially anthropocentric. ENMOD is only secondarily concerned with protecting the nonhuman environment; its primary goal is to prohibit state parties from harming one another\(^{177}\) by using destructive environmental modification techniques, such as American attempts at climate modification during the Vietnam War. Furthermore, the requisite degree of damage necessary to activate ENMOD’s provisions is not expressed in environmental terms.\(^ {178}\) Moreover, in its preamble the most considerations is given to mankind relief and keeping him out of danger. In this sense, it is essentially anthropocentric.\(^ {179}\)

Being anthropocentric, the international legal instruments provide no protection at all when an attack that damages the non-human environment does not also harm human interests. A nuclear "warning shot," for example, that destroys millions of aquatic life-forms in a remote part of the Pacific Ocean would not qualify for protection. Second, such agreements do not apply when an attack damages the non-human environment in a way that actually promotes human interests (at least in the short-term). Destroying a wetland, for example, could cause serious harm to plant and animal diversity in the region but also reduce the incidence of malaria in nearby human communities. Third, and finally, such agreements provide no protection when an attack causes harm to both

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\(^{177}\) For example, see Article 1 of the ENMOD Convention, note 41.


\(^{179}\) See ENMOD’s Preamble, para 5, 6, 7.
human and nonhuman interests, but the harm to human interests is not enough to trigger environmental protections. For example, the intentional destruction of oil wells to limit an attacker's visibility releases massive amounts of soot into the air that threaten both human health and the terrestrial ecosystem, but actually harm the environment far more than humans.\textsuperscript{180}

**D. Enforcement Challenges**

Current international agreements prohibiting wartime environmental damage are also limited by their lack of effective enforcement mechanisms and political will of states. Violations of Hague IV, ENMOD, and the environment-centered articles of Protocol I can produce only state responsibility, requiring reparations.

Though, state responsibility has been a less than perfect means for enforcing international law, it is argued that even with widely impose of reparations it is unlikely that they could effectively deter belligerents from environmental destruction. States resorting to armed force are unlikely to decide to avoid an act because of the pecuniary risk, for the risk only becomes a reality if the state suffers a military defeat. The desire to deter possible defeat would certainly outweigh any deterrent effect generated by the possibility that the loser might have to make reparations.\textsuperscript{181}

Admiral Elmo Russell “Bud” Zumwalt, Jr., a renowned commander, argues that there is a definite temperament for military commanders to rely on any tactic or weapon that is “military helpful” within a given combat setting, without deference to legal or moral obstacles that stand in the way.\textsuperscript{182} He emphasizes that in the heat of battle, military commanders will cast legal considerations aside if they appears to impair the pursuit of their assigned mission. Admiral Zumwalt concludes that these priorities and practices on battlefield have been consistently endorsed by political leaders, who tend to defer to the military on their choice of both tactics and weaponry.

Indeed, from the perspective of a military actor, almost any environmentally harmful initiative can be given a subjectively acceptable rational, and this includes the

\textsuperscript{180} See Lawrence, Jessica C, note 154.

\textsuperscript{181} Ibid.

massive oil spills and disastrous well fires caused by Iraq during the Gulf War. For example, there is credible testimony by experts that the smoke caused by the fires and oil slicks caused by the spills complicated the coalition's operation of bombing and pursuing the retreating Iraqi troops.

The two main legal instruments that establish constrains in international law, i.e. ENMOD Convention and Protocol I are not fully ratified by the United States who has had major contribution in the world armed conflicts. Though, the US government has gone along with the negotiation of some constraints on environmental methods of war in the light of its experience in the Vietnam War, the mechanism agreed upon were as such that make it legally possible to do most of what was done in Vietnam., because, as already mentioned, they mostly are general and suffer from vagueness. Additionally, the United States insisted on making a formal declaration to the effect that environmental damage resulting from use of nuclear weapons 'would of course, be excluded' from the scope of Articles 35 (3) and 55 of the Protocol. The implication of this exception would be that not only are nuclear states given a generally privileged position in the international society, but that even the normal laws of war do not apply to instances of nuclear mass destruction. Such a treatment to the law of war bears quite directly on the acrimonious debate that followed the nuclear tests by countries like India and Pakistan.

The present legal regime has also been weakened by NATO's bombing attacks during its Kosovo operations. These attacks involved heavy bombing that had unavoidable environmental side effects. NATO deliberately attacked environmentally sensitive targets despite the obvious prospect of serious pollution of regionally important waterways and other forms of environmental harm. Here, the inadequacy of

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185 The preliminary reports of environmental harm arising from the NATO war include the following major concerns: systematic bombing of oil refineries, petrochemical plants, chemical and fertilizer factories, and pharmaceutical plants, which posed pollution threats, including to the Danube River and Black Sea, as well as to the entire natural and human habitat of the Balkan region; and use of depleted uranium weapon, which spread radioactive materials dangerous to health. See UNEP & UNCHS, The Kosovo Conflict: Consequences for the Environment and Human Settlement, 1999; Rasmus Ole Rasmussen, Bent C. Jorgensen, and Bernhelm Booss- Bavnbek, Facts and Fiction of
international environmental law during wartime is evident in two ways: either the tactics relayed upon were not prohibited, and existing legal standards thus are woefully insufficient to protect the environment or the tactics were violation of international law, but the political atmosphere is such that no effort is likely to be made to impose legal accountability in some meaning full form. Either way the need for legal reform seems evident.

Furthermore, the difference responses to the Vietnam War and the Gulf war have widely arisen the question of double standards, which weaken the normative effect of the legal instruments provided to protect environment in the time of armed conflict. In regard to the Gulf War, with strong geopolitical backing, the UN Security Council in Resolution 687 condemned Iraq’s action and imposed liability, including a legal obligation to compensate for damaged caused deliberately dumping millions of barrels of oil in to the Gulf and by setting fire to some 600 oil well.\(^{186}\) Compared to turning a blind eye after the Vietnam War, it is difficult to avoid the impression of ‘victor justice’ and “punitive peace” after the Gulf War, though part of this differences can be explained by change in the global circumstances, which had made the recourse to the Security Council unavailable in Cold War confrontations.

Therefore, the most difficulty facing the international community is how to apply the norms against powerful nations. While the international community held German Generals criminally liable for scorched earth tactics in World War II, and held Iraq liable for environmental damage in the 1990-91 Gulf War, applying these norms against the winning party is much more difficult.

VII. Conclusion

From the research on the rules related to the protection of environment in time of armed conflict, the following conclusion can be drawn.

This inquiry shows that today the international community has fully recognized the enormous damage which war can inflict to the environment.

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The destructive potential of modern warfare has made the need for measures to safeguard the environment more and more evident. Though the environmental law is a new field that appeared only in 1970s considerable progress has been achieved. Different measures are taken by international community to protect environment during armed conflict.

While the efforts made in this regards are to be welcomed, they, however, are not enough. Existing standards of international law of armed conflicts suffer different shortcomings regarding the environment protection. A number of problems substantially, and perhaps even fatally, undermine its ability to keep environment away from wartime damages, ranging from the vagueness of its key terms to its overly deferential proportionality test to the impossibility of satisfying its requirement in application. In addition, to the extent the standards are embodied in treaties, they have not been ratified by several key states, and their status in customary international law is uncertain. As a result, existing international law does not presently provide a credible legal regime to prevent severe environmental harm as a side effect of high intensity warfare or to impose liability upon governments that resort to environmental warfare as a deliberate tactic.