State Responsibility for Environmental Protection During International Armed Conflict[1]

Arie Afriansyah[2]

In the last ten decades, many international armed conflicts have occurred bringing not only human casualties but also deleterious environmental damages. It is widely acknowledged that the environment is frequently both being the victim and a tool of armed conflict. Some further argue that attacking the environment, as a means of waging war, is not a new concept. These arguments show that the environment eventually plays an important role during warfare. Given these facts, the international community doubts the effectiveness of humanitarian law to prevent environmental devastation during international armed conflict. It then considers the relevance in applying peacetime obligations to protect the environment in particular to common goods and areas beyond national jurisdiction to strengthen the rules on the law of war. As damage to the environment might be unavoidable, it can be argued that reparation as the form of State responsibility of the warring parties is worth to pursuit. It is based on the fact that belligerents have international obligations to protect the environment during armed conflict that come from not only wartime but also peacetime international law. It is submitted that violations to those rules will incur international state responsibility for all of the conflicting parties. This study tries to examine the implementation of the applicable laws during armed conflict in protecting the environment. It then analyses the implementation of state responsibility for any environmental damage after the end of the hostilities. This study will only focus on international armed conflict for its relevance to the concept of state responsibility. It will examine cases of World Wars I and II, Vietnam War, Persian Gulf War, and Lebanon-Israel War. They were chosen because they represent notable example of international armed conflicts in the last century with significant environmental calamities.

Keywords: *international environmental law, international armed conflict, state responsibility*

[1] Article presented in the 1st International Conference of the Center for International Law Studies, Faculty of Law University of Indonesia, 4 - 5 October 2010. (The data and figures in this article are subject to progress in the future and it is revised as of 30 August 2010).

[2] Lecturer at the Faculty of Law University of Indonesia. Sarjana Hukum (S.H.), Universitas Indonesia (2003); Master of International Law (M.I.L.), The University of Sydney, Australia (2005); and Ph.D candidate, The University of Otago, New Zealand. The author can be reached at: afrar955@student.otago.ac.nz or aricafriansyah@gmail.com. The author wishes to thank Nicola Wheen, Ceri Warnock, Stephen E. Smith and Sarah Bowen for their comments and suggestions on draft parts of this article. Any errors in this article are completely the responsibility of the author.

I. Introduction

Despite international instruments that aim to prevent environmental harm, wars have to date brought great environmental damage and served to raise the international community's deep concern.[3] Nevertheless, there are many ways that can be done in order to repair the damaged environment before the damage becomes permanent. One of the most important ways is to pursue the conflicting parties' ensuring responsibility is taken by the belligerent parties.

During hostilities, it is highly possible that belligerents are liable for violations of their international obligations including damages to the environment. Further, even though the conflict has ceased, they are still liable for the violations as long as the damages continue. That is why the legal concept of State responsibility offers an important doctrine in international conflicts for the basis of reparation for damaged environment needing prompt action to hold the responsible State accountable.

Attribution of legal consequences to States is extremely important because in some cases with environmental calamities, where violations are committed by individuals, only States that have the capabilities and resources to stop and repress violations and repair damage that might result from those violations. It is due to the facts that reparation of the damaged environment requires a huge amount of money to afford the human resources and technology necessary to bring back or at least maintain a reasonable condition of the environment for its survivability.

This article argues that inspite of clear establishment of State responsibility resulting from violation of international obligations during international armed conflicts, State practice to hold belligerents liable for environmental damage is inconsistent and heavily influenced by the politics of international relations. Nevertheless, there are some important developments taken from past experience in regards with ecological protection during international armed conflicts.

To begin with, this article notes all relevant legal wartime obligations of warring parties to protect the environment that sourced from treaty law and customary law. Then, it discusses how the law of war respond to any violation to its rules with the preposition that general rules on State responsibility play important role in liability mechanism. It follows with an ana-

[3] United Nations of Environmental Programme (UNEP), *Protecting the Environment during Armed Conflict: An Inventory and Analysis of International Law* (2009) 8.

lysis of international armed conflicts that have significant environmental consequences. It examines on whether belligerents' military conduct that caused significant environmental damage violated rules within the law of war. Then, it analyses on how these atrocities to the environment responded by the belligerents and international community in general.The cases are the Vietnam War in 1960s, the Persian Gulf War in 1990s and the Israel-Lebanon War in 2006. The rationale for this selection is that these armed conflicts represent modern warfare during the 20th century with notable experience of environmental destruction and by time sequence they show development of environmental awareness in international community and how it responded differently in each case.

II. Environmental Protection during International Armed Conflict

International humanitarian law provides protection to the environment in wartime both in direct and indirect way. These rules, both direct and indirect, need to be strongly recognised to eliminate arguments concerning the inadequacy of law on this matter.[4] Therefore, it is imperative to note these rules for the simple but potent reason that legal consequences arise if they are breached. Provisions from treaties will be identified first and then followed by customary rules.

2.1. Treaty Law

The identification of treaty-based obligations to protect the environment during wartime has been widely conducted.[5] Further, in the aftermath

[4] *See* Adam Roberts, 'Environmental Issues in International Armed Conflict: The Experience of the 1991 Gulf War', in: Richard J. Grunawalt, John E. King, Ronald S. McClain (Eds.), *Protection of the Environment During Armed Conflict*, (1996), 222; Michael N. Schmitt, 'Green War: An Assessment of the Environmental Law of International Armed Conflict', (1997) 22 *Yale Journal of International Law* 1, 51; Stephanie N. Simonds, 'Conventional Warfare and Environmental Protection: A Proposal for International Legal Reform, (1992-1993) 29 *Stanford Journal of International Law* 165, 168; Richard G. Tarasofsky, 'Legal Protection of the Environment during International Armed Conflict', (1993) 24 *Netherlands Yearbook of International Law* 17, 22.

[5] UNEP, above n 1, 10-24; Erik Koppe, *The Use of Nuclear Weapons and the Protection of the Environment during International Armed Conflict*, (2008) 109-308; Nada Al-Duaij, *Environmental Law of Armed Conflict* (2003), 89-108; Tarasofsky, ibid, 42-61; Luan Low and David Hodgkinson, 'Compensation for Wartime Environmental Damage: Challenges to International Law After the Gulf War', (1995) 35 *Virginia Journal of International Law* 405, 415-419; Aaron Schwabach, 'Environmental Damage Resulting from the NATO Military Action Against Yugoslavia', (2000) 25 *Columbia Journal of Environmental Law* 117, 122-130; Mark J.T. Caggiano, 'The Legitimacy of Environmental Destruction in Modern Warfare: Customary Substance Over Conventional Form', (1993) 20 *Environmental Affairs Law Review* 479, 485-492; Hector Gros Espiell, 'Commentary: 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare', in N. Ronzitti, *The Law of Naval Warfare* (1988),

of the 1991 Persian Gulf War, many have argued the applicability of general peacetime international obligations such as international environmental law to strengthen the law of war to protect the environment during international armed conflict.[6] This growing consideration was also based on the aim to widen the international responsibility net for holding liability for any unlawful conduct that caused severe environmental damage. However, this article will only focus on the obligations from the law of war. Based on the analysis of previous works,[7] the treaty obligations can be listed as follows:

1. The 1907 Hague Regulations Respecting the Laws and Customs of War on Land (Articles 23(g), 25 and 55).[8]
2. The 1925 Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare.[9]
3. The 1949 Geneva IV Convention relative to the Protection of Civilian Persons in Time of War (Articles 53 and 147).[10]
4. The 1954 Convention for the Protection of Cultural Property in the Event of Armed Conflict.[11]
5. The 1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD Convention).[12]
6. The 1977 Protocol Additional to the Geneva Conventions of 12 August

409; Schmitt, ibid, 62-90; Richard M. Whitaker, 'Environmental Aspects of Overseas Operations', (1995) 27 *Army Lawyer* 27, 32-38; Margaret T. Okorodudu-Fubara, 'Oil in the Persian Gulf War: Legal Appraisal of an Environmental Warfare', (1991) 23 *St Mary's Law Journal* 125, 186-195; Simonds, ibid, 170-178; Walter G. Sharp Sr., 'The Effective Deterrence of Environmental Damage During Armed Conflict: A Case Analysis of the Persian Gulf War', (1992) 137 *Military Law Review* 1, 6-22; Karen Hulme, *War Torn Environment: Interpreting the Legal Threshold*, (2004), 71-110.

[6] Jozef Goldblat, 'Legal Protection of the Environment against the Effects of Military Activities', (1991) 22(4) *Security Dialogue* 399, 399; Schmitt, above n 2, 36; Sharp, ibid, 27.

[7] *See* Arie Afriansyah, 'Environmental Protection and State Responsibility in International Humanitarian Law', (2010) 7(2) *Indonesian Journal of International Law* 291, 294-314.

[8] Annex to *the 1907 Hague Convention (IV) Respecting the Laws and Customs of War on Land*, signed on 18 October 1907, entered into force on 26 January 1910, (1908) 2(1/2) *American Journal of International Law* 90.

[9] *Geneva Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare*, signed on 17 June 1925, entered into force on 8 February 1928, (1931) 25(2) *American Journal of International Law* 94.

[10] *Convention (IV) relative to the Protection of Civilian Persons in Time of War*, opened for signature 12 August 1949, 75 UNTS 973 (entered into force 21 October 1950).

[11] *Convention for the Protection of Cultural Property in the Event of Armed Conflict*, opened for signature on 14 May 1954, 249 UNTS 3511 (entered into force on 7 August 1956).

[12] *Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques*, opened for signature on 18 May 1977, 1108 UNTS 17119 (entered into force on 5 October 1978).

1949, and relating to the Protection of Victims of International Armed Conflicts (Articles 35(3), 55, 51(4)(c), 54(2), 56(1), 59 and 60).[13]

7. The 1981 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 and especially its Third Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Article 2(4)).[14]

In the recent development, it is interestingly to note that the "war crime to the environment" was categorised as one of the war crimes under the International Criminal Court. The Rome Statute of 1998 stated that the Court has jurisdiction in respect of war crimes that "intentionally launching an attack in the knowledge that such attack will cause incidental ... widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated".[15] From this point, it opens the possibility in the future to bring individual before the court who commits a war crime that result a severe damage to the environment.[16]

2.2. Customary Law

In addition to treaty rules, it is crucial to argue that the environment is also protected by customary international law.[17] This source of law is important because it binds all States.[18] Within customary law, it is arguable that there are three groups of rules that provide protection to the environment during international armed conflict.

First, protection to the environment is given by general customary rules where they can be found within the general principles of the law of war albeit in indirect way. They are the principles of necessity, humanity,

[13] *Additional Protocol to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts*, opened for signature 12 December 1977, 1125 UNTS 17512 (entered into force 7 December 1978).

[14] *Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III) to 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*, opened for signature 10 April 1981, 1342 UNTS 22495 (entered into force 2 December 1983).

[15] Article 8(2) [b, iv], *Statute of the International Criminal Court*, opened for signature 16 March 1998, 2187 UNTS 38544 (entered into force 1 July 2002).

[16] *See* Ines Peterson, 'The Natural Environment in Times of Armed Conflict: A Concern for International War Crimes Law?', (2009) 22 *Leiden Journal of International Law* 325.

[17] Tarasofsky, above n 2, 22; Koppe, above n 3, 204. As Schmitt observes: "Custom is at the core of the *jus in bello*. Indeed, as a source of the law of war it predates any of the applicable treaty law currently in force". Schmitt, above n 2, 51.

[18] Antonio Cassese, *International Law*, (2001), 157.

proportionality and discrimination.[19] In addition to these four principles, it is arguable that principle of neutrality provides significant protection to the environment outside belligerents' territories.[20] The protection to the environment during international armed conflict afforded by this principle may be seen as promising. This is due to the fact that this principle is reinforced by non-belligerents in taking action to correct breaches of its sovereignty, including its environment.[21]

Second, it can be argued that some provisions from treaties as noted previously have attained the status of customary law. It can be argued that environmental protection provisions from the 1907 Hague IV Convention, 1925 Geneva Gas Protocol, 1949 Geneva IV Convention, and 1977 ENMOD Convention have been acknowledged as part of customary international law that bind upon all States. However, unfortunately there are two main treaties, which have specific reference to environmental protection provisions during international armed conflict, but have not been universally recognised as customary international law. They are the 1977 Additional Protocol I and 1981 Protocol III to the Certain Conventional Weapons Convention.[22]

Third, since the 1970s, one study has shown that there are new emerging customary rules which directly protect the environment during international armed conflict alongside with the growing global awareness of the environment. Stemming from the principle of environmental protection or responsibility, Koppe argued that there are three emerging norms of customary international law that directly protect the environment during international armed conflict. These norms are a general customary duty of care for the environmental protection; a prohibition on causing wanton or wilful damage to the environment that is not justified by military necessity; and a prohibition to cause excessive collateral damage to the environment.[23]

From all relevant States' legal obligations to protect the environment during international armed conflict both from treaty and customary laws, it can be concluded that international humanitarian law does provide adequate protection to the environment alongside with human protection in general. Therefore, States can no longer turn their back away to these obligations to protect the environment during and after international armed

[19] Roberts, above n 2, 228; Caggiano, above n 3, 494; Simonds, above n 2, 168-170; Afriansyah, above n 5, 316-328.

[20] Al-Duaij, above n 3, 108.

[21] Tarasofsky, above n 2, 31.

[22] Afriansyah, above n 5, 329-335.

[23] Koppe, above n 3, 246-277.

conflicts. Violations to them will incur international responsibility to repair all environmental damage.

III.State Responsibility for Violation of the Law of War

Following the identification of all relevant obligations in protecting the environment in the law of war, it is now instructive to examine how this branch of law responses to any violation committed by States. It is well established as a general principle of international law that any wrongful act or any violation to obligation under international law incurs international responsibility.[24] In general, the law of war attributes violations primarily to States. However, as one of its unique characters, it also attributes violations to individuals.[25]

In addressing breaches of law by States, the four Geneva Conventions stipulated in their common articles entitled "Responsibilities of the Contracting Parties" that:

> No High Contracting Party shall be allowed to absolve itself or any other High Contracting Party of any liability incurred by itself or by another High Contracting Party in respect of breaches referred to in the preceding Article.[26]

As legal consequences of violating the rules, Article 3 of the 1907 Hague IV Convention[27] and Article 91 of the 1977 Additional Protocol I[28] provide principal and similar mechanisms for treaty violation. They stipulate that belligerent State is liable to pay compensation in the case of rules

---

[24] *Case of the S.S. "Wimbledon"* [1923] PCIJ (Ser. A) No. 1, 30; *Case Concerning the Factory at Chorzów (Claim for Indemnity)* [1928] PCIJ (Ser. A) No. 17, 28-29. Draft Article 1 on State Responsibility states "Every internationally wrongful act of a State entails the international responsibility of that State". Draft Articles on Responsibility of States for Internationally Wrongful Acts and Commentaries. A/56/10, Report of the International Law Commission to the General Assembly on the work of its Fifty-third session; Vol. II, Part II, Yearbook of the International Law Commission 2001, 32.

[25] Marco Sassòli, 'State Responsibility for Violations of International Humanitarian Law', (2002) 84(846) *International Review of the Red Cross* 401, 404.

[26] Articles 51/52/131/148 respectively of the four 1949 Geneva Conventions, opened for signature 12 August 1949, 75 UNTS 970-973 (entered into force 21 October 1950).

[27] Article 3, *the 1907 Hague Convention (IV) Respecting the Laws and Customs of War on Land*, with annexed Regulations, signed on 18 October 1907, entered into force on 26 January 1910, (1908) 2(1/2) *American Journal of International Law* 90.

[28] Article 91, *Additional Protocol to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts*, opened for signature 12 December 1977, 1125 UNTS 17512 (entered into force 7 December 1978). This provision was re-enacted from Article 3 of the 1907 Hague Convention IV.

violation and responsible for all acts committed by its armed forces.

It is clear from these provisions that international humanitarian law provides its own rules to address violations. That is the reason why one author includes this regime as a "self-contained system".[29] However, the application of only these basic provisions will raise some concerns in terms of their implementation. First, it is arguable that in the event of armed conflict, States may also bear responsibility for conducts other than its armed forces. Second, both articles above only oblige States to pay compensation financially as a legal consequence without further state any obligation that may be required to redress the violation. In addressing these concerns, it is arguable that rules on State Responsibility in general remain important of application within this framework of law. Moreover, this application was evident in decisions of some international tribunals.[30] The following will self-explain how rules on State responsibility in general play pivotal role in determining State's liability on violation of the law of war.

3.1. Attribution

According to rules on State Responsibility as understood within the framework of international humanitarian law, there are a number of relevant parameters in determining whether or not an action is attributable to State. They are: conduct of members of armed forces, de facto agents, *levée en masse*, insurrectional movements and lack of due diligence.[31]

First, it is determined that a State is responsible "for all acts committed by persons forming part of its armed forces".[32] Meanwhile, Draft Article 7 stipulates that "the conduct of an organ of a State [...] shall be considered an act of the State under international law if the organ [...] acts in that capacity...".[33] This shows that attribution of unlawful acts of individuals to a State under *ius in bello* is broader than those in Draft Articles where the former includes conducts as private individual or wholly unofficial.

[29] Sassòli, above n 23, 403.

[30] *Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America) (Merits)* [1986] ICJ Rep 4, para 115 and *Prosecutor* v. *Tadic*, T-94-1-A, Judgement, 15 July 1999, para. 116-144.

[31] Sassòli, above n 23, 405-412.

[32] Article 3, *the 1907 Hague Convention (IV) Respecting the Laws and Customs of War on Land*, with annexed Regulations, signed on 18 October 1907, entered into force on 26 January 1910, (1908) 2(1/2) *American Journal of International Law* 90; Article 91, *Additional Protocol to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts*, opened for signature 12 December 1977, 1125 UNTS 17512 (entered into force 7 December 1978). This provision was re-enacted from Article 3 of the 1907 Hague Convention IV.

[33] Article 7, ILC Draft Articles on States Responsibility.

However, Draft Articles contributes by providing that "[t]he conduct of a person or entity which is not an organ of the State" but exercising the "elements of the governmental authority shall be considered an act of the State under international law".[34] This provision means that non-state actor which involved in armed conflict may also be held responsible as State's conduct as long as the former performing governmental duty. Therefore, it is not only conduct of member of regular armed forces that can be attributed to a State in wartime but also conduct of non-state actor which performing State authorities. This conclusion is important and relevant to hostilities which took place recently.

Second, responsibility of State may also incur to the situation in which an armed group fighting against governmental armed forces in internal armed conflict allegedly acting as the *de facto* agents of the foreign State.[35] It is not impossible that devastating cross-border environmental damage could result from unlawful acts of warfare in an intense internal armed conflict. If the conducts of armed groups can be attributed to a foreign State, it follows that the concerned State will be responsible and rules of international armed conflicts shall apply. The application of this attribution has been examined by the ICJ[36] and the ICTY.[37]

Third, there is a possibility for civilian to spontaneously engage in hostility by using arms where their survivability is threatened because of enemy's attack and the absence of regular forces that have combatant status. This situation is a classic circumstance known in international humanitarian law as *levée en masse*.[38] This civilian conduct can be attributed to a State if the civilian committed unlawful acts under the law of armed conflict because they actually performed the duty of regular forces that is an organ of a State. This rule is recognised by the ILC in Draft Article 9.[39] In terms of environmental damage, spontaneous and unorganised civilian conducts that might be unlawful seems unlikely to cause significant damage to the environment because they may not have the capability to cause such devastating destructions. However, it is remotely possible that these civilian

[34] Article 5, ibid.

[35] Article 8, ibid.

[36] *Military and Paramilitary Activities in and Against Nicaragua (Nicaragua v United States of America) (Merits)* [1986] ICJ Rep 4, paras. 109 and 115.

[37] *Prosecutor* v. *Tadic*, T-94-1-A, International Criminal Tribunal for Yugoslavia, Judgement, 15 July 1999, para. 116 – 144; Sassòli, above n 23, 408.

[38] This situation is recognized by article 4, paragraph A (6), of the 1949 Geneva (III) Convention: Jean S. Pictet (ed.), *Commentary of the Geneva Conventions relative to the Treatment of Prisoners of War* (1960), 67-68.

[39] Article 9, ILC Draft Articles on States Responsibility.

conducts will cause significant damage to the environment if they have access to high technology weapons or weapons of mass destructions.

Last, conduct of insurrectional or other movements are attributable to the State if the movement becomes the new government of the State, or to a new State if the group succeeds in establishing a new State.[40] It is noted that the legitimacy or illegitimacy of this movement is not a crucial concern for either international humanitarian law or rules on State responsibility but "[r]ather, the focus must be on the particular conduct in question, and on its lawfulness or otherwise under the applicable rules of international law".[41] This provision is important because these movements usually occur in an internal armed conflict in which their conduct of warfare is against their governmental armed forces and may have significant destructive effects to the environment not only within their own territory but also other States' territories.[42]

3.2. Legal Consequences

As stated above, Article 3 of the 1907 Hague IV Convention and Article 91 of the 1977 Additional Protocol I specifically mention only financial compensation. Therefore, a State is only responsible for damage that is assessable financially. As a tradition and as a matter of fact, obligation to pay compensation for violations is directed to the injured State[43] i.e. State which suffers (environmental) damage that results from unlawful acts of the violating State. Meanwhile, according to State Responsibility rules, a violating State has wider obligations of not only compensating the injured State but also ceasing the unlawful act and ensuring non-repetition of this act.[44] In terms of environmental damage, financial compensation is extremely important since reparation of the damaged environment may require huge amounts of money to afford the human resources and technology necessary to bring back or at least to maintain reasonable condition of the environment for its survivability. However, paying the compensation alone is not sufficient enough if the violating State has not refrained itself from performing the same action that so harmed the environment. Therefore, obligation to cease and ensure non-repetition is equally important to protect the environment during international armed conflict.

[40] Article 10, ibid; Sassòli, above n 23, 410.

[41] Paragraph 11, commentary Draft Article 10, ILC Draft Articles on States Responsibility.

[42] Carl E. Bruch, 'All's not Fair in (Civil) War: Criminal Liability for Environmental Damage in Internal Armed Conflict', (2000-2001) 25 *Vermont Law Review* 695, 717-718.

[43] Sassòli, above n 23, 418.

[44] Article 30, ILC Draft Articles on States Responsibility.

IV.Case Studies

Having examined all relevant applicable laws and management of rules violation, it is now important to analyse selected international armed conflicts as cases study with some significant environmental damage. They are the Vietnam War, the Persian Gulf War and the Israel-Lebanon War.[45]

As submitted previously, the rules of state responsibility in international law contributed significantly to pursue State's liability for environmental harm as a result of violations to its international obligations during wartime. It can be argued that the issues on state attribution, state liability and legal enforcement are important to be discussed on each case so that can reached the conclusion on whether or not rules on state responsibility effective to hold responsible State liable for environmental damage.

4.1. Vietnam War[46]

In this conflict, it has been argued that the US employed four military strategies which caused the disastrous environmental damage during this conflict. They were: the use of herbicides; the use of Rome Plough; bombardment and artillery fire; and weather modification.[47]

There were at least three relevant treaties that in force and bind the belligerents. They are the 1907 Hague Regulations, the 1925 Geneva Protocol and the 1949 Geneva IV Convention. As stated above, severe environmental destruction was arguably caused by the US military strategies. Therefore, it is instructive to examine whether or not these methods of warfare violated the US international obligations related to environmental protection during this war and liable for any environmental damage. Since these military operations were conducted by the US member of armed forces which act officially as the US military organ, all these actions were attributable to the US. This affirmation is of importance to determine State liability for any violations to the law of war during this conflict.

It can be argued that the employment of Rome plough and bombard-

[45] This section will not discuss the details of environmental damage from these cases as they were already comprehensively recorded and analysed. *See for example* Arthur H. Westing, *Ecological Consequences of the Second Indochina War* (1976); United Nations of Environmental Programme, *Desk Study on the Environment in Iraq* (2003); United Nations of Environmental Programme, *Lebanon. Post-Conflict Enviromental Assessment* (2007).

[46] The Vietnam War began from May 1961 and ended on 30 April 1975 when the Saigon regime was toppled by the North Vietnamese forces.

[47] Arthur H. Westing, 'The Environmental Aftermath of Warfare in Viet Nam', (1983) 23 *Natural Resources Journal* 365, 388.

ment methods violated the 1907 Hague Regulations. Article 25 of this convention prohibited an attack or bombardment, by whatever means, of towns, villages, dwellings, or buildings which are undefended. It is noted that the targets of Rome ploughing and bombardment campaigns were frequently areas that had "allegedly" become bases for communist forces. But eventually they were areas without any presence of enemy's forces such as forest, agricultural areas, town and villages.

In terms of spraying herbicide substances, it is alleged that this method violated the provisions of the 1925 Geneva Protocol.[48] In response to this allegation, the United Nations General Assembly issued a resolution to clarify the scope of the 1925 Protocol. This resolution confirmed that the Protocol banned at least some herbicide use in warfare.[49] Despite of its rejection to this interpretation and declaration that the use of herbicides and defoliants during Vietnam War was justified and was not within the ambit of the Protocol's prohibition, it is worth noting that in 1970, the US was in the process of ratifying this Protocol and at the same time, the US Military Assistance Command in Vietnam ordered the cessation of crop destruction and the end of the defoliation programme.[50] The US has never employed this method since.[51] These facts imply that the US was indeed aware that their actions were not legitimate under international law.

In addition to treaty law violations, it can be argued that the US military practices above also violated some customary laws stipulated in the general principles of the law of war such as the principles of military necessity, discrimination and proportionality. It is arguable that the massive application of herbicides and the "carpet bombing" campaign brought indiscriminate harm and destruction to the Vietnam's environment. These actions also violated the proportionality principle as they resulted in severe damage to the environment that was out of proportion to any military advantage which could have been anticipated. Indeed, the end result of this war was that the US could not claim victory and was forced to withdraw its support of the Republic of Vietnam.

In summary, it can be concluded that the US military operations as examined above were violating both treaty and customary laws of war and

[48] Whitaker, above n 3, 33; Schwabach, above n 3, 124.

[49] A/Res/2603 (XXIV), adopted on 16 December 1969; Question of chemical and bacteriological (biological) weapons. Tarasofsky, above n 2, 55.

[50] L. Craig Johnstone, 'Ecocide and the Geneva Protocol', (1970-1971) 49 *Foreign Affairs* 711, 712.

[51] The US finally ratified the 1925 Geneva Protocol on 10th of April 1975 which was 20 days before the fall of Saigon. ICRC <http://www.icrc.org/ihl.nsf/INTRO?OpenView> at 20 July 2010.

thus incur State responsibility of any consequences. In particular to the environmental damage, it is arguable that the US responsible and liable for compensation to help the Vietnamese Government in repairing and rehabilitating the latter's environment. However, in reality this conclusion was not implemented effectively as examined below.

Subsequent to the war, Vietnam was heavily reliant upon foreign support. It is reported that Vietnam has received aid from at least 11 organisations of the UN System, from 17 or more nations, and from various private agencies located around the world. In terms of the damaged forest condition which has predicted to take several decades to recover, the Government of Vietnam established a number of new nurseries throughout Vietnam. The Vietnamese government also instituted national plans for the reforestation of 1.5 million hectares, about 100,000 hectares of which have been replanted yearly since the end of the war.[52]

It is arguable that the most notorious legacy of Vietnam War is the long-term effect of the chemical Agent Orange. Almost a decade after the end of war, there was a class action taken on behalf of American, Australian and New Zealand veterans that were affected by Agent Orange against the chemical companies that were contracted to produce the herbicides for the US government. This litigation effort, however, did not go to trial because in 1984 the companies agreed to pay an out-of-court settlement of US$180 million.[53] Even though it did not have a judicial ruling, this event formed a valuable precedent because this effort has resulted in out-of-court compensation settlement and has prompted the US lawmakers to pass the Agent Orange Act requiring the government to provide health care and compensation to US veterans without strict test evidence of their exposures to the substances.[54] These responses, both that of compensation and special legislation, confirm that the US Government and the chemical companies recognise the negative effects of Agent Orange, at least, on humans.

On the Vietnamese side, in the absence of international legal proceedings following the end of the Vietnam War, Vietnamese nationals conducted civil litigation against various US chemical companies under the US Al-

[52] Ibid, 376-377.

[53] Michael G. Palmer, 'Compensation for Vietnam's Agent Orange Victims', (2004) 8(1) *International Journal of Human Rights* 1, 9.

[54] Pamela Lacey and Vincent A. Lacey, 'Agent Orange: Government Responsibility for the Military Use of Phenoxy Herbicides', (1982) 3(1) *Journal of Legal Medicine* 137, 152; Trien T. Nguyen, 'Environmental Consequences of Dioxin from the War in Vietnam: What Has Been Done and what Else Could Be Done?', (2009) 66(1) *International Journal of Environmental Studies* 9, 18.

ien Tort Claims Act[55] before the US Eastern District Court of New York.[56] Unfortunately, they lost this case in all levels of the US judiciary system i.e. District Court,[57] Appeal Court[58] and Supreme Court.[59] The Courts held that the practice of spraying herbicides during war did not constitute a war-crime before 1975 and therefore was not a violation to any US international obligation.

As an overall observation of this armed conflict, it can be submitted that the implementation of State liability for environmental damage in particular to the US was ineffective. This is based on the facts that despite clear legal analysis on how the US military conduct resulting environmental injury had violated rules in the law of war, nothing had been done by the international community to pursue the US liability to give compensation to Vietnam. The international community prefers to collaborate through the UN to give Vietnam financial aids in rehabilitating the country post the war including environmental damage. This situation was due to the fact that the US is the permanent member of the UN Security Council of which a body that could determine State's liability in case of situation that threats international peace and security. By placing the US as the responsible belligerent before the Security Council, the latter would highly unlikely succeed to adopt on resolution charging the US as the responsible belligerent and thus liable for giving compensation to Vietnam.

Efforts to seek remedies on the basis of civil liability were also ineffective despite of the availibility of the forum. In particular to the US courts' decisions, they were arguably controversial in light of the facts that the US companies agreed to pay compensation to Vietnam War veterans who claimed personal injuries due to Agent Orange exposure and the US administration that pass the Agent Orange Act requiring the government to provide health care and compensation to US veterans without strict test evidence of their exposures to the substances.

Even though States' attitudes towards environmental damage compensation in this case did not appear promising, in fact the experience of

[55] "The District Courts shall have original jurisdiction of any civil action by an alien for a tort only, committed in violation of the law of nations or a treaty of the United States". *Alien Tort Claims Act*, 28 USC § 1350 (2000).

[56] This case attracted many scientific analyses in general. See generally Palmer, above n 51; Nguyen, above n 52.

[57] *In re "Agent Orange" Product Liability Litigation*, 373 F. Supp. 2d 7, (EDNY, 2005).

[58] *Vietnam Association for Victims of Agent Orange v. Dow Chemicals Co.*, 517 F. 3d 104, (2nd Cir. 2008).

[59] *Vietnam Association for Victims of Agent Orange, et al., Petitioners v. Dow Chemical Company, et al.*, 173 L. Ed. 2d 667 (US Supreme Court, 2009).

this war significantly triggered the rise of the environmental movement in general. Moreover, the international community has particularly taken into account the environmental impact of various military practices since the end of the Vietnam War. This greater concern for the environment is reflected in the adoption of humanitarian law specifically protecting the environment, such as the provisions from the 1977 Additional Protocol I and the 1977 ENMOD Convention.[60]

4.2. Persian Gulf War[61]

It is crucial to note that environmental damage to the Gulf area from this war was caused not only by the Iraqis' actions but also by the conduct of the Coalition forces.[62] There are some relevant treaties in the laws of war that were in force during this conflict i.e. the 1907 Hague Regulations, 1925 Geneva Protocol, 1949 Geneva Convention, 1977 ENMOD Convention, 1977 Additional Protocol I and 1981 Protocol III of the Conventional Weapon Convention.

Iraq is only bound to the 1925 Geneva Protocol and 1949 Geneva IV Convention. As for the Coalition States, most of the States are parties to these humanitarian laws but there some major States exceptions such as France, the UK and the US. During this conflict, these States were not parties to the Additional Protocol I and the 1981 Protocol III of the CCW. Apart from Additional Protocol I and 1981 Protocol III of the CCW, the rest of the treaty provisions that protect the environment during wartime are considered to be rules in customary international and thus bind both sides of the warring parties.

It is arguable that Iraq's actions to spill oil and set fires to oil wells within Kuwait's territory were violations to Articles 23(g) and 55 of the 1907 Hague Regulations and Article 53 of the 1949 Geneva IV Convention. Iraq's acts may be labelled as wanton and unnecessary destruction during international armed conflict and are punishable as a grave breach

[60] Caggiano, above n 3, 501; Tara Weinstein, 'Prosecuting Attacks that Destroy the Environment: Environmental Crimes or Humanitarian Atrocities?', (2005) 17(4) *Georgetown International Environmental Law Review* 697, 701.

[61] Hostilities began when Iraq invaded Kuwait on 2 August 1990 and were formally ended by the adoption of United Nations (UN) Security Council Resolution 687 on the 3rd of April 1991.

[62] William M. Arkin, 'The Environmental Threat of Military Operations' in Richard J. Grunawalt, John E. King, Ronald S. McClain (Eds.), *Protection of the Environment During Armed Conflict*, (1996) 116, 119; Arthur H. Westing, 'Constraints on Environmental Disruption during the Gulf War', in John O'Loughlin, Tom Mayer and Edward S. Greenberg, *War and Its Consequences: Lessons from the Persian Gulf Conflict* (1994) 77, 78.

under Article 147 of the 1949 Geneva IV Convention.[63] Based on factual grounds, Iraq's actions could not be justified under the rules of usufructuaries. It has been noted that what was spilled and set on fire were underground oil resources, *in situ,* unextracted and unprocessed, and accordingly not at that stage susceptible to immediate military use.[64]

Iraq was also considered to have violated the 1925 Geneva Protocol by spilling and burning huge amounts of oil to produce black fumes. Scientists have reported that crude oil, which caused the environmental disaster in the Persian Gulf War, essentially consisted of hydrocarbons, which are toxic and release poisonous gases if set ablaze. In addition, oil arguably falls in the category of "analogous liquids" as covered by the 1925 Geneva Protocol.[65]

Apart from violations of treaty laws, it can be argued that Iraq also violated some customary laws stipulated in the general principles of the law of war such as the principles of military necessity, discrimination and proportionality. As previously discussed, Iraq violated the principle of military necessity when it violated Article 23(g) of the 1907 Hague Convention. In releasing crude oil to the sea and the land and setting fire to oil wells without any specific direction, Iraq failed to meet the requirement of discrimination in employing a method of war. Lastly, these actions also violated the proportionality test as they resulted in significant damage to the environment that was excessive compared to the military advantage anticipated.

On the other side, it is arguable that the Coalition military conduct had violated wartime obligations mostly from customary rules such as principles of distinction, proportionality and military necessity. It is submitted that the Coalition's bombardment campaign brought enormous devastation to the environment and did not meet the requirements of distinction and proportionality principles.[66] The use of depleted uranium (DU) ammunitions in this armed conflict has been reported by the special investigator of the Sub-Committee on the Promotion and Protection of Human Rights as

[63] Sonja Boelaert-Suominen, 'Iraqi War Reparations and the Laws of War: A Discussion of the Current Work of the United Nations Compensation Commission with Specific Reference to Environmental Damage during Warfare", (1996) 50 *Austrian Journal of Public and International Law* 225, 280.

[64] Florentino P. Feliciano, 'Marine Pollution and Spoliation of Natural Resources as War Measures: A Note on Some International Law Problems in the Gulf War, (1992) 14(3) *Houston Journal of International Law* 483, 514.

[65] Okorodudu-Fubara, above n 3, 190-191.

[66] Westing, above n 60, 78; Oscar Schachter, 'United Nations Law in the Gulf Conflict', (1991) 85(3) *American Journal of International Law* 452, 466.

an illegal act under existing Humanitarian Law.[67] Besides the use of DU, the attacks on two operating nuclear reactors in South Baghdad were argued to be violations to the necessity principle because these targets were not directly important to the war operation. These attacks inevitably raise concerns that there might have been considerable release of radioactive materials which could have caused environmental damage.[68] Therefore, taking these all together, the Coalition States could be held responsible for environmental damage caused by their unlawful conduct and liable for paying compensation to repair the damages.

This armed conflict was formally ceased by the adoption of the Security Council Resolution 687.[69] It is arguable that this resolution was crucial because it demonstrated the practice of post war damage compensation, particularly for environmental damage. Resolution 687 reaffirms that Iraq was "liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources" as a consequence of its illegal invasion and occupation of Kuwait.[70] This resolution also determined the creation of a fund "to pay compensation for claims" arising from the war and established a Commission to administer the fund (United Nations Compensation Commission/UNCC).[71] According to Security Council Resolution 705,[72] the UNCC funds be assured by the allocation of a fixed percentage of revenues from Iraqi oil exports to be put under the authority of the UN. Although predicted to be inadequate to provide full compensation for all injuries arising from the conflict,[73] the creation of the fund and the Commission were crucial decisions in the development of war damage compensation practice within the international community.

Under the UNCC regime, the environmental claims placed under ca-

[67] Rosalie Bertell, 'Depleted Uranium: All the Questions about DU and Gulf War Syndrome are Not Yet Answered', (2006) 36(3) *International Journal of Health Services* 503, 518.

[68] Adam Roberts, 'Failures in Protecting the Environment in the 1990-91 Gulf War', in Peter Rowe (ed.), *The Gulf War 1990-91 in International and English Law* (1993), 140.

[69] S/Res/687 (1991), adopted on 3 April 1991, by 12 to 1, with 2 abstentions, on the situation between Iraq and Kuwait.

[70] S/Res/687 (1991), adopted on 3 April 1991, by 12 to 1, with 2 abstentions, on the situation between Iraq and Kuwait, para. 16.

[71] Ibid, para. 18.

[72] S/Res/705 (1991), adopted on 15 August 1991, unanimously, on the situation between Iraq and Kuwait. This resolution stipulates that "compensation to be paid by Iraq, as arising from section E of resolution 687 (1991) of 3 April 1991, shall not exceed 30 per cent of the annual value of its exports of petroleum and petroleum products". This percentage has been subsequently reduced to 25 per cent and finally in May 2003, to 5 per cent. *See* Para. 21, S/Res/1483 (2003), adopted on 22 May 2003, by 14 votes without Syria's participation, on the situation between Iraq and Kuwait.

[73] Gregory D. DiMeglio, 'Claims against Iraq: The UN Compensation Commission and Other Remedies', (1992) 86 *American Society of International Law Proceedings* 477, 482.

tegory "F".[74] The "F" claims are subdivided into F1, F2, F3, F4 and E/F claims. In particular to claims for environmental damage, they are classified as "F4" subcategory claims. As of the 31st of January 2010, 109 out of 168 of environmental claims have resulted in compensation awards worth approximately US$4.7 billion with outstanding award amounts US$5.5 million.[75]

In this conflict, Resolution 687 strongly upheld the concept of State responsibility at an inter-State level. The resolution confirmed that any violation of international obligations by a State incurs international responsibility. However, it is important to note that this resolution does not mention which specific obligation under international law of war, whether treaty or custom-based, Iraq violated to become liable for all war consequences. It rather determines that Iraq had violated its obligation not to use or threaten force against another State's territorial sovereignty (*ius ad bellum*) and was therefore liable for all the consequences of war.[76] In particular to environmental damage, it is noteworthy that for the first time, this resolution expressly recognised environmental damage as a compensable consequence of an international armed conflict. Moreover, the establishment of the UNCC further signifies this improvement.

As affirmed by Resolution 687, the principal legal basis for Iraq's liability is the general prohibition on use of force against another State as stipulated in Article 2(4) UN Charter. This affirmation of the legal basis for Iraq's liability was an important step toward simplifying the evidentiary requirements for the implementation of State responsibility to provide compensation for war damages including environmental damage. If Article 2(4) had not been used as the legal basis for environmental compensation claims and claimants were required to prove direct loss under the laws of armed conflict, it would be a difficult evidentiary process because neither the ENMOD convention or the Additional Protocol I were subscribed to by Iraq.[77]

Besides these promising developments, unfortunately, there are some issues which might be hinderance for future endeavour in similar case. First, a number of scholars have raised some concerns about the environ-

[74] United Nations Compensation Commission, *Category "F" Claims*, <http://www.uncc.ch/claims/f_claims.htm> at 23 March 2010.

[75] United Nations Compensation Commission, *Status of Processing and Payment of Claims*, <http://www.uncc.ch/status.htm> at 23 March 2010.

[76] *See* Low and Hodgkinson, above n 3, 412-414.

[77] Tiffany Y. Lee, 'Environmental Liability Provisions under the UN Compensation Commission: Remarkable Achievement with Room for Improved Deterrence', (1998) 11 *Georgetown International Environmental Law Review* 209, 218-219.

mental claims position in terms of the subdivisions of claim categories. This low prioritisation of environmental damage claims was arguably could diminish the full deterrent effect of the environmental liability provisions of the UNCC.[78] The UNCC had just started to review environmental claims seven years after its establishment. This timeframe was extremely different to that of other claims treatments, particularly claims for damages suffered by individuals which were considered as "urgent" matters with fixed award amounts and rapid and simplified procedures. Another scholar argues that if the environmental claims had been addressed promptly after the conflict was over, the actual damage may well have been less than it became.[79] Therefore, the sooner the environmental claims are awarded, the less devastating the effect will be, and the less the need for damages or compensation.

Second, Security Council Resolution 687 might be considered as a "victor justice" resolution because it was drafted and adopted by the Security Council, of which most of the permanent members are also part of the organisation of Coalition States. Further, regarding the rules and mechanism of the post conflict in the UNCC regime, Iraq was alienated by having no right to participate but only to bear nearly all consequences of the war. Third, importantly, the Coalition forces do not bear any responsibility for the negative consequences resulting from their own conduct during this conflict. As examined previously, the Coalition forces' warfare conduct also contributed to devastating effects on humans and the environment.

In summary, the 1991 Persian Gulf War had given the international community a valuable experience in particular to the implementation of State responsibility for environmental damage during international hostilities. It is clear that Security Council had played significant role in determining State's liability for war consequences resulting from unlawful actions. This event was also confirmed for the first time that environmental damage during war is included as one of the compensable claims. The establishment of the UNCC also added the value of legal precedent from this conflict.

4.3. Israel-Lebanon War[80]

[78] Ibid, 215.

[79] David D. Caron, 'The United Nations Compensation Commission for Claims Arising Out of the 1991 Gulf War: The "Arising Prior To" Decision', (2005) 14(2) *Journal of Transnational Law & Policy* 217, 229.

[80] The armed conflict between Lebanon and Israel began on 12 July and ended on 14 August 2006- approximately 34 days in total. This event was formally ended by the adoption of ceasefire

The conflict between Israel and Lebanon in 2006 has been the most recent international armed conflict with notable environmentally destructive effects. It should be noted that environmental damage was contributed by both sides of the warring parties. Therefore, it is instructive to examine whether both military conducts that caused environmental injuries have violated rules within the law of war.

In terms of belligerents involved, it is worth noting that this armed conflict was mainly between the Israeli Defence Force and the Lebanese militant armed group Hezbollah which is a non-state actor. Nevertheless, many have examined relevant supporting facts that proven Hezbollah is an integral part of Lebanon.[81] These facts validate the notion that Lebanon was undeniably supporting Hezbollah's conduct and therefore any actions by the latter are attributable to the former.

During the conflict, both Israel and Lebanon are parties to the 1925 Geneva Protocol and the 1949 Geneva IV Convention. Environmental provisions from the 1907 Hague Regulations are applicable to this conflict because of their status as customary international law. Lebanon is party to the 1977 ENMOD Convention and the 1977 Additional Protocol I but not to the 1981 CCW Convention, nor to any of its Protocols. On the other side, Israel is not party to the 1977 ENMOD Convention and the 1977 Additional Protocol I. Israel is a party to the 1981 CCW Convention with all its protocols, except the third. In terms of customary humanitarian law, it is clear that these rules were binding on all belligerents during this armed conflict and that their conduct could be tested against these rules such as principles of discrimination, military necessity, and proportionality.

As examined previously, the environmental damage caused by both parties was mainly committed during the conflict. Therefore, it is only their actions during conflict that could be examined against the applicable laws of war. The question is whether the warring parties violated international law and can therefore incur State liability for environmental damage. In this conflict, treaty-based environmental protection arguably only comes from the 1907 Hague Regulation and the 1977 Additional Protocol I. The rest of the treaties are irrelevant because they are either intended for times of occupation or because the object of the treaty is not compatible with this

provisions under the UN Security Council Resolution 1701.

[81] Augustus Richard Norton, 'The Role of Hezbollah in Lebanese Domestic Politics', (2007) 42(4) *International Spectator* 475, 481; Catherine Bloom, 'The Classification of Hezbollah in Both International and Non-International Armed Conflicts', (2008) 14 *Annual Survey of International & Comparative Law* 61, 80-81; Yaël Ronen, 'Israel, Hizbollah, and the Second Lebanon War', (2006) 9 *Yearbook of International Humanitarian Law* 362, 378-384.

conflict.[82]

It can be argued that Israel's massive bombing campaign against Lebanon's territory, which caused destruction to the landscape and important infrastructure, violated Article 23(g) of the 1907 Hague Regulation for the principle of military necessity.[83] The attacks on most of Lebanon's civilian infrastructure can hardly be justified as being militarily imperative. It seems that these attacks were merely punitive in nature since no real military advantage was gained by Israel, other than causing human and environmental casualties. Of the civilian targets, only targets such as airport, roads, bridges and ports may have had a military advantage in weakening Hezbollah's military force. Further, Human Rights Watch reported that it "found no cases in which Hezbollah deliberately used civilians as shields to protect them from retaliatory IDF attack" and observed that the objects of Israel's bombing appeared to be purely civilian, with scant to no military value.[84]

Besides violating the treaty provision above, it is also submitted that Israel's attacks to the Jiyyeh power plant, which caused a major oil spill, violated customary principles of the law of war, namely the principles of military necessity and proportionality.[85]

It is arguable that the attack on this fuel storage facility did not proffer a definite military advantage. In a similar way to the event of 1991 Gulf War, bombing and spilling oil into the sea may be seen to have two potential military benefits: to produce visual obscurants to impair the other party; or to deprive the other party of an important source of fuel. This attack did not have any military advantage since Hezbollah did not use air strikes and thus visual obscurants were unnecessary. These examinations further strengthen the claim that the Israeli attacks on the Jiyyeh power plant did not proffer any military advantage, and therefore failed to meet the requirement of military necessity.

In terms of the proportionality principle, it can be argued that the at-

[82] Environmental protection rules from the 1949 Geneva IV Convention are relevant only in times of military occupation. Mean while, the 1977 ENMOD Convention considered to be irrelevant because neither Israel nor Hezbollah employed weather modification as one of their warfare methods.

[83] Article 23(g), Annex to *the 1907 Hague Convention (IV) Respecting the Laws and Customs of War on Land*, signed on 18 October 1907, entered into force on 26 January 1910, (1908) 2(1/2) *American Journal of International Law* 90.

[84] Human Rights Watch, *Fatal Strikes: Israel's Indiscriminate Attacks against Civilians in Lebanon* (2006) [3] <http://www.hrw.org/sites/default/files/reports/lebanon0806webwcover.pdf> at 1 July 2010.

[85] Ling-Yee Huang, 'The 2006 Israeli-Lebanese Conflict: A Case Study for Protection of the Environment in Times of Armed Conflict', (2008) 20 *Florida Journal of International Law* 103, 111.

tacks on the Jiyyeh power plant hardly met this requirement. As examined above, the attack had no clear military benefit. On the other hand, it clearly caused severe environmental damage. With capability of high technology, Israel should have had information from satellite photos and aerial photography that showed that the fuel storage facilities were very close to the shoreline. Israel should also have known that any attack on these premises would only bring a high level of environmental damage compared to any military benefit that could be gained. In fact, the oil spill resulting from the Jiyyeh power plant had caused widespread and severe environmental damage. All things considered, the environmental devastation caused by these attacks far outweighs any small military advantage Israel could have potentially gained. Based on these examinations, it can be submitted that Israel's attack on the Jiyyeh power plant was unlawful because it did not meet the requirement of military necessity and proportionality.

On the other side, the only conduct from Hezbollah which can be examined against applicable humanitarian law was its rocket campaign against the Northern forests of Israel. This campaign caused massive areas of forest fires and destroyed all kinds of ecosystems that exist in those forest areas. It can be submitted that Hezbollah's action in destroying Israel's forests were in violation of Article 23(g) of the 1907 Hague Regulations and Articles 35(3) and 55 of the 1977 Additional Protocol I.

Lebanon, or in this case Hezbollah, violated rules from the 1907 Hague Regulations because it destroyed forest as public/State property without legitimising this action as a military necessity. The launching of thousands rockets into Israel's territory by Hezbollah was simply a response Israel's own campaign. It is arguable that igniting fires in the forests had no benefit for Hezbollah whatsoever in weakening Israel's military forces. Meanwhile, Hezbollah also violated Article 35(3) of the Additional Protocol I because the attack on forests was clearly a premeditated act and was specifically intended to destroy the forests.[86] This attack arguably caused widespread, long-term and severe damage to the environment. With a total of 120 square km of forest fires and hundreds of thousands of burned tress, it is evident that this action caused widespread and severe damage to the environment. In addition, it is predicted that it will take 50 to 60 years to rehabilitate the forest, making this damage truly long-term.[87] It can also be

[86] Despite having capabilities of long-range rockets/missiles, most of the rockets were directed to the northern part of Israel's forest which is the closest area to southern Lebanon.

[87] Jerusalem Post, *Fires Caused by Katyushas Set Northern Forests Back 50-60 Years* (2006) <www.jnf.org/site/DocServer/Jerusalem_Post__Fires_caused_by_Katyushas_set_northern_.pdf?docID=1545> at 2 June 2010.

argued that this action was simply a means of reprisal, making it a violation of Article 55(2) of the 1977 Additional Protocol I.

This inter-state armed conflict was formally ended by the adoption of UN Security Council Resolution 1701.[88] Both of the warring parties claimed victory over each other. In fact, many suggested that it was unclear which side had won the war. Many analysts of this war may come to differing views depending on their backgrounds and opinions.[89]

In spite of the well-recorded severe environmental impact of this armed conflict, Resolution 1701 mentions no single provision from this resolution addresses responsibility for environmental damage in either Israel or Lebanon. This resolution called for the cessation of hostilities, demanded Israeli forces withdraw from Lebanon in parallel with the deployment of Lebanese and UNIFIL soldiers throughout the South Lebanon, called for the Government of Lebanon to disarm Hezbollah and to secure its borders and other entry points to prevent the entry into Lebanon of arms or related material without its consent, and reiterated that full control of Lebanon ought to be in the hands of the government of Lebanon.

Since there was no party held responsible for any environmental damage resulting from this armed conflict, both Israel and Lebanon have no other option than to repair and rehabilitate their environment with or without the international community's assistance. For Lebanon, the country's lack of resources and capability for tackling any environmental pollution or damage was noted during and after the conflict.[90] Therefore, in repairing and restoring its environment, Lebanon was helped by the international community. The latter was involved in Lebanon's reconstruction through the United Nations and its agencies.[91] Besides assistance from the UN, it was also noted that Lebanon received a significant budget from Iran and Syria for reconstruction albeit via the Hezbollah.[92]

Meanwhile, in responding to the damage from the massive forest fires, the Government of Israel gave an emergency aid package to northern towns

[88] S/Res/1701 (2006), adopted on 11 August 2006, on the situation in Middle East.

[89] Hany T. Nakhleh, *The 2006 Israeli War on Lebanon: Analysis and Strategic Implications* (2007) [7] US Army War College <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA468848&Location=U2&doc=Get TRDoc.pdf> at 6 July 2010.

[90] Aseel A. Takshe, Meg Huby, Sofia Frantzi, Jon C. Lovett, 'Dealing with Pollution from Conflict: Analysis of Discourses around the 2006 Lebanon Oil Spill', (2010) 91(4) *Journal of Environmental Management* 887, 893.

[91] Roger Mac Ginty, 'Reconstructing Post-War Lebanon: A Challenge to the Liberal Peace?', (2007) 7(3) *Conflict, Security & Development* 457, 466. S/2006/670, Report of the Secretary-General on the Implementation of Resolution 1701 (2006), 18 August 2006, para. 45.

[92] Bassam Fattouh and Joachim Kolb, 'The Outlook for Economic Reconstruction in Lebanon after the 2006 War', (2006) 6 *MIT Electronic Journal of Middle East Studies* 96, 105.

and villages. In this matter, UNESCO has invited the Government of Israel to approach the United Nations if they need aid to support those efforts.[93] It was also noted that the Government of Israel has paid compensation to business owners and families and opened treatment centres for those suffering from the impact of the conflict.[94] These facts showed that Israel had the capabilities to repair and restore its environmental damage without the assistance of international community.

It is crucial to note that soon after the conflict the Human Rights Council established a high-level commission of inquiry to investigate Israel's conduct. The Commission concludes that the IDF committed a number of serious violations of IHL during the Lebanon campaign.[95] In terms of environmental damage, the Commission concluded that the Israeli's premeditated strikes against oil tanks caused long-term and severe environmental damage. Further, it noted that this negative consequence to the environment "went far beyond whatever military objective Israel may have had'.[96] Therefore, the environmental damage showed the IDF's failure to take the necessary precautionary measures and thus violated Israel's obligations to protect the natural environment and the right to health.[97]

Unfortunately, this report was merely a report that has no legal consequences. The international community seems reluctant to bring these findings as the agenda of the UN General Assembly so that it can request the Security Council to consider it. Even if this report is considered by the Security Council, it is highly unlikely that it agrees on resolution charging Israel for any responsibility of the war consequences highly possibly due to the fact of its acquaintance with the US.

In spite of its many donors offering aid for environment rehabilitation, it was reported that the Lebanese government was considering taking legal action against Israel for the purpose of obtaining both moral satisfaction and financial compensation.[98] However, this legal resort was considered not to be a good option since it would encounter many obstacles.[99] First,

---

[93] S/2006/670, Report of the Secretary-General on the Implementation of Resolution 1701 (2006), 18 August 2006, para. 46.

[94] S/2006/730, Report of the Secretary-General on the Implementation of Resolution 1701 (2006), 12 September 2006, para. 8.

[95] A/HRC/3/2, *Report of the Commission of Inquiry on Lebanon Pursuant to Human Rights Council Resolution S-2/1*, 23 November 2006, paras. 13-30.

[96] Ibid, para. 220.

[97] Ibid, para. 23.

[98] 'Lebanon: We'll sue Israel for damages' (2006) *ynetnews* <http://www.ynetnews.com/articles/0,7340,L-3280106,00.html> at 17 July 2010.

[99] Fattouh and Kolb, above n 90, 105.

Lebanon would find it difficult to formulate a legal basis for its claim since through Resolution 1701, Israel succeeded in shifting the responsibility to Hezbollah as the party that initiated the war, and both Israel and Hezbollah are considered in the eyes of international law as having committed war crimes as both parties targeted civilians. Secondly, resorting to remedies via the ICC was not feasible since neither Lebanon nor Israel is a party to the Rome Treaty. Even though in theory the Security Council can demand the issue of compensation to be considered by the International Criminal Court,[100] this request would highly likely be vetoed by the US.[101]

In contrast, Israeli citizens eventually took real action in seeking compensation by submitting a lawsuit against Lebanon in a US civil court on the basis that the Lebanese government was responsible for damages caused to residents of Israel. This was based on the claim that the Lebanese government failed to prevent Hezbollah's actions in harming Israeli citizens from a platform in its own territory, thus violating the International Convention for the Suppression of Terrorism.[102]

In summarising lessons from this armed conflict, it can be argued that this event had pulled back the positive development from the 1991 Persian Gulf War in terms of State responsibility implementation for environmental damage. Resolution 1701 was adopted in situation where the international community in fact aware of the importance of protecting the environment during wartime, a situation that totally different to the period before the Vietnam War.

V. Conclusion

After the Vietnam War, the international community could not effectively upheld State liability for environmental damage of the war. Nothing had been done at the international level to hold the US liable for environmental damage during the Vietnam War. This regrettable situation is due to the fact that the obligation to protect the environment during armed conflict has not been firmly established before and during that period.

Almost two decades after the Vietnam War, it can be argued that Resolution 687 adopted following the Gulf War in 1991 strongly upheld the

[100] Article 13, *Statute of the International Criminal Court*, opened for signature 16 March 1998, 2187 UNTS 38544 (entered into force 1 July 2002).

[101] Fattouh and Kolb, above n 90, 106.

[102] Tani Goldstein, Compensation Claim against Lebanese Gov't in Works (2006) Ynetnews <http://www.ynetnews.com/articles/0,7340,L-3278932,00.html> at 17 July 2010; Fattouh and Kolb, ibid.

concept of State responsibility at an inter-State level. The resolution confirmed that any violation of international obligations by a State incurs international responsibility. This resolution for the first time expressly recognised environmental damage as a compensable consequence of an international armed conflict. The establishment of the UNCC further signifies this improvement in post conflict responsibility for war victims.

The war settlement between Israel and Lebanon did not address environmental issues inspite of well-recorded environmental devastation that resulted from military conduct which violated wartime international rules. Further, this experience occurred at the time when the international community is fully aware of the existence of international legal obligations to protect the environment during international hostilities. This situation could have been very different if the international community via the Security Council established an impartial panel to examine the lawfulness of both Israel and Hezbollah conduct that have significant environmental impact. Therefore, any finding of violations could be effectively addressed by the Security Council in the form of liability determination especially for environmental damage.

Based on examination of three cases above, it can be concluded that the implementation of State liability for environmental damage is inconsistent. Nevertheless, it is crucial to recognise that there were some significant developments in terms of environmental protection during armed conflict in general. These developments were mainly contributed from the experience of the Vietnam and Gulf Wars.

The Vietnam War had triggered the rise of the environmental movement in general. Moreover, the international community has particularly taken into account the environmental impact of various military practices since the end of the Vietnam War. This greater concern for the environment is reflected in the adoption of humanitarian law specifically protecting the environment, such as the provisions from the 1977 Additional Protocol I and the 1977 ENMOD Convention. Meanwhile, post the Gulf War, the establishment of the UNCC should be recognised as a constructive precedent in terms of the actual implementation of State responsibility post armed conflict, particularly in relation to environmental damage liability. Further, one author describes the UNCC as a "concrete manifestation of the international community's commitment to the principles of state responsibility".[103]

[103] John R. Crook, 'The United Nations Compensation Commission - A New Structure to Enforce State Responsibility', (1993) 87(1) *American Journal of International Law* 144, 157.

Finally, considering these developments and inconsistencies in terms of State practice towards environmental protection during international armed conflicts, it is now up to the international community on how it will respond to similar subsequent cases. Nevertheless, one may expect that the international community will react firmly in the future in holding belligerents liable for any environmental damage resulting from unlawful conduct during armed conflict.