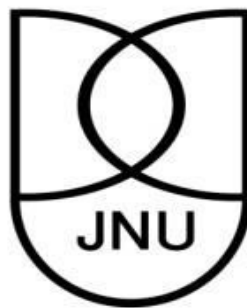


**DELIBERATE DESTRUCTION OF THE ENVIROMENT DURING WARTIME: A
STUDY OF RESPONSES AND NEGOTIATIONS**

*Dissertation submitted to the Jawaharlal Nehru University
in partial fulfilment of the requirements
for the award of the degree of*

MASTER OF PHILOSOPHY

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DECLARATION

I declare that the dissertation titled "**Deliberate Destruction of The Environment During Wartime: A study of Responses and Negotiations**" submitted by me in partial fulfilment for the award of the Degree of **Master of Philosophy** is my original work and has not been previously submitted for any other degree of this University or any other university.

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LIST OF ACRONYMS

CIA	Central Intelligence Agency
ENMOD	Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques
CTBT	Comprehensive Test Ban Treaty
ICBL	International Campaign to Ban Landmines
ICC	International Criminal Court
ICJ	International Court of Justice
ICRC	International Committee of the Red Cross
ICTR	International Criminal Tribunal for Rwanda
ICTY	International Criminal Tribunal for Yugoslavia
IEL	International Environmental Law
IHL	International Humanitarian Law
INGO	International Non-Governmental Organisation
MARPOL	International Convention for the Prevention of Pollution from Ships
NATO	North Atlantic Treaty Organization
NGO	Non-Governmental Organisation
OTP	Office Of Prosecutor
PTBT	Partial Test Ban Treaty
UNCC	United Nations Compensation Committee
UNCHS	United Nations Human Settlements Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
UNSC	United Nations Security Council
WWF	World Wildlife Fund

Chapter 1

Introduction

“When two elephants fight, it’s the grass that gets hurt” (African proverb)

Human beings have been living on earth for more than 200,000 years now, evolving and growing on this planet for thousands of years in harmony with the natural environment. Professor Leslie Green defines environment as, “The conditions or influences under which any person or thing lives or is developed; the sum of total influences which modify and determine the development of life” (Green 1996: 416). In the last 200 years, however, the world has seen environmental destruction at a level that is unprecedented. The destruction of the environment in the past 50 years has been even more expeditious, which has resulted in human caused climate change. Greenhouse gases (GHGs) have resulted in global warming and as a result the average temperature of the earth has increased which has disturbed the balance. According to data released by the World Wide Fund for Nature (WWF), the earth had lost almost half of its wildlife population by 2014 in just 40 years. It is obvious that human activity, especially in the past two centuries, has afflicted the environment at a massive level. Industrialisation is one of the biggest perpetrators of this environmental devastation.

Other human activities – such as war – have also impaired the environment but are hardly ever cited as the culprits behind environmental devastation. Humankind has always counted its war casualties as the dead and wounded soldiers and civilians, and the destroyed cities and livelihoods. The environment has remained the unpublished victim of war. Environmental consequences of war – such as water wells getting polluted, crops torched, forests cut down, soil polluted and animals killed for military gain – are totally ignored; the international community has failed to account for the environmental consequences of war.

Some of the environmental damages that militaries cause, include the contamination left behind by the production of nuclear, chemical and biological weapons, used weapons, air and water pollution caused by convoys and military vehicles etc. Until very recently, the global community had a very anthropocentric approach towards the destruction of environment during

wartime. The world today is ridden with conflicts. West Asia and Africa are dealing with protracted civil wars and internal conflicts, Superpowers are fighting proxy wars in third world countries and non-state actors continue to disrupt peace in societies. These armed conflicts not only cause loss of lives and livelihoods of people but also wreak havoc on the environment. Environmental destruction aggravates the existing problems and makes it difficult for life to go back to normal after the end of the conflict. There is an urgent need to deal with the issue of environmental destruction and to minimise it as much as possible. The present work seeks to study the instances of war time environmental damage in human history and in the contemporary world and the response of the global community to it.

History is ripe with instances where war has resulted in environmental devastation. It is rather curious that war is seldom mentioned as one of the reasons for environmental degradation when it is, in fact, responsible for the clearing of forests, killing wildlife, soil erosion and poisoning of land and water. History is ripe with instances where war has resulted in the devastation of the environment. Forests were cleared and crops burnt in what were called strategic clearances during war since forests provided cover to the enemy and crops sustained the armies or the local populations of the enemy state. Instances of such clearing can be found in the ancient Roman and Ottoman Empire. Forests were also cleared in ancient times since timber was essential for producing means of warfare, and during the colonial times because timber was used in shipbuilding which was central to mercantile capitalism. Rivers were contaminated and wells were poisoned in ancient Rome and Persia to prevent the adversary from using water. Arguably the instances of wartime destruction in ancient times did not warrant a lot of attention since they were not of a magnitude that could affect the environment on a massive level.

This changed after the invention of gunpowder when the destructive power of conventional weapons increased manifold. The advances in military technology meant that war had become much more destructive than before, testimony to which was World War I in 1914. Battlegrounds were destroyed and the rampant use of chemical and biological weapons devastated the environment. However, the destruction of the environment in World War I was dwarfed by the environmental havoc that was created in the wake of World War II. The Allies bombed cities of Germany and Japan indiscriminately, turning them into graveyards. The destruction of the

environment was not only disregarded but was also celebrated in certain accounts. For example, the 1955 feature film called the Dam Busters featured the British attack on a German Dam in the Ruhr valley with an intention to destroy the industrial complex located in the valley that was crucial to the German forces. Bombs were specially designed to bounce off water and explode only when they hit the walls of the Dam (“Dam Busters”). The feature film celebrated the destruction of the dams and the bravery of the British Air Force. It was even nominated for the Academy Awards. World War II ended with the US dropping two nuclear bombs on the cities of Hiroshima and Nagasaki on 6th and 9th August 1945. The devastation caused by the nuclear bombs was unprecedented and took the whole world by surprise and horror. Since the human cost of the nuclear attack was so extensive, environmental destruction that resulted from the attack got sidelined and understandably so.

The environmental crimes committed by the US in the Vietnam War of 1971 were, however, successful in bringing the issue of environmental damage – both deliberate and incidental – into the forefront. Extensive use of herbicides in the Vietnam War which resulted in the destruction of around 10 percent of the jungles of Southern Vietnam brought the severity of environmental devastation during armed conflict to light. This happened during the environmental movement in the 1970s when environmental activism had gained momentum and captured the imagination of people around the globe. With general awareness growing about environmental protection, the international community rallied to demand a cleaner environment.

Environmental protection carved a niche for itself in international law and has been developing since the early 1970s. Since environmental problems do not respect borders, it was imperative that states came together to protect the global environment from an environmental catastrophe. The United Nations and its organs have been instrumental in the formulation and negotiation of environmental policies and regulations. The international environmental movement was represented by a range of international organisations, grassroots organisations, social movements and individual activists who came from all walks of life. They advocated not just a change in individual lifestyle but also demanded policy change from their governments. This evolved into international organisations mobilising to make environmental protection an integral

part of international law. The cause of environmental protection was also seen to be related to human rights since the 'right to a clean environment' was proposed as a human right.

Ecocide committed by the Iraqi forces in Kuwait in 1990 and the draining of the marshlands of southern Mesopotamia by the Saddam Hussein regime around the same time, the environmental attack by the North Atlantic Treaty Organisation (NATO) in Yugoslavia in 1999 and continued civil wars and refugee crises that the world faces today, show that the environment is still vulnerable to armed conflicts. There is still a need to strengthen the deterrence mechanism and inculcate awareness about the severity of wartime environmental devastation.

International laws and treaties have extended protection to the environment during armed conflicts. The international law for environmental protection has grown considerably and there are a number of international conventions and treaties that deal with environmental protection. The Hague Convention of 1907 categorically prohibited the unlimited use of power and means employed in warfare that could cause unnecessary suffering and attack on undefended property. The Convention not only provided for safeguarding seized property but also advocated for the protection of religion, art, science and historical monuments during armed conflicts (Hague Convention 1907).

The Additional Protocol to the Geneva Convention of 1949, Articles 55 and 35, cover the protection of the environment during wars. The Articles prohibit any means of warfare which may be expected to cause widespread, long term and severe damage to the natural environment. These conventions did provide a certain degree of environmental protection but they did not directly address the issue of environmental crimes committed during wars. International environmental law also failed to address the safety of the environment from wartime devastation. Even after being a highly codified part of international law, international environmental law remains difficult to implement. It is difficult to enforce IEL because of the reluctance of states to compromise their sovereignty. Hence, even though states agree that environmental protection is a global issue and can only be tackled with everybody on-board, they find it difficult to see eye to eye when it comes to implementation of environmental laws that might conflict with their sovereignty. Environmental negotiations are often tricky, lengthy and complicated. Unlike economic regulations, international

environmental law is difficult to implement since there is no international body that is directly authorised to enforce environmental laws.

While the International Court of Justice (ICJ) or the national courts have jurisdiction, states usually hesitate to approach them, barring certain exceptions like the *Trail Smelter* case of 1941. In some cases, states have taken an initiative to hold other states liable for the violation of international environmental law. For example, the United States threatened to restrict Japanese fishing vessels in the US if they did not accede to the whaling moratorium in 2000, after which the Japanese decided to comply with the restriction to avoid any sanctions from the US. A study conducted by the US general accounting office in 1992 concluded that environmental agreements did not have proper procedures to monitor and ensure the implementation and compliance of these agreements. It cannot be denied however that the presence of these treaties and conventions does set the norms for environmental protection.

Even though there are a number of peacetime treaties that mandate states to protect the environment and protect the environmental rights of people, very few of them deal with environmental destruction during war. One of the reasons behind this is the lack of agreement on the question of whether peacetime treaties that protect the environment could be applicable during wars. The environment has been used and manipulated during wartime by the armed forces to gain an advantage over their adversaries. It was commonplace for forests to be burned down, crops to be destroyed and sources of water to be poisoned to bring the enemies to their knees. For a long time, the primary focus was on the use of the environment in war rather than on the impact of war on the environment. The impact of warfare on the environment can be studied under different categories.

(a) Plunder of nature for natural resources that could be used in warfare: There used to be a constant demand for wood and metal for the means to fight wars. Shipbuilding, transport and logistics, and weapons that were used in ancient warfare required huge quantities of wood and later metal, mostly iron. Timber was crucial in naval strategies and made a lot of difference in the stature of a naval convoy. Use of horses, elephants and dogs was also common and the armed forces depended on the forests for them. During the colonial times, the forests of the colonised

nations were plundered for timber since ships had become crucial for European powers around the 16th century. Even in modern times, first world countries continue to exploit their erstwhile colonies for resources, which ended up fuelling internal conflict. For example, the Security Council has condemned the plunder of natural resources of the Democratic Republic of Congo (DRC), which resulted in fuelling conflict in the already disturbed country (Lopez 2006: 238).

(b) Collateral Damage of the Environment: Nature has suffered the consequences of warfare for ages. There have been cases of strategic clearance in ancient warfare mostly to curb guerrilla action but also to change the landscape. Modern warfare has continued to sacrifice the environment for military purposes. A classic example is the carpet bombing that was witnessed during World War II. World War I witnessed the excessive use of chemical and biological weapons that had detrimental effects on the environment. World War II also put a lot of pressure since it was at an even larger magnitude. In other cases such as in Operation Ranch Hand, the US forces cleared the forests in Southern Vietnam to expose the guerrilla forces. Under international law, destruction of the environment during war is prohibited; however most treaties and conventions have the rule of exception for ‘military necessity’. In the case of the scorched earth policy used by a German Commander Rendulic during World War II, the commander was acquitted of charges of environmental destruction at the Nuremberg trials when the court accepted the argument of the General that he genuinely believed that his actions were necessary for getting a military advantage over the Russian troops. The NATO forces used the same argument for their aerial bombing attacks on former Yugoslavia. There are numerous examples of the environment being the collateral damage of a military attack. In fact, it is safe to say that all military attacks have some sort of environmental consequences.

(c) Deliberate Environmental Damage during Armed Conflicts: There are numerous examples in history where the environment was deliberately targeted by armed forces or rebels to get an advantage in an armed conflict, be it an international or an internal armed conflict. Strategic clearance of forests for gaining military advantage was not uncommon. Rivers and sources of water were poisoned to deny water to the adversaries. Destruction of crops and farm lands, killing livestock and plunder of countryside was also rampant. The army was one of the major reasons behind forest fires. There also have been instances of biological warfare deliberately spread by

armies to gain an advantage in the battlefield. Destruction of crops, orchards and vineyards was one of the primary reasons behind the defeat of Athens in the Peloponnesian war of 431-404 BC.

Premeditated destruction of the environment to gain military advantage continued with modern warfare. Both world wars witnessed deliberate environmental destruction. For example the tragedy of the Ruhr valley in Germany, which was deliberately targeted by the allied forces in World War II since it was crucially important to the German forces because of its industries. Use of Agent Orange in Vietnam by the US in 1963-71 destroyed more than 10% of forest cover in Southern Vietnam. The US insisted that the environment was the collateral damage and the use of Agent Orange was made due to military necessity. However, the massive scale at which the destruction of environment took place during Operation Ranch Hand cannot be excused as mere 'collateral damage'.

In 1990, Iraqi forces attacked Kuwait and set its oil wells on fire and pumped oil into the sea, causing severe pollution to the terrestrial and marine environments, which took years to recover from. Iraq had attacked Kuwait with the intent to destroy its oil industry. With modern technology, it has become possible to manipulate the environment and to use it as a weapon in war. After the deliberate harnessing of the environment for military advantage was witnessed in Vietnam, a convention prohibiting environmental modification techniques was adopted in 1978 as a response to the US actions. The international community has shown a reluctance to come up with a deterrence based model for the prosecution of individuals and by holding states liable for environmental destruction during wartime and has instead adopted a treaty-based law and customary law based approach in dealing with deliberate environmental destruction (Weinstein 2005: 700).

Deliberate environmental destruction to gain military advantage has a long history. Instances of use of tactics such as forest fires to gain military edge were witnessed in history in 425 BC when Athenian soldiers burnt down forests to gain visuals on the Spartan soldiers in the battle of Pylos. There are also recorded occurrences of biological warfare, crop destruction and killing live stocks, use of scorched earth tactics and poisoning of sources of water to gain military advantage over adversaries in history. While it is true that in many cases, the environment is merely the unfortunate

victim of war, there are cases where the environment is deliberately targeted to get an upper hand in the battlefield. It is extremely difficult to determine whether the environmental damage that was caused during an armed conflict was incidental or deliberate, and was done with prior knowledge of damage to the environment that could result from an attack or not. This has made it difficult to ensure liability and compensation in cases of environmental destruction done deliberately.

The environmental destruction that resulted from military action before the 17th century was very limited in its scope. Gradually this started to change as the scope of war expanded. In the 17th century, the Franco Dutch war witnessed environmental devastation that had a much larger impact caused by the cutting of dykes by the Dutch to stop the French forces from overrunning the Netherlands. The flooding caused severe environmental destruction and eroded the top layer of soil. The environmental cost of war only increased in the 18th century, irrespective of whether environmental destruction was deliberate or incidental. It became clear that the protection that was accorded by religious text was no longer enough to protect the environment from destruction during wars. By the advent of the 20th century the situation only got worse as the conventional firepower of the military increased manifold. With new war technology, wars continued for years at a stretch. The use of landmines, munitions with delayed action usage and incendiary weapons, proved fatal for the environment. Both the incidental and deliberate destruction of environment was now happening at a grand scale. The two World Wars went even further and caused huge environmental losses in their wake.

The International Humanitarian Law (IHL) of 1899 and 1907 that had been adopted to regulate war seemed grossly unequipped to deal with the immense level of environmental destruction that was witnessed during the World Wars. Although there were other international laws and conventions that provided tangential protection to the environment such as the 1868 *Declaration of Saint Petersburg* which prohibited the use of small explosives or incendiary projectiles, they were hardly enough to protect the environment from the new weaponry. There was an absolute need to prohibit the deliberate destruction of environment during wars. The Geneva Convention of 1949 that came after the World Wars did expand protection to the environment during wars but it remained highly anthropocentric in nature. The *Convention on the Prohibition of Military or any Hostile Use of Environmental Modification Techniques* (ENMOD),

which was drafted in the wake of massive environmental destruction that was witnessed in Vietnam in 1961-73, especially dealt with environmental destruction during wars. Not only was the ENMOD Convention anthropocentric in nature, it was also exceedingly limited in its applicability and provided very limited protection to the environment.

It is because of these shortcomings of IHL and the ENMOD Convention that some observers have emphasised the need for incorporating environment into the security discourse. The Cold War saw the security discourse focusing exclusively on national security and sovereignty. In a post-Cold War world, the Neorealist understanding of what constitutes a security threat was challenged. It was asserted that the conceptions of security and the policies and institutions for providing security needed to change to meet new challenges (Krause 1996: 233). Other arguments against broadening the agenda of security studies state that by incorporating new issues into security studies, its scope would be expanded so much that it would render it alien to the security studies community.

Marc Levy argues that the attempts to link environment and security are flawed and that they are aimed at boosting public support for environmental protection by placing it in the rhetoric of security and lack any demonstrable connection to being linked with national interests (Levy 1994: 43). He also points to the study conducted in 1987 by the Environmental Protection Agency, which found little correlation between public perception of the seriousness of environmental risks and the actual seriousness of those risks (Levy 1994: 45). By giving the example of the ozone issue, which was a successful outcome of international environmental negotiations, Levy shows how keeping environment as a low politics issue rather than a high politics one could actually get results.

The protection of the environment has never been a top priority in the conduct of warfare (Weinstein 2005: 698). However, getting environment to be accepted as a security issue would certainly give it some leverage. Since security almost exclusively means defence it would most certainly get precedence over the environment, in which case any damage to the environment would be seen as comparatively insignificant. It is also important to strengthen the existing laws and conventions that deal with environmental destruction caused during armed conflicts.

One of the major drawbacks that the existing system faces is the limited applicability that it has when it comes to internal conflicts. Most armed conflicts that the world is witnessing today are internal in nature. Internal conflicts result in direct deliberate environmental destruction and also create pressure on the natural resources from protracted conflicts that result in refugee crises. The refugee influx results in unplanned consumption of natural resources. The rehabilitation of the returning refugees also puts a lot of pressure on the existing natural resources. Most of the current laws and conventions are applicable only for international armed conflicts. However the international community has failed to stop ecocide and deliberate environmental destruction during wars even of international nature due to the lack of a deterrence model. The instances of individuals being tried for crimes committed during wars are few, let alone anyone being tried for crimes against nature during war (Weinstein 2005).

It is because of the failure of the existing legal and normative order that a nongovernmental organisation – Greenpeace – has put forward the proposal for a fifth Geneva Convention that would deal with wartime destruction of the environment. Other international organisations – such as the International Committee of the Red Cross (ICRC) – have also been at the forefront in advocating that environment be recognised as a victim of war and that proper steps be taken towards its protection from wartime devastation. The United Nations and its agencies have been crucial in providing a structure that could be used to facilitate compensation in case of environmental crimes against a state. The United Nations Compensation Committee was established in 1991 to process claims and pay compensation for losses suffered by states due to Iraq’s unlawful attack on Kuwait and subsequent oil fires and dumping of oil in the Persian Gulf in 1991. However, these instruments are yet to be applied effectively to ensure liability in case of environmental crimes during wars.

Without a robust deterrent, it will be extremely difficult to ensure protection of the environment since we have witnessed that, in spite of having a number of laws and provisions, states continue to defy them. Moreover, most of these laws and conventions continue to be not just anthropocentric but also fail to acknowledge that environmental protection could be considered even in cases where it might mean a loss of military advantage. Military necessity or anticipated military advantage continues to serve as an excuse for environmental crimes just as in the *Rendulic*

case during the Nuremberg Trials of 1945-46 after World War II. There is an apparent need to move beyond these limitations and ensure the protection of the environment during wars.

International laws and norms have failed to protect the environment and thus it becomes imperative that we look at other ways to ensure the protection of the environment from wartime damage. One of the means could be holding states and individuals responsible if they commit environmental crimes during armed conflicts. This can include the reparation and compensation to those who were affected from such environmental damage. This model was adopted when the United Nations established the compensation committee after the end of Gulf War of 1991 to ensure that compensation was paid to those who suffered from the oil spill and fire that resulted from the Iraqi military actions. The fundamental flaw of this model is that compensation is only paid after the damage has been done to the environment and the victims in such cases are individual human beings and not the environment in itself.

The second possibility that is suggested is to prosecute environmental war crimes. However, in effect, hardly anybody has been held criminally accountable for the crimes against nature during an armed conflict. This becomes all the more difficult in cases of internal armed conflicts that result in environmental devastation. The International Criminal Court (ICC) has failed to convict anybody for committing environmental crimes even though article 8(2)(b)IV of the ICC prohibits environmental damage that is excessive to military advantage anticipated.

The international community has also failed in banning nuclear weapons in spite of the detrimental effects that they could have on the environment. The international tribunals have failed on many occasions where they could have taken a stand against environmental destruction in wars. For example the delivery targeting of chemical plants, industrial complexes and use of depleted uranium by the NATO forces went unpunished.

In this regard the role of non-state actors has been remarkable. The International Committee of Red Cross (ICRC) has played a pivotal role in rallying in favour of protecting the environment and the prohibiting the use of weapons that might cause unnecessary suffering or are detrimental

to the environment. Similarly Greenpeace took initiative in suggesting a fifth Geneva Convention on the protection of the environment in times of armed conflict.

Even though the importance of environmental protection is not lost on state and non-state actors, states have failed to take proactive action in stopping the wartime damage to the environment. States have failed to ensure compliance with the laws and treaties that prohibit environmental destruction during armed conflicts and to hold the culprit liable for the damage. Even though environmental protection during times of war does not get as much attention as issues of national security, the global community has been talking about this issue for almost five decades now. In spite of this, we see a lack of awareness and a reluctance to give environmental protection primacy over other military interests. This raises the question whether the present international framework relating to the deliberate environmental destruction during warfare is enough to deter the environment as a tool during warfare. Is there a possibility of ensuring accountability and compensation for the victims of environmental devastation during wars?

The present study looks at the history of warfare and highlights the instances where the environment was used as a tool during wars or was deliberately destroyed to get a military edge over adversaries. It then progresses to assess the international laws, treaties and conventions that deal with deliberate wartime environmental destruction and analyse their applicability and practical operation. The possibility of holding states responsible for causing deliberate damage to the environment during armed conflicts is analysed. The study ends with a discussion of specific cases of environmental destruction and the role of state and non-state actors.

Chapter 2

The Problem of Deliberate Environmental Damage during Wars

Introduction

The history of warfare mostly exclusively focuses on tactics of war, grand schemes and strategies and the rise and fall of empires. The plight of nature is hardly ever discussed. The aftermath of war, especially the devastating effects that war has on the environment is seldom mentioned. This is interesting since there is a lot of concern in the international community about “collateral damage” during the wartime. This concern, however, does not extend to include the environment.

From the second half of the nineteenth century, some international laws and conventions were passed that echo the concern of the global community on what can or cannot be done during wars. The first Red Cross Convention of 1864 was a great starting point which aimed at limiting the suffering caused by war. The Hague conference of 1899 and 1907 also aimed at reducing collateral damage during wartimes. The same sentiment was echoed in the Geneva conventions that sought to limit collateral damage during wartimes and prohibited any use of force against people who are not actively participating in the war. The concern extended to include undefended private property. It is interesting to note however that these conventions and treaties only have “scattered collateral references” on the issue of deliberate damage to the environment during wartime (Drumbl 1998: 123). Not only are the present laws scattered and insufficient when it comes to protecting the environment, these Laws War continue to be relevant only in international conflicts even the most of armed conflicts in the world today are internal in nature. Both the Hague and Geneva law exclusively focus on international conflicts. Even the relatively new laws such as the convention on the prohibition of military or any other hostile use of environmental modification techniques (ENMOD) and the International Criminal Court do not cover purely internal conflicts (Schwabach 2004). It is already difficult to deter attacks on the environment during armed conflicts even with international norms and conventions; the task becomes even more strenuous in cases of environmental damage that results from an internal armed conflict.

Even though there are numerous instances in history of the destruction of environment that have taken place during wars. Still, it is interesting that a very miniscule part of history deals with

the destruction of the environment during wartime. Even though the deliberate destruction of the environment is an old practice during war times, it is only recently that it has been written and talked about. There are also few International treaties that prohibit and criminalize deliberate destruction of environment during times of war (Weinstein 2004). It is thus not surprising only after the staggering destruction of forests and wildlife in the Vietnam War of 1962-71 by the US using herbicides, that the issue was taken up at a substantial level, the shock and global condemnation that followed the crimes against environment during the Gulf War of 1990- 91 holds testimony to the fact. However when inspected carefully one can find cases of deliberate destruction of the environment recorded in the history of warfare.

This chapter makes a historical presentation of instances of wartime destruction of the environment and how this has shaped the present understanding of the situation. The chapter scrutinizes cases in history where armed conflicts have resulted in environmental damage. The cases are both of internal and international armed conflicts. Most of the cases of the ecological destruction dealt in the chapter are instances of interstate conflict such as- environmental destruction during the two world wars, the environmental devastation caused during the colonial times, use of Agent Orange in Vietnam by the US forces, eco-terrorism in the Gulf War and the NATO attack on Yugoslavia. However, cases of internal conflicts and civil war also make appearance for instance the policy of Crop destruction and use of starvation as a military method by the US forces in the Civil War and the ecocide committed by the Saddam Hussein regime in Iraqi Mesopotamian marshlands.

2.1. Environmental destruction in Ancient Warfare

Wars in ancient times had both political and social sanctions in the ancient times. The loss of life and property was an accepted phenomenon. It is no surprise that the destruction of environment – deliberate or otherwise – was not something that was of much concern to the warring parties. History is marred by wars, and in many of these wars, the environment was a casualty.

2.1.1. Deforestation

States have cut down forests in the past in what has been called as “strategic clearances”. This was done mostly for two reasons – firstly, any possibility of guerrilla action and secondly to change “the landscape and its population to suit their geographical interest”. Instances of strategic clearances of forests are scattered in the Roman and Ottoman Empires (Mcneil 2004: 403). It was also common to destroy natural resources and food supplies. Victor Davis Hanson states that “ravaging of cropland was central to warfare of most societies of the past” (Hughes 2013). Armies used to march over fields of growing crops and would destroy food grains and other food articles. There have been instances where food crops were destroyed systematically by the armies so many times that the agricultural ecosystems were not given enough time to recover before another attack took place (Hughes 2013). Farmers were employed for military services which significantly reduced the workforce in the countryside which also took a toll on the agricultural productivity. The destruction of crops and farmlands not only affected the agriculture but also had repercussions for forests and vegetation cover, considering forests got destroyed as a result of farmers fleeing during times of military attacks since the lowlands were easy targets for looting and ravaging. They used to find refuge in remote forests and mountains with dense vegetation since they were difficult to manoeuvre and provided with proper concealment. This led to the clearing of forests by farmers to plant crops which resulted in significant deforestation (Hughes 2013).

Deliberate destruction of the ecological base of an army was also a standard part of ancient warfare. Setting fire to forests and using violence to gain military advantage or to kill enemy troops was also a common occurrence. For example, during the Battle of Pylos in 425 BC, Athenian soldiers set fire to the forest to burn the vegetation cover so that they could have visuals on the Spartan soldiers, much like the use of Agent Orange by the United States forces in the Vietnam War. Forests were also cleared to get wood for building ships, weapons and fortification. Since the earliest weapons were made of wood, forests were of utmost importance. Even transport and logistics of ancient warfare depended heavily on wood. Chariots were an essential part of any formidable army. Shipbuilding was another endeavour that resulted in a loss of forests. The earliest ships solely devoted to war purposes date back to some 2800 years (McNeil 2004: 395). Greek and Roman historians believe that timber supply was one of the determining components of naval strategies.

There have also been various instances in ancient times of deliberate burning of forests to have a tactical military advantage. For example, woods were set on fire by the great ancient Assyrian army to get a military advantage in battles. Lucretius, a Roman writer from the first century, listed three reasons behind forest fires, the army is one of them (McNeil 2004: 401). Destruction of forests during or because of warfare also meant a loss of wildlife in forest fires. They also lost habitat because of the clearing of forests for wood. Hunting was seen as a form of warfare; it was also seen as a training exercise for war. For example, in Sparta, hunting was considered as a part of the preparation for war since the tactics used to kill large animals were similar to the ones used in battles. Animals were also used in wars. The use of animals for combat in ancient times is scattered – camels were used as pack animals by the Arabs and elephants were captured and trained for war, draining their wild population. Mediterranean civilizations used dogs in battle. Kautilya in Arthashastra mentioned that “special regulation applied to horses and elephants since they were important during a war” (Rangrajan 1992).

2.1.2. Early instances of biological warfare

Interference with the water supply of the adversaries was also an old technique in environmental warfare. Rivers were contaminated or redirected to deprive the enemy of water. There are instances of polluting wells and streams by armed forces to get a military advantage. Use of biological warfare is also not unheard of in ancient times; plague was deliberately spread among the enemies by the Syracuse army to end its seizure by the Carthaginian army in 396 BC. Greece, Rome and Persia used diseased corpses to contaminate sources of drinking water in the 6th century BC to gain an advantage over their adversaries (Hart 2016). Geologists studying the deposited material along the Mediterranean coast conclude that soil erosion increased considerably during and after wars in ancient Rome (Hughes 2013).

2.1.3. Environmental modification and crop destruction in ancient warfare

The first recorded use of environmental modification as a tool for warfare was witnessed in 512 B.C. when Scythian (a nomad community of Iranian stock) used the scorched earth policy against the Persians (Weinstein 2004: 700). In the Peloponnesian war of 431-404 BC, Athens was invaded by Sparta. The Spartans, in the hope of causing a shortage of food in the besieged city, destroyed farms, chopped down olive orchards and destroyed vineyards. The Spartans attacked Athens just

before harvest time to destroy the annual grain crop just before it could be reaped and this devastated Athens. (Westing 2015:38). Although, it was not the primary cause of the defeat of Athens the damage done to agriculture in Athens was severe and it greatly undermined its military might. (Hughes 2013).

The Scythians used the scorched earth policy against the Persians in 512 BC. This is cited as the first recorded use of environmental modification as a tool for warfare. The self-inflicted scorched earth policy hindered the Persian advances (Weinstein 2004: 700). The Scythians retreated from Persia, polluting their wells and springs. They destroyed the crops and trees (Westing 2015: 38). In the third Punic Wars, the Romans attacked Carthage in 149-146 BC, surrounding and conquering it. They burnt the city for ten days, razed the ruins and sowed salt in the furrows to destroy the city. They even destroyed cities that had remained loyal to Carthage. The act was seen as retrogression from the great past of the Romans and a loss of morality (Scullard 2013).

Genghis Khan, in 1213-1224, routed most of Asia and Eastern Europe. Not only did he kill all men who were captured but also, he destroyed all crops and livestock that he could. He also annihilated all major irrigation works of the Tigris river deliberately so that the agriculture of the indigenous civilisation that depended upon it would crumble (SIPRI 1980: 15). The Mongol army burnt and destroyed the standing crops to make sure that whoever survived or escaped would starve to death (SIPRI 1980: 54).

2.1.4. Starvation and Military food denial

Starvation has been used directly as a means of warfare not only in ancient history but as recent as the eighteenth as a means of war. Military food denial has had other repercussions as well. Food shortage lowers resistance to disease which could lead to epidemics. The threat of the spread of epidemics also intensified due to the “breakdown of routine sanitation” (SIPRI 1980:60). Lack of access to medicines only fuelled the outbreaks that swept populations during wartime. Other instances of military food denial as a war strategy include the American Civil War. George Mudge points out that in case of the American Civil War, the primary reason behind the food shortage was defective railroad transportation however during the war, the shortage of food was attributed to military effect, both by the army as well as newspaper commentators (Mudge 1970: 239). The

blockade of food lead to food riots in the South, the most serious of which occurred in April of 1863. This, however, did not stop the union troops that continued to destroy the food supplies so that they could get the South to surrender (Mudge 1970: 240).

In 1629 the Virginia colonists used to cut down the crops of the Native American people (Westing 1981: 38). During the US Indian war of 1865-1898, the US forces subdued The Dakota Apache and other tribes by destroying their food crops storage holding grains and their life stocks. The US used the same means of destroying villages, crops storehouses and life stocks in the Philippines in 1899 to crush the insurgency aimed at gaining independence from the US (SIPRI 1980: 17).

2.2. Environmental destruction in Colonial times

The earliest weapons were made of wood, and even after metal weapons became prominent, wood continued to be a significant part of weaponry. The African Great Lake region is cited as one of the earliest sites for iron production in ancient Mesopotamia. The need of iron weaponry exerted a lot of pressure on already scarce woodlands since the extraction of Iron ores lead to deforestation. Wood was used in fortification for a long time, even after iron was discovered (McNeil 2004: 390). Most agricultural societies built defensive forts using wood. The Romans built hundreds of forts using wood in Europe alone. After the invasion of 43 AD, Japan also had a lot of castles made of wood so much so that by the 1660s; timber became scarce in the country (McNeil 2004: 393). Europe and Russia were no exception to this. However, by the 19th century, big guns made forts made of wood useless as these could provide no defense against gunpowder.

Ships were central to warfare and good timber was of utmost importance in the ancient Mediterranean (McNeil 204: 37). By the late 16th century, ships had become a symbol of European power. Countries started maintaining huge ships, which became a symbol of their colonising power. This also meant that they required a lot more timber than before. Thousands of mature oak and pine trees were used in building just one ship, devastating huge tracts of forests. These colonial powers then turned to exploit the jungles of their colonies for timber. For example, the British used to build their naval ships in India. Britain and France depended on the wood of North America for ship timber (McNeil 2004: 397). It is argued that the main reason behind Egypt trying to keep

Lebanon strictly under its control was access to Lebanon timber, which was important since access to good ship timber was crucial to one's military prowess at the time.

The environmental destruction during wars was not taken into account in ancient societies since the war, and any casualties from it were normalized, and the trend continued with the colonial powers destroying the environment for their benefits without any repercussions. It is also important to note that at there was a lack of sensitivity towards the environment and lack of communication made it impossible for people to voice their concerns if any. However, a lot of this changed at the dawn of the twentieth century.

2.3. Modern Warfare and the Destruction of Environment

In the 20th century, the conventional firepower of the military, as well as the size of the battlefield, increased exponentially. This translated into an increase in the devastation of the environment during wartime. Not only was there an increase in area coverage by conventional weapons, but there was also new war technology in use such as landmines and munitions with delayed action uses, which increased the collateral damage to the environment. Delayed action munitions wreck the environment for years to come (UNESCO 1979: 9). The logistics also improved over time which meant that wars continued for not just days or months but years at a stretch.

The thirty years war of 1618-1648 was one of the most protracted wars with incredibly large armies, which meant that the scale of logistical support required to sustain the military was much higher than the earlier wars. To survive, these armies had to be mobile. The armies captured town after town taking war booty and extorting from the local populations (Bonnet 2002: 73). The battlefields were wrecked by new munitions. Longer wars also meant a lot more pressure on agriculture. The armies destroyed everything that came their way. Henry Kamen argues that even though the thirty years war was in political aspects 'European' it was fought mostly on German soil and it was Germany that faced most of the devastation (Kamen 1968: 44). The deaths related to the war have been estimated to be around 10 million. The forests and agricultural fields were ravaged (SIPRI 1980: 15). In fact, the extent of destruction was so vast that a school of historians hold the belief that the war alone caused the decline of Germany (Kamen 1968: 44).

In the Franco-Dutch war of 1672-1678, dykes were cut by the Dutch in an attempt to stop the French forces from overrunning the Netherlands; the Dutch were partially successful in their endeavours. Although this led to flooding of Netherlands, drowning acres of land and resulting in severe environmental disruption and soil erosion. France, under Napoleon, invaded many European states during 1796-1815. There were seven significant wars (SIPRI 1980: 15) that resulted in a large number of deaths of not just the army and the civilians, but Napoleon's army lost 65,000 horses in its occupation of Russia. Napoleon was also wary of the Russians using self-inflicted scorched earth policy to deprive his army of food. He, therefore, moved his Army with whatever they needed for sustenance (Chandler 1996). Napoleon's fears came true in 1812 when Russia used the scorched earth policy. As a result of which Moscow was devastated.

2.3.1. US Policy of Crop Destruction and Starvation as a means of Warfare

The American Civil War for the first time witnessed a shift in the magnitude of disturbances caused by weaponry. Ammunitions used in the wars increased exponentially. The size of military troops also increased due to railway transportation (Hupy 2008: 411). The United States also has had a record of resorting to the destruction of food materials and crops to get a military advantage over its adversaries. The US has practised this policy of extermination of food crops even [before its inception]. In 1629, the Virginia colonists used to cut down the yields of Native Americans (Westing 1981: 38). One of the successful strategies in the civil war adopted by Abraham Lincoln was to starve the Confederacy into submission. Starvation was not only limited to the military but also included the civilian population. These were done through both blockades and inter directing transportation as well as by destruction of crops, and farm machinery (Westing 1981: 39).

Biological weapons were also used against the native Americans during the French Indian war in 1754 when blankets infected with smallpox were used to infect the native Americans (Hart 2010: 29). During the US war of independence of 1775-83, George Washington directed the troops to destroy the crops of the adversaries (SIPRI 1980: 54). The USA had used the same tactics of destroying the natural resources against the Native Americans in the 19th century. The US forces destroyed food crops and stored food grains in the Navajo wards of 1860-1863. These wars also witnessed systematic destruction of the livestock orchards and crop plantations of the Navajo people which eliminated them as a viable threat by 1864 (SIPRI 1980: 55).

2.3.2. Ecological destruction during the two world wars

The nature of warfare evolved dramatically in the 20th century. Forces in combat on the ground were replaced by air power after the First World War (Lumsden 1975: 224). World War I saw an unprecedented rise in pollution from intensive military activities. Chemical waste from ammunition plants polluted rivers and land (Ward 1943: 291). Regular bombardment and years of trench warfare completely devastated the forests in Europe.

World War I also witnessed colossal scale mining of coal and iron to produce supplies. The invention of gunpowder in the late 19th century also helped in expanding the arena of war. A Military Industrial Complex was built. The capacity of artilleries increased from several hundred per day to several hundred per hour. Industrial Revolution meant that there was no shortage of war supplies. The concepts associated with the Industrial age got incorporated in the philosophy of war during the first world war (Hupy 2008: 412). The Great War as it was called was meant to be the war to end all wars. It witnessed destruction as was unknown to humans before. The casualties from the war were more than anybody had imagined. Forests in Europe were destroyed to fuel the war. More than a million hectares of forests were lost in France alone. Use of munitions destroyed the soil ecosystems on war grounds. Even almost a century after the world war ended, in some areas the forest has not been able to recover on their own (Hupy 2008: 413).

To take one such example of destroyed soil ecosystem, one can look at the battlefield of Verdun in France. The battlefield of Verdun encompassed an area of 29,000 km square. It is one of the most heavily shelled battlegrounds of all times. It witnessed fierce battles between the French and German forces during the First World War in 1916. Research to measure the anthropogenic disturbances in Verdun after almost a century shows that the artillery cartridges used in millions have indeed “changed the area of surface hydrology, water table characteristics and soil development processes” (Hupy and Schaetzl 2008: 47). Wide trench systems were employed during the First World War which disturbed the soil ecosystem and damaged it.

Oil was rather crucial during the First World War. Lord Curzon notably said, “The allied floated to victory on oil”. The warring states had the pressure to exploit oil resources to get an advantage in the war. For instance, Tapico in Mexico was a swamping port in 1897 which

transformed into the third largest producer of oil during the first world war, but its local environment was wholly devastated (McNeil 2001).

World War I also witnessed the use of chemical warfare agents on a large scale for the first time. German troops used chlorine gas in Belgium on 22nd April 1915 (Hart 2009: 7). More than 45 chemical agents were used during the First World War. There have been no studies to determine the extent of damage done to the environment by these chemical agents. However, the fact that more than 13 million civilians were killed by these chemical agents can lead one to assume the extent of damage it could have had on the environment (SIPRI 1977: 32).

Military forces before World War II had to live off the land merely because there was no way for them to transport food for sustenance (Hughes 2013). World War II witnessed many new developments in war technology which dramatically changed the course of the war. The Second World War, in many ways, was way more advanced and destructive than the First World War that took place just 20 years ago. Forces on the ground were replaced by air power after the First World War (Lumsden 1975: 224). The coming of new and advanced technology meant in some cases less damage to the soil than was witnessed in the first world war (Hupy 2008: 414).

This in no way meant that Second World War was less detrimental to the environment than the First World War. The new war-industrial complex was more demanding than ever and exerted a lot of pressure on the environment. The need for coal, oil and steel was more than ever. The Second World War also witnessed the production of chemical weapons on a huge scale, which was made in excess and was disposed by dumping and open pit decontamination methods. Even the dumping site of these hazardous wastes was not adequately documented. An enormous amount of 250,000 tons of chemical weapons were dumped in the Baltic Sea. Japanese chemical weapons were similarly dumped off the coast of Japan after the end of the Second World War (Hart 2009: 9). The dumping of these hazardous chemical wastes polluted the oceans to a great extent. In fact, the harmful effects of it are even felt today, for instance when the preparation for the construction of a new airport was undergoing at Kanda airport in Japan, chemical weapon shells from the Second World War were found. These remains continue to be hazardous to date (Hart 2010:16).

The world witnessed sophisticated incendiary artillery shells during the Second World War. Air-delivered incendiary bombs were also introduced during the First World War; however, it was

not until the Second World War that they were used for destruction at such a vast level. The allies used incendiary weapons against dozens of German and Japanese cities to destroy them (SIPRI 1977: 52). Tokyo witnessed unparalleled destruction in the Second World War from incendiary attack. Japan tried to start wildfires in the US in retaliation although the balloon delivered incendiary devices that they used, were not very successful (SIPRI 1977).

The Second World War also witnessed the loss of thousands of acres of forest just like the First World War. However, unlike the First World War, the Second World War was not only limited to Europe; the US and Japan had also joined the war. The United States and allies fought Japan in the Western Pacific. Japanese islands suffered from aerial bombardment as well as infantry operations which were detrimental to the small island ecosystem (Hupy 2008: 414). Around 15 million kg of high explosive munitions was dropped every day during the Second World War (Westing 1990: 3). Allied forces bombed dozens of cities to destroy them by fire, for example, Hamburg in October 1943 and Tokyo in March 1945 (Westing 1990).

Apart from direct bombing and battlefield destruction, the environment also suffered due to the war in other ways. For instance, Germany has one of the most prominent coal seams in the world in the Ruhr region. It sustained huge industries and by 1900s became central to the German military-industrial complex. The air pollution in the area was extremely high, but since it was crucial for the German military, it escaped the air pollution regulations. Post World War I Ruhr was occupied by the French and was shut down in 1923 due to strikes. The environment suddenly improved manifold. The summer of 1923 was brighter, and the air was clearer. Later, however, the plant was reopened in spite of local opposition since Germany had to pay reparations for the First World War and could not have afforded to have the Ruhr plants shut down (McNeil 2001).

World War II witnessed another tragedy for the Ruhr. Not only did Hitler exploit Ruhr's coal for sustaining the war, but also it became a particular target for the allies. Targeting Ruhr meant a tremendous military advantage to the allies. After Germany's defeat in the world war, Ruhr had temporary relief from mining, but it was soon followed by increased pollution during the cold war (McNeil 2001). The allied forces in the Second World War bombed three significant dams in the Ruhr valley in an attempt to disrupt the Ruhr industries. The attack resulted in the deaths of around 3,000 people and rendered more than 120,000 people homeless. It ruined 3,000

hectares of arable lands and destroyed several bridges as well as railroad tracks. The flooding resulted in the devastation of earth that took decades to recover (Mastuske 1990: 40). The plight of Ruhr shows how it is not just direct military attacks that destroy the environment but the needs of war also play an integral part in destroying the environment.

The Second World War also witnessed soil destruction at colossal scale. Military activities dramatically alter the properties of soil; building defensive infrastructure and trenches, crating by bombs are all means by which warfare and military activities devastate the soil. Anti-tank mines and anti-personnel mines combined with delayed explosion weapons, and booby traps from world war two continue to pose a menace even though decades have passed since the war ended. In fact during the Second World War military was the most prominent contaminator of soil in both the US and the USSR (McNeil 2001). It takes a lot of appropriate reclaiming techniques which are extremely expensive to treat the soil back to its previous shape (Lertini et al. 2013).

Unlike the First World War, most of the combat in the Second World War took place in urban areas. Still, forests were devastated during the Second World War. Years of trench warfare destroyed the forests in Europe. Forests were also used as concealment for example during the Second World War, Serbian guerrillas managed to occupy several German divisions in Yugoslavia with the help of forest cover. Forests were destroyed for many reasons during the Second World War, for instance, woods in Verdun in France and Ypres in Belgium got destroyed in the course of the war.

However, it is not just the protracted war or the act of combat that destroys the forests; the preparation for war also has detrimental effects on them. McNeil argues that preparation for war has more devastating effects on forest than combat itself since preparation for war goes on for longer periods of time and is more constant (McNeil 2004: 403). In the case of France, more than a million acres of forest were destroyed during the Second World War (Hupy 2008: 414). Air-bombing disrupted agricultural production in the countries that were bombarded. In Japan malnourishment became a serious challenge and the infant mortality rate went up to an alarming level. In 1945 it was 359.4 per 1000 childbirths (Lumsden 1975: 225).

In agricultural societies, land war could be more pernicious to the people than in the strategic bombing of industrialised societies. As opposed to industrial production, agriculture takes much more time to recover in poor countries. In fact on an average, it only took three years for most of the affected countries to recover their industrial production as opposed to their agricultural production which took much longer (Lumsden 1975: 228). There have been various instances of rural devastation during the Second World War for instance 200,000 hectares of land flooded with sea water in the Netherlands by Germans. More than 17 percent of agricultural lands were destroyed as a result. The German forces also laid waste 1.2 million hectares of land in Norway (Westing 1990: 7). Another instance of deliberate flooding for military advantage in the Second World War was the unsuccessful attempt of the US to flood the Gia Lam airport that was occupied by the Japanese forces.

2.3.3. The Environmental cost of the nuclear race

The Second World War also witnessed the use of nuclear weapons by the US against Japan. The devastation caused by the N-bombs was unlike anything witnessed by humans before. It obliterated everything in its range. Bombs that the US dropped on Hiroshima had an energy yield of around 13kt, and the bomb that destroyed Nagasaki had a yield of around 21kw (SIPRI 1977: 2). Westing argues that the environmental consequences of nuclear bomb deployment might be similar to the effects on the environment by the conventional weapons. The magnitude of destruction alters dramatically (SIPRI 1977: 3). The survivors of the US nuclear bombing of Hiroshima and Nagasaki had shown an increased instance of “thyroid tumors, leukemia, lenticular opacities and chromosomal aberrations in the peripheral blood lymphocytes” (SIPRI 1977: 22).

The Second World War not only witnessed the dropping of the nuclear weapons by the US, but it also led to a start of a nuclear race among states. In the next two decades, there was a fierce competition among states to get the nuclear weapons, and four of these states succeeded within the next two decades, bringing the number of nuclear weapons states to a total of five. These five nuclear weapons states conducted hundreds of nuclear tests during this time. However, the US and the USSR tested most of the weapons. In 1954 the US tested the first hydrogen bombs in the Marshall Islands. The nuclear weapons that were tested between 1945 to 1963 were conducted in the

atmosphere, underground as well as underwater. These tests caused immense environmental distress which led the international community to agree upon a Limited Test Ban treaty that was signed in 1963 and this stipulated a ban on nuclear tests except for underground tests. This was followed by the Nuclear Non-proliferation treaty which sought to prohibit the acquisition of nuclear weapons by states other than the existing nuclear powers. (Pravalie 2014:729). These treaties, however, have not been very effective in stopping the nuclear tests as according to SIPRI data, during the period of 1945- 2006, 2053 nuclear tests were conducted. These tests have resulted in the contamination of the environment with radioactive waste along with the ecological destruction of the test sites. Around 25% of these tests took place in the atmospheres 1517 tests were conducted underground. The above ground tests have much more environmental consequences than the underground ones, which is not to suggest that the underground tests are in anyway harmless.

The US and USSR conducted around 85% of these tests during the cold war years (Pravalie 2014:730). With countries like India and Pakistan joining the nuclear club the nuclear race doesn't seem to be over anytime soon. There are more than 35 countries with nuclear facilities and the know-how and is technically just a "screw drive away" from becoming nuclear weapon states. However even though some of these states might not have any incentive to be a part of the nuclear race, their nuclear facilities meant for civilian purposes might still be under threat of a military attack in even of war or civil unrest. The disasters of Fukushima and Chernobyl show how catastrophic an attack on a nuclear plant could be. Krass claims that modern weaponry including conventional weapons can get through the best containment possible. He also points at some other ways in which a nuclear facility could be attacked which are even easier than attacking the plant head on for example by ensuring a loss of coolant to the nuclear reactor. Another such possibility is an attack on the electric power supplies which could mean power outages long enough to exceed the Onsite systems of power backup (Krass 1990:220). The attack on Iraq's nuclear reactor by Iran and Israel and on South African reactors by guerrillas provides testimony to the increased vulnerability of the nuclear reactors during times of war (Krass 1990).

2.3.4. US imperialism and use of Agent Orange in Vietnam

The United States was actively involved in the Vietnam War, which began around 1961 and ended around 1973. It was one of the costliest wars that the US was involved in at that point of time. The war was also called the second Indo China war since the theatre of war expanded to include South Vietnam, North Vietnam, Cambodia and Laos. The US only had air presence in North Vietnam, Cambodia and Laos. It was South Vietnam that felt the brunt of the war. The US forces faced some 6 million Guerrilla forces in the war (SIPRI 1976: 6). South Vietnam had more than 10,000,000 acres of forests covered area, 56% of which was dense forests. These dense forests provided the guerrilla's movement of freedom and logistics support. Forests are called as the great equaliser for weaker forces since they conceal armies. In modern warfare, they provide concealment from airpower (McNeil 2004: 400). Clausewitz in his military manual advises defensive forces to stay away from thick forests and "to not fight like a blind man against one with his eyesight (Mcneil2004: 400)". McNeil argues that clearing forests, that act as cover for guerrilla warriors could be of 'decisive advantage' for the forces facing insurgents since it cut down a vital tactical resource for them. There are plenty of examples of this technique being used in history, for instance, Imperial China cleared the forest to penetrate southern lands similarly Imperial Russia trust is guerrilla Resistance to expand in North (McNeil 2004: 401).

The US also used incendiary weapons against Vietnam at a magnitude that was never seen before. The US forces set rural wildfires for area denial to the adversaries. The US used heavy incendiary attacks in the U Minh forest in South Vietnam (SIPRI 1977: 53). These incendiary attacks carried out by the US had severe ecological impacts since the attack was preceded by the spraying of herbicides so that they could provide the intended fire with enough fuel of dried leaves and twigs. Although due to the wet conditions of these forests, these attacks were not always successful. To deny the guerrilla freedom of movement, food and logistical support the US forces destroyed the local forests and crops. They even disrupted the supplies from neighbouring countries (SIPRI 1976: 9).

The Vietnam War also witnessed environmental modification techniques. The use of cloud seeding technique was adopted by the US to make the enemy radars inoperable]. It is also claimed that the US produced bad weather to hamper the military advances of the adversaries and altered rainfall in order to get an edge with their bombing mission (SIPRI 1977: 57). The US forces not

only destroyed the forest and crops but also disrupted supplies from neighbouring countries (SIPRI 1976: 9). Dams and dykes were also destroyed by the US in the Vietnam War however the US denied the damage being intentional and maintained that any such damage was collateral (SIPRI 1977: 55).

The US did not want to commit its army on the ground owing to the high casualty rates. They tried to compensate for the lack of ground forces with other means which included remotely delivered munitions and other hi-tech weaponry (SIPRI 1976). Reportedly the US dropped munitions weighing 14,000,000 tons in the eight years duration of the Vietnam War of which more than half were delivered from the air (SIPRI 1976: 12). The technology to deliver these munitions lacked accuracy and sophistication thus the policy of carpet bombing was adopted. It was estimated that around 90% of the munitions were directed against ill-defined rural targets (SIPRI 1976:14). The bombing had severe ecological consequences which included the destruction of vegetation and displacement. It also resulted in the disruption of the water table and local drainage patterns. All this resulted in massive soil erosion. The fragments of flying metals from the Bombing called as shrapnel, damaged trees that eventually died from the injuries. The number of trees destroyed directly and indirectly by the US attacks is estimated to be around 45 million (SIPRI 1976: 20).

To destroy forests, the US forces used not only conventional munitions delivered by air but also sprayed anti-plant chemicals and herbicides and used heavy mechanised land clearing equipment. According to estimates, the US forces sprayed more than 72000-metre cube containing almost 55 million kilograms of anti-plant chemicals (SIPRI 1976: 17). However, it was not the first instance where the anti-plant chemicals were used in warfare. The first recorded case where anti-plant chemicals were used in warfare was in Malay in the 1950's. The herbicidal attack in the Vietnam War of 1961-73 was undoubtedly the worst in the history of warfare. The anti-plant agents were colour coded as Orange, White and Blue. Agent Blue prevented plants from retaining any moisture content whereas Agents Orange and White killed plants by "interfering with the normal metabolism of the poisoned plants" (SIPRI 1976: 24).

The herbicidal attack in South Vietnam is usually called as Agent Orange since it comprised around 61% of the total volume expended in the war. Agent Orange was a mix of 2,4-dichlorophenoxyacetic acid and 2,4,5-trichlorophenoxyacetic acid. Agent blue, on the other hand,

was mostly employed to destroy rice and other crops; however, crops accounted for only 14% of the destruction resulting from this chemical. Forests were the primary target of the herbicides and the rest 86% of the mission was directed to destroy the Woody vegetation and forest (SIPRI 1976:26). The jungles of South Vietnam have an immense diversity of plants and herbs. It is challenging for any herbicide to destroy the jungles in one go (Westing 1971). The first spring of the forest killed only 10% of the trees. The US forces sprayed the same woods more than once to ensure the complete defoliation of forests. 1,700,000 hectare of the area was sprayed more than once during the Vietnam War which was almost 34% of the target area (SIPRI 1976: 27).

C-123 transport aircraft equipment delivered most of the chemicals. A small amount of 5% was also sprayed using helicopters and boats. Almost 10% of South Vietnam was covered in this, and the attack in the same area was also heavily bombed and shelled (SIPRI 1976). The destruction of the ecosystem due to the herbicidal attack was massive. It impacted not only autotrophic components but also the heterotrophic components. The wildlife of the affected areas suffered significantly due to the strike since the animal life in these forests were found in the “upper vegetational stories” which were adversely affected from the attack (SIPRI 1976: 32). This was because forests in the upper vegetational stories have trees that could grow up to the height of more than 45 meters and form a canopy. These herbicides also affected animals that came into direct contact with the herbicides. Cases were cited in which wild birds became too slow and were captured easily following the attack and the smaller birds died.

A significant amount of herbicides sprayed on the forest also got washed into water bodies like streams, estuaries and the ocean. These herbicides proved lethal for some aquatic plants and animals. Even the marine invertebrates suffered from the attack which resulted in the decline of fish due to their loss of food. The studies focusing on the effects of these herbicides on microorganisms conclude that they were at the worst transitory (SIPRI 1976). The southern coastline of South Vietnam harbours a mangrove habitat that covered an area of almost 500,000 hectares. These mangroves were also subjected to severe spraying of herbicide and suffered severe damages since plant species like mangroves are particularly more susceptible to hormone-mimicking herbicides like Agent Orange (SIPRI 1976: 38). Research by Hatfield consultants shows that the herbicides defoliated around 50% of the Mangalore on the south coast which did irreversible damages to the ecosystem (Palmer 2005 1061). Mangroves are very important to

coastline ecosystems since they hold the soil against wave, wind and their loss could be destabilising for the ecosystem.

Along with using herbicides to clear the forest, US forces also used heavy mechanised land clearing equipment which included heavy tractors that were equipped with large blades to put aside trees. These mechanised land clearing operations began in 1966; Bull blades and Rome plough blades were used primarily for clearing the roadside. By 1967, the use of aerial herbicides to clear forests in South Vietnam was in force. However, it was realised that it was most effective to use mechanised land clearing. This led to the mass clearing of forests using mass tractors. By the end of the war, around 325,000 hectares of forest was cleared by Rome ploughs that consisted of a blade meant to clear forests that weighed more than two tons. Ecological consequences of mechanised land clearing in South Vietnam included considerable alteration of the microclimate which meant that the area witnessed an increase in wind velocity, a sudden rise in temperature as well as a decrease in humidity (SIPRI 1976: 47).

Most of the studies are anthropocentric and have studied the effects of the chemical on the human population of what has been called as the most toxic substance that was discovered by mankind as it is very persistent in human tissue and the environment (Tuyet and Johansson 2001). The herbicides used during the Vietnam War did have dire consequences for human health as well. However most of the studies that examine the effects of Agent Orange and its contaminant 2, 3, 7,8- tetrachlorodieno-p-dioxin or TCDD focus on the American war veterans except some studies that focus on Korean War veterans. It is, however, apparent that the health consequences of TCDD exposure from the spraying of Agent Orange are highest among the Vietnamese living in South Vietnam since a considerable percentage of the population continues to live in areas where Agent Orange was sprayed and in nearby rural areas. They continue to consume the food and water that comes from the contaminated soil (Schechter et al. 1995).

The highest level of dioxin in milk was found in the samples collected from nursing mothers in 1970s South Vietnam (Schechter et al. 1995:520). Exposure to Agent Orange has strong linkages to increased susceptibility to soft tissue sarcoma, non-Hodgkin's lymphoma, Hodgkin's disease and Clarence. These are also suggestive evidence of Spina bifida and acute myelogenous leukaemia in the children of the war veterans from the Vietnam War. Vietnamese survivors

exposed to Agent Orange have been recorded to have borne children with severe congenital disabilities like cerebral palsy, ornamental retardedness and missing or deformed limbs (Palmer 2005: 1062). Exposure to Agent Orange has also been found to result in an increase in mortality due to bladder cancer (Mossanen et al. 2017). The condition of Vietnamese people who got affected by Agent Orange continues to cast a shadow on present-day relations between the US and Vietnam. The Vietnamese people are now seeking compensation from the US government. The 111th Congress of the US appropriated to continue environmental remediation of Agent Orange in March 2008 (Martin 2010).

Around 320,000 military personnel from the Republic of Korea were employed in the Vietnam War, many of whom were exposed to Agent Orange. A study conducted on Korean Vietnam veterans who were exposed to Agent Orange concluded that the exposure to Agent Orange increased the prevalence of endocrine disorders common neurological diseases, neurological diseases and liver cirrhosis (Yi et al. 2014). Studies that observe the effects of Agent Orange on those involved in mixing, loading and handling, found out that those who handled these chemicals had much higher exposure to them than those who were bystanders (J. H. Ross et al. 2015). A strong association between exposure to the herbicide and prostate cancer among veterans who were subjected to the environmental exposure was also found (Chage et al. 2017: 634).

Another instance of the use of herbicide in the war was witnessed in the Angolan War of Independence that went on for fourteen years from 1961 to 1974. Angola fought for its freedom from Portugal in a long bloody war which resulted in the deaths of more than 25,000 people and destruction of the environment in the rural areas. Portugal also used the herbicidal destruction of crops in the rural areas to get control over parts of the country. Similar rural displacement and harassment were witnessed during the Algerian war of Independence of 1954-1962, in which more than 5% of the population was killed (SIPRI 1980: 18).

Some other instances of environmental disruption during wartime around the period include the Second Sino-Japanese war in 1938 in which, China dynamited the Huayuanaw dyke of the Yellow River to stop the Japanese forces from advancing. This attack was successful in drowning and stopping the Japanese troops in their tracks, but it also flooded acres of lands and destroyed the topsoil (SIPRI 1977: 54). During the Korean War that lasted from 1950 to 1953, the US

attacked the irrigation dams to disrupt the production of rice, which was the staple food of North Koreans (SIPRI 1977: 55). The Korean War also witnessed disruption of forests and wildlife along with massive urban destruction (SIPRI 1980: 18).

The herbicidal attack in the Vietnam War garnered much more attention regarding concerns of environmental damage as opposed to other instances of forest destruction from military operations. One of the reasons was that the Vietnam War coincided with a general increase in environmental awareness around the world. There was a rising sense of responsibility towards the environment, among the global population at the time (Schmitt 1996:12). There was also an anti-war sentiment in the US against the Vietnam War which further fuelled the anguish against the deforestation in Vietnam. The condition of Vietnamese people who got affected by Agent Orange continues to cast a shadow on present day relations between the US and Vietnam. The Vietnamese people are now seeking compensation from the US government. The 111th congress of the US appropriated to continue environmental remediation of Agent Orange in March 2008 (Martin 2010).

2.3.5. Eco-terrorism in the Gulf War

Kuwait covers an area of around 17,818 km square in the North Western Coastal plain of the Arabian Gulf. It has added conditions with extraordinarily high temperatures in summers it is rich in natural resources including oil and natural gas the land resources in Kuwait are used for livestock grazing, oil production, agricultural production and sand and gravel quarrying (Omar et al. 2000: 316). Around 10% of the world crude oil reserves are in Kuwait and oil is central to its economy (Zedalis 1991: 718). In 1990, dialogue between Iraq and Kuwait failed on border oil and debt disputes. As a result, Iraqi troops attacked Kuwait on 2nd August 1990. The attack led by Saddam Hussein was condemned globally. Iraq used environmental warfare against Kuwait – something that it had practiced earlier as well.

During the Iran Iraq war, the courses of rivers were shifted by Iraq. Iraqi forces also set up marshy areas on fire to create barriers against the Iranian Troops (Ross 1992: 518). The Iraqi invasion of Kuwait witnessed a lot of environmental damage. Iraqi forces tore off soil surfaces and disrupted the desert lands by digging trenches. They caused severe pollution in the terrestrial environment by dumping solid and liquid wastes in the desert (Omar et al. 2000: 317). On

January 1991 Iraqi troops opened the valve at the Kuwait Oil Companies Sea Islands terminal and pumped crude oil into the gulf. The pumping of oil escalated by the end of January and Iraq started pumping from Mina Al Bakr terminal to the Gulf too (Plant 1992: 2017). This created an oil slick of the dimension of 35 miles by 10 miles. Smaller oil slicks also resulted from attacks on the US tankers (Feliciano 1992: 485). From 17 February 1991, the Iraqi troops started setting fire to the oil wells in Kuwait (Omar et al. 2000: 317). The Iraqi forces ignited and destroyed 1164 oil wells which constituted around 92% of producing wells in Kuwait.

The burning of oil wells resulted in vast quantities of air pollutants that completely engulfed the sky. Neighbouring countries witnessed black rain. The burning of oil wells resulted in the generation of 86 billion watts of heat and released soot in the atmosphere that reached to the Himalayas. It was equal to around 10% of global biomass burning. It was sighted that the emission of sulphur dioxide was around 57% of emissions from electrical utilities (Schmitt 1996:25). Iraqi forces also destroyed oil refinery storage depot as well as power and water stations. Almost 60 million barrels of oil was released that formed 246 oil lakes covering an area of around 49 km square. This resulted in the contamination of roughly 40 million tons of soil. According to estimates, the area of approximately 900 km square was contaminated by oil. More than half a million tons of aerial pollutants were released in the atmosphere every day, amount of oil lost from both dumping of crude oil and burning was estimated to be around 1 to 1.5 billion barrels (Omar et al. 2000: 320). The area covered by massive oil mist fallout was about thousand km square, which contaminated the 40 million tons of terrestrial soil. The contaminated soil was rendered hydrophobic and anaerobic which meant that it was unable to retain water and oxygen using microbes and that was unsuitable for plant growth (Omar et al. 2000: 322).

Iraq deliberately chose to destroy oil wells in Kuwait for various reasons. Iraq was looking to get an edge in the oil market over Kuwait so that it could recover from the economic crisis that stemmed from the eight-year war with Iran. Another reason that has been suggested is that all wells were set on fire to create a wall of fire along the coastline which could hamper the seaborne landings by the US marines (Feliciano 1992: 486). The Iraqi forces had set 1,646,355 about 35,000 tanks in Kuwait. By 1990-91 more than 30% of Kuwait was affected by the Gulf War. The marine ecosystem was severely damaged from the dumping of oil which took years to recover.

More than a million water birds died along with thousands of other organisms. However medical studies conducted on the US war veterans that studied the effects of exposure to smoke caused from burning of oil wells shows that it did not cause respiratory symptoms among the veterans (Lange et al. 2002; Readman et al. 1992). Even though the environmental destruction did not have a lasting effect on human health, it was taken very seriously by the global community and was termed an “eco-war”, and Iraq’s actions were condemned as acts of “environmental terrorism (Low 1995). This showed that the global community had started seeing the environment as a victim of war in itself. The Security Council Resolution 687 that ended the Gulf War formally also mentioned that Iraq was liable for wartime damages which also included environmental damages (Low 1995: 412).

This was not the first time that oil became the target of a military attack. During the First World War Romanian oil fields were destroyed by the British to ensure that they do not fall into the enemy’s hands. These oilfields were the richest in Europe and were targeted again in the Second World War for the second time (Schmitt 1996). But these attacks did not warrant even a fraction of the global attention that the Gulf war received when Kuwait was attacked by Iraq.

2.3.6. The Environmental wreck caused from NATO attack on Yugoslavia

The US led North Atlantic Treaty Organisation (NATO) attacked Yugoslavia in a series of air attacks from March 24th to June 10th in 1999 in a military mission known as “Operation Allied Forces”. These aerial attacks targeted more than eighty civilian’s industrial facilities which included oil refineries, fuel dumps, fertilizer factories and chemical complexes (Bostian 2000:234). The United Nations Environment Programme (UNEP) team established that the attack resulted in severe environmental damage (Schwabach 2000:118). NATO forces destroyed a chemical factory complex at Pancevo which had a population of around 80000 people and was one of the worst hit cities. It was hit, allegedly by 56 missiles from March 24th to June 8th, 1999. This attack released thousands of tons of harmful Chemicals like Ammonia, Chlorine and ethylene dichloride. 2100 metric tons of ethylene dichloride was released, a chemical that is known to cause liver and kidney damage. There were also cases of respiratory diseases and stomach ailments. It is also extremely toxic to the aquatic life (Alexander 2000:472). The bombing also resulted in the contamination of the groundwater by releasing Mercury, around the chemical complex. The

pollution caused by the attacks was so severe that rivers were poisoned and crops and vegetables that were grown on the land were deemed unfit for consumption (Schwabach 2000:119).

The NATO forces also attacked oil refineries in Pancevo and Navi Sod. In fact, the refineries in Navi Sod were attacked twice, which resulted in 3 cm deep oil slick which was more than 30 kilometers long (Bostian 2000:234). The pollution caused to the rivers also affected downstream and neighbouring states like Romania and Bulgaria. The toxic air from the bombing of chemical and fertilizer complexes was carried to Western Europe causing panic. The bombing also resulted in a severe Refugee crisis that resulted in the breakdown of sanitation and Healthcare systems in the region (Bostian 2000). NATO even resorted to attacking Pharmaceutical and petrochemical plants. The environmental damage in the former Republic of Yugoslavia caused by Operation Allied Forces caught the attention of international community since it received considerable prompt media coverage from the international media. The incidental damage to the environment was highlighted which resulted in a huge uproar for environmental justice (Alexander 2000:473).

2.3.7. The ecocide committed in Mesopotamian Marshlands by the Iraqi government

Iraq Mesopotamian marshes are often referred as “garden of Eden”. The Iraq Mesopotamian marshes were once the most extensive wetlands in South West Asia covering more than 15000 square kilometres. The marshlands were home to around 500,000 indigenous Marsh Arabs of mostly Shiite ethnicity. This indigenous community lived in harmony with the marshlands, built houses of reeds, domesticated water buffaloes and depended on fish persistence. As a community, Marsh Arabs continued to live in traditional ways and never developed into urban communities. The Marsh Arabs had built a lifestyle in harmony with the marshland and lived with all that it provided- livelihood, shelter and food, for 5000 years of its existence. The marsh Arabs remained out of government control. The marshlands supported a large population of fish and according to UN Food and Agriculture Organization estimates, in 1990 around 60 per cent of Iraq's fish catch came from the Mesopotamian Marshlands. The coastal fish used the marshlands for migration (Maumin 2008: 504).

At the end of the Gulf War, a Shi'a rebellion erupted against the Saddam Hussein regime which was eventually crushed by the Sunni controlled government. The Hussain regime targeted the marshlands and drained the wetlands under a systematic plan to crush the rebellion in the

marshes that were home to more than 300,000 and also raided the Marsh Arab settlement killing tens of thousands of Marsh Arabs in the process. Thousands of Marsh Arabs were pushed out of the wetlands due to a loss of Agricultural and fishing livelihoods (Richardson and Hussain 2006: 477).

Marsh Arabs were targeted not just because of their Shiite identity but also because they often provided refuge for the political opposition in Iraq and marshlands were also used against the regime since they were difficult to manoeuvre by outsiders. Some of the Marsh Arabs also took part in the rebellion against the Saddam Hussain regime. The Marsh Arabs were kept economically weak by the regime in spite of the potential to be economically powerful owing to their fishing industry. Saddam Hussein regime killed more than 30,000 people before establishing hydro Engineering projects in the marshland that would eventually lead to the destruction of the Marshland ecosystem to punish the Marsh Arabs for offering refuge and taking part in the uprising against the government. Rivers were poisoned and the Marshland was also attacked by the Iraqi forces. As a result of the atrocities against the wetland the indigenous wildlife suffered greatly and the government was successful in pushing out the Marsh Arabs out of their homes and into Refugee centres. The draining of the marshland has resulted in near extinction of endemic waterfowl species. The loss of habitat also affected millions of migrating birds between Siberia and Africa. More than 80 species of birds and rare species such as the Basrah reed warbler and marbled teal were brought close to extinction due to the draining of the marshes (Richardson and Hussain 2006: 477). The marshlands also acted as a natural filter in Tigris and Euphrates rivers in the absence of which the Persian Gulf is noticeably degraded along the coast of Kuwait (Richardson and Hussain 2006: 478).

Coastal fisheries also declined significantly since they depended on the marshes for nursery and spawning grounds (Maumin 2008:509). Saddam Hussein deliberately destroyed the ecosystem knowing the consequences of his actions knowing that his actions would lead to not just the destruction of a 5,000-year-old ecosystem but also the livelihoods of people dependent on it. Maumin argues that the reason behind Saddam Hussein's decision to target the Marsh Arabs was because he did not want the rebels to use the Marsh Arab's knowledge of the Marshlands navigations. It was not enough just to kill the Marsh Arabs as the marshlands could be used as a strategic base for the opponents and could have provided them with a privileged position. She also

called the destruction of Southern Iraq marshlands as ecocide which she defined as “taking a deliberate action to kill a group of people based on their race, religion, or religion or culture by destroying the ecosystem on which they depend” (Maumin 2008:499).

It was not just their homes that were targeted. The Hussain regime systematically planned to wipe out the whole ethnic group of Marsh Arabs as well. With the beginning of Iran Iraq war, the masses became a refuge for Rebels and resistance fighters. After the uprising of 1991, the national started branding the Marsh Arabs as traitors and insulted the customs and racial ancestry (Ahmad 2013:3). They were also ridiculed for their alleged poverty and backwardness and were even described as being “monkey face” people who were not real Iraqis. Women from the marshlands were also targeted and were called immodest (Weinstein 2005:719).

Even after continued attacks, Marsh Arabs tried to stay on their land, but the Iraqi Regime did not leave any stone unturned. They poisoned the water with vast quantities of chemicals which left 500,000 Arabs without food or water, and they ultimately had to leave their thousands of year old lifestyle and home (Ahmed 2013:4). Ahmad argues that the marsh Arab had no active interest or involvement in the politics, and they only focused on the fishing, tending livestock or weaving mats. The government targeted them just because of their Shi’a identity and because the Marsh Lands provided Sanctuary to the Rebels and those fleeing the regime’s brutality (Ahmad 2013: 4). The attack on the marshlands drained more than 85 per cent of water, and the wetlands were left barren and with salt-encrusted land (Dellapena 2007:406).

In an attempt to rejuvenate the marshlands, local farmers and water ministries began blowing the dykes and dams to re-flood the marshlands, just after the Hussain regime fell in April 2005. Water was released back into the marshes, and by 2005, 39% of the dried marshlands had standing water. However free flooding did not solve the problem of wetland habitat fragmentation (disconnected patches of wetland that was the primary reason behind the extinction of species in the region) since the flooded areas are still scattered when compared to the Marshland before the ecocide (Richardson and Hussain 2006). By 2007 more than 50 per cent marshlands were restored and many of the Marsh Arabs took it to themselves to restore the wetlands. Fortunately, the effects of re-flooding were better than what was anticipated by scientists (Dellapena 2007: 406).

2.4. The Vulnerability of Desert, Arctic and Island ecosystems to military activity

The Gulf war drew attention to the devastation caused to both the destroyed marine environment as well as the desert region. Deserts, islands and polar ecosystems are more susceptible to damage from military activities, and they also take more time to recover from the devastation. Deserts have especially fragile ecosystems. Battles in desert regions disrupt the delicate soil surface and devastate the vegetation which results in huge dust storms, and an unstable ecosystem which takes years to recover (SIPRI 1980:110). However, this has not discouraged states to devastate the deserts by military activities. Deserts have been used by the military as test sites, which have been both above ground and underground. For example, India chose desert region in the state of Rajasthan for its nuclear tests in 1974 and 1998. The US also tested most of its nuclear arsenal in the Nevada desert. In fact, it accounts for 44% of nuclear tests worldwide. Not only did the tests devastate the fragile ecosystem it also resulted in contamination from nuclear radiation. The atmospheric contamination due to radiation from the tests was later transferred to the biosphere through rainfall which resulted in an alarming increase in the instances of Thyroid cancer in the United States (Pravali 2014:735).

Similar to the desert ecosystem the, Arctic region also has a very fragile ecosystem which has been disrupted time and again by military activity. The presence of radar stations, airfields and naval bases disturb the ecosystem of the Arctic region. Even though the states have agreed to keep the Arctic region free from conflict and strictly for peaceful purposes, the region suffers from the military presence.

2.5. Other effects of War on environment

There have been cases where wildlife and forest have been preserved during wartime. It has been observed that borders shared by hostile neighbours unknowingly create nature preserves which also act as self-havens for animals and birds (McNeil 2004). Forests in South Asia were preserved so that there was a constant supply of wild elephants for war purposes. In Arthashastra, Kautilya suggested special regulations that should be applied for Horses and elephants since they were crucial for war (Rangrajan 1992:84). He also advised Kings to preserve mines since they provide

for war materials. In recent times, during the Second World War Atlantic Ocean saw an increase in fish stock because of the inaccessibility of waters for fishing.

Research suggests that during the Second World War carbon dioxide emissions got reduced since regular economic activity got suspended while war-related activities got the presidency. Military operations minimise hunting pressure which in certain circumstances helps animals to expand their population. For example, during the Second World War, the population of bears, foxes, wolves and Wolverines increased in Norway because of the German occupation. Similarly during the Japanese occupation in 1940's population of sambar deer increased (SIPRI 1980:58). Although, there have been some cases where was created haven for population growth of wild animals in most cases wars result in the destruction and disruption of wildlife. For example, the European buffalo was driven close to extinction during the First World War and was ultimately cleared off during the Second World War (SIPRI 1980:59).

Conclusion

UNEP has found that in over last 60 years at least 40% of all internal conflicts have been marred by the exploitation of natural resources. Mankind has always counted its war casualties regarding dead and wounded soldiers and civilians, destroyed cities and livelihoods. The environment has remained an unpublished victim of war. Environmental consequences of war like water wells getting polluted, corps torched, forests cut down, soil polluted and animals killed for military gain not only been ignored but also is hardly seen as a consequence of war at all.

For a long time, the primary focus was on the use of the environment in war rather than on the impact of war on the environment (Hughes 2003). The reality of the effects of war on the environment was not lost on the people of those times. Various religious documents forbid harm to the environment during times of war. A biblical commandment forbids Jewish soldiers to cut down fruit trees while besieging a city. The books on war like “The Art of War” by Sun Tzu and Clausewitz’s “On War” do touch upon the environment and stress on the importance of weather and climate. The Quran prohibits Muslims from harming trees during a holy war. On similar lines, the Buddhist and Hindu principle of *ahimsa* forbids the infliction of unnecessary environmental harm during both peace and war times (Lawrence and Heller 2007). However, these religious

restrictions were not very successful in protecting the environment during war (Westing 1988). However, early voices in favor of protecting the environment during wartime were largely anthropocentric. It has been argued that there is a need for a paradigm shift focusing on the welfare of the environment for itself, instead of humans (Drumbl 1998: 129). It has become important for the international community to address the issue of environmental destruction during wartime with much more urgency and resolve. International humanitarian law as well as international environmental law have provided protection in part, which is explored in the next chapter.

Chapter 3

International Framework for Protecting the Environment during Wartime

Introduction

The environment has been a silent victim of war for as long as violent conflict has existed. It is safe to say that there is hardly any state that has not felt the brunt of war and the environmental destruction that stems from it. There are many instances of ancient warfare where deliberate environmental destruction took place. However, it is also true that there always existed some sort of regulations to deal with this environmental destruction. Most of the earlier instances of these regulations had religious connotations attached to them and are found across cultures. With the evolving nature of war, these regulations also expanded in their nature and scope. Modern weaponry made it imperative that the protection provided to the environment was no longer just tangential but had to be backed by international laws and conventions that would hold the violators responsible for the crimes against nature during times of war.

But even today there is no readily enforceable code of conduct that directly addresses what warring parties can or cannot do to the environment (Drumbl 1998: 123). This is surprising given that both International Humanitarian Law (IHL) and International Environmental Law (IEL) are highly codified branches of international law (Shaw 2003: 1168). IHL includes a range of conventions and treaties like the Hague Conventions of 1899 and 1907 and the four Geneva Conventions that prescribe what and what should not be done during wartime. But when it comes to the issue of deliberate damage to the environment during wartime, these treaties contain only “scattered collateral references”, which at most provide some definitional parameters as to what constitutes unacceptable treatment of the environment during wartime (Drumbl 1998: 123). Although there are a number of treaties obligating states to protect the environment during peacetime, there are very few international treaties that prohibit and criminalise deliberate destruction of the environment during wars (Weinstein 2004). If we look at the number of conventional laws that were drafted explicitly with the intent of safeguarding the environment during wartime, it becomes evident that only the *Convention on the Prohibition of Military or Any*

Other Hostile Use of Environmental Modification Techniques (ENMOD Convention) of 1977 and Additional Protocols I and II to the 1949 Geneva Conventions fulfil the criteria.

Until the beginning of the 1970s, the issue was considered less important than other areas of law of conflict. After the Vietnam War of 1961-71, the environmental consequences of war gained prominence as a concern that further increased in stature after the Gulf War in 1991. Attention is now being focused on making states liable for their actions during wartime that destroy nature. Even though one can point at some multilateral treaties, there are still an insufficient number of treaties that specifically address the issue of wartime destruction of the environment. This does not mean that the environment cannot be protected from environmental devastation during wartime. There are legal provisions relating to the safeguarding of the property of non-combatants, natural and cultural heritage, human rights of civilians and combatants during conflicts, arms control agreements and environmental laws that can be used to defend the environment during wartime.

3.1. History and Evolution of the Law of War

The history of warfare is said to be at least 5000 years old. However, the conduct of warfare was quite unrestrained for a long time (Solis 2010: 4). Environmental damage has always been a part of warfare, and the reality of the effects of war on the environment was not lost on the people of those times. Ancient texts, scriptures and religious texts like the Quran, the Bible and Hindu scriptures prohibit the destruction of the environment during wars. A biblical commandment forbids Jewish soldiers to cut down fruit trees while besieging a city. *Mahabharatha* (200 B.C. - 200 A.D.), an epic written in Sanskrit gives glimpses of Hindu traditions regarding war. It prohibits the killing of the wounded, harm to non-combatants and those who had surrendered. It also has provisions for safeguarding places of public worship during wars. Similarly, *Manusmriti* prohibits weapons that could cause unnecessary suffering such as poison arrows and barbed wires. It also directs that an enemy who is severely wounded or is trying to surrender shall not be killed (Solis 2010: 4).

The books on war like “The Art of War” by Sun Tzu and Clausewitz’s “On War” do touch upon the environment and stress on the importance of weather and climate. The Quran prohibits

Muslims from harming trees during a holy war. On similar lines, the Buddhist and Hindu principle of *ahimsa* forbids the infliction of unnecessary environmental harm during both peace and war times (Lawrence and Heller 2007). However, these religious restrictions were not very successful in protecting the environment during wars (Westing 1988).

An agreement between Egypt and Sumeria and other states on the issue of treatment of prisoners around 1400 BC challenged the unrestrained nature of war and started a new tradition of wartime conduct. *Strategica*, written in the late 6th century A.D. by emperor Maucine, suggested that if a non-combatant is injured during a war, the soldier should try to repair the damage. A subsequent law of war began emerging around this time. The belief that soldiers were distinguished from mere killers led to the regulation of wartime conduct. Historically the rules of war were primarily grounded in the idea of honour. In the 12th and 13th centuries, Knights followed the rules of chivalry which meant that honour had to be upheld even in the face of war (Solis 2010: 5). Since soldiers were distinguished from mere killers, they were supposed to adhere to honour which has also been a critical component in training soldiers since a long time (May 2007: 1).

The just war tradition which can be traced back 2000 years, also supported the code of honour observed by the soldiers during wars (May 2007). Soldiers were supposed to treat other soldiers with honour and a sense of equality even when they were fighting on opposite sides. To do their part in protecting their soldiers, states would adhere to the rules of war. Since these rules acted both ways, safeguarding the rights of soldiers on the enemy side ensured humane treatment for one's soldiers (May 2007: 20). Chivalry is one of the earliest examples of regulation on the conduct during wars. Although the rules of chivalry appeared to be extrajudicial, they were the only rules of war in the absence of a proper system of international law at the time (May 2007: 33). Developing rules of war allowed a certain level of moral acceptance to the act of war. It has been argued that "war is distinguishable from murder and massacre only when restrictions are established on the reach of battle." Having restriction added to the scope of war meant that it could be disassociated from random acts of violence (Solis 2010: 7).

The law of armed conflict has multiplied since the beginning of the nineteenth century. Solis argues that even though the laws of armed conflict seldom work well, to have them in the first place is no small feat (Solis 2010). In all cultures, there have been some fundamental agreed upon

principles when it comes to war. These laws usually prohibit meaningless plunder of the environment. There is a significant body of work in international law that deals with the environmental consequences of war. These laws are largely acceptable to most of the world because they are in continuation with the custom and are familiar rules of the past (Best 1998).

The free Netherlands adopted articles of war in 1590. In 1621 King Gustavus Adolphus published "*Articles of military lawwes to be observed in Warres*". The article borrowed from existing works of code of Maximilien II (1570), code of Morris and Nason (1590), and from the court of Finland and Hungary (1526). Of the 150 articles, seventeen contain rules of humanitarian nature to be observed during times of war. From an environmental perspective, some provisions can prove to be protective of the environment during wars without explicitly mentioning it. Article 90, for instance, prohibits destruction of a town or village of a friendly country whereas Article 99 rules against pillage of churches, hospitals and schools and also protect the elderly, women and children if they do not put up armed resistance. These articles also became the basis for England articles of War on which the US articles of War are loosely based (Solis 2010: 7).

Even though violence is an intrinsic part of war there always has been a need to regulate it, if not purely because of humanitarian reasons then to give the war practices a certain amount of legitimacy. Certain regulations and restrictions on the practice of War have been universal, and it's true across times. Even though the origin of most of these restrictions trace the roots back to religion, its nature evolved over time and shed its religious influence. From the 17th century the notion of "just war" began to emerge which aligned itself to regulating the rules of wars.

3.1.1. The Just War Tradition

The idea of "just war" also aimed at having some basic rules and principles during war times. The idea of just war can be traced back to the Christianisation of the Roman Empire, which argued that that force could be used only with the divine will. War was to be embarked upon to punish wrongs and restore the peaceful status quo but no further (Shaw 2003: 1119). Hugo Grotius in the 17th century tried to do away with the ideological consequences and redefined the concept of just war regarding self-defence, the protection of property and the punishment for a wrong suffered by the citizens of a particular state. Grotius compiled and theorised the tradition which influences International Law even today.

May points out two crucial questions that the Just War tradition puts forward:

1. *Was the decision to wage war morally justified? (Jus ad Bellum)*

2. *Were the tactics employed in war morally justified? (Jus in Bello)* (May 2007: 4).

In the just war tradition, deliberate destruction of environment fits comfortably in the second question (*Jus in Bello*). The destruction of the natural environment in several cases cannot be justified morally – for example, the destruction of dams and dykes and clearing of forests just for tactical military advantage. May argues that the Just War theory was intimately connected to the natural law theory, which would mean that both traditions are grounded in the belief that certain principles, as well as moral obligations, exist across all cultures surpassing their immediate circumstances (May 2007).

3.1.2. The Evolution of the Law of War

After the peace of Westphalia, the concept of just war disappeared from international law in the context of the divine will. Legal consequences of war now reinstated it, and it came upon the international community to decide whether the cause of the war was just or not (Shaw 2003: 1121). The idea of rules of war, however, was not new. Citing Seneca's *De Clementia* May argues that the Roman Philosopher was one of the first to consider "the rules of war". *De Clementia* translates to "On Mercy" which Seneca advocated during wars for political prisoners and injured soldiers.

With the changing nature of war and different political circumstances, war became a legal state of affairs. It is difficult to overlook ecological disruption caused by war even when the war is deemed a "just war" (Marot 2003: 3). The First World War witnessed unparalleled destruction that changed the way war was perceived, and it was realised that all heroic connotations that were attached to war needed to be revised. The prohibition of the resort to war now became a valid principle of international law (Shaw 2003: 1122). The traditional morals and ethics of war were no longer adequate to protect the environment since they did not reflect an understanding of the nature of modern warfare and its inevitable effects on the environment (Hawkins 1991: 221).

With this new understanding of war came the idea that victory does not necessarily mean the complete destruction of the enemy. Employment of force during war which does not inevitably lead to victory is wasteful and unnecessary. This led to the idea of avoiding 'unnecessary destruction', which in human terms could mean avoiding unnecessary human suffering (Baxter

1977: 165). John Rawls in his book “*A Theory of Justice*” states that there is a national duty not to injure or harm others and not to inflict unnecessary suffering (Childress 1978: 431). The idea of unnecessary suffering and proportionality of the use of force in war was emphasized. It is a wasteful use of force to add to human suffering without any corresponding military advantage.

The rule of proportionality found expression as the prohibition of “an attack which may be expected to cause incidental loss of civilian life, injury to civilians, to see various objects or combination which would be excessive about the concrete and direct military advantage anticipated” (Baxter 1997: 178). The rule of proportionality requires a balance of civilian losses against military advantage (Baxter 1997: 179). The just war tradition was grounded in the natural law theory which made the moral obligations related to war universal. This idea later transcended into legal consequences of war after the establishment of an international legal order. The nature of war changed dramatically at the beginning of the 20th century, and wars became barbaric and virulent. The changing nature of war made it evident that there was a need to spell out and codify the rules of law of war. The International Committee of the Red Cross (ICRC) had already started taking steps in this direction which gradually evolved into international humanitarian law, which is one of the most codified parts of the international law.

3.2. International Humanitarian Law

States have attempted to give expression to the basic principles of law of war through international humanitarian law (IHL), which has evolved since the first Red Cross Convention of 1864. The International Committee of the Red Cross (ICRC) defines *jus in Bello* or IHL as the law that governs the way in which warfare is conducted. It is purely humanitarian, seeking to limit the suffering caused by war by protecting and assisting its victims as far as possible. It does not deal with the justification or reasons for war or its prevention, all of which is covered under *jus ad bellum* (ICRC 2010). The provisions of IHL apply to war parties irrespective of the reasons for the conflict. The application of humanitarian law avoids denunciation of guilty parties as it would only lead to controversy which will hinder the implementation of the law.

The 1785 Treaty of Amity and Commerce signed between the US and Prussia was one of the first treaties falling under the category of Law of Armed Conflict (LOAC), which provided

these two states with ground rules regarding the treatment of prisoners of war and non-combatant immunity (Solis 2010: 14). In the last century, the law of armed conflict has increased manifold and has come to be known as International Humanitarian Law concerned primarily with regulating the means and methods of warfare. Human rights have become an indispensable part of LOAC today (Solis 2010: 22). There is a growing body of humanitarian law that aims to mitigate the human suffering caused by war (Solis 2010: 22). Human rights law complements humanitarian law to limit the effects of violence in the battlefield. The international humanitarian law not only limits violence to protect non-combatants but also protects property whose destruction would serve a military purpose (Solis 2010: 23). The international humanitarian law is primarily comprised of The Hague Law and Geneva Law. IHL is “the branch of Law of Armed Conflict which is concerned with the protection of the victims of armed conflict” (McCoubrey 1990: 1). Customary law may evolve from conventional laws which prompted an observer to suggest that LOAC has also started converging with International Environmental Law and now has a shared common value system with IEL (Caggiano 1993: 484).

Jus in Bello is at the core of governing the way that warfare is conducted. Its all-inclusive nature makes it universally acceptable. The international humanitarian law has a wide application and has increased its scope over time. In present times, it has expanded itself to be ubiquitous, from being primarily concerned with mitigating the human suffering and protecting private property and even the natural environment.

3.2.1. Principles of Humanitarian Law

International Humanitarian Law is founded on the belief that “*the right of the belligerents to adopt means of injuring the enemy is not unlimited*” (McCoubrey 1990: 1). The same principle is cited in Article 22 of the Hague Convention IV respecting the laws and customs of the land. There are four fundamental principles of international humanitarian law.

Humanity is the principle that is at the very core of IHL. The principle of humanity prohibits any action on the battlefield that can cause unnecessary suffering and is designed to inspire terror (Caggiano 1993: 495). The use of chemical, biological and incendiary weapons come under this principle. There are several laws and treaties banning chemical and biological weapons, use of poison and weapons that cause unnecessary suffering in human beings. For example, The Hague

Regulations and the 1868 declaration of Saint Petersburg prohibit the use of weapons that have indiscriminate effects or may cause unnecessary suffering (ICRC 1993). This was later reinstated in Article 23(e) of the Hague Convention IV. This principle of humanity became the classical principle of customary international law. Pointing to the authentic French text at the Article 23 (e) Anthony Leibler points the phrase “*propres a causer des maux superfluous*” could be translated to “a nature to cause superfluous injuries” the author argues that the word *injury* here does not have to be limited only to personal harm. He suggests a broader application and includes any harm to “property damage, personal harm or something that causes loss, pain, distress or impairment” (Leibler 1992: 100). According to this definition of unnecessary suffering personal property or environment also have the right to be protected during the time of war.

Military objectives and civilian targets must be discriminated under this rule. Any attack that could harm civilian life or property whether collateral or incidental is prohibited (Caggiano 1993: 495). Saint Petersburg Declaration of 1868 declared that during war states could only do what is necessary to weaken the military forces of the enemy. Articles 52(2) of the Additional Protocol to the Geneva Convention 1949 states that:

Attacks shall be limited strictly to military objectives. In so far as objects are concerned, military objectives are limited to 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 neutralisation, in the circumstances ruling at the time, offers a definite military advantage.

Article 51 of the additional protocol prohibits “indiscriminate attacks”. Liebler comments that from these provisions one can easily speculate that an indiscriminate attack against nature such as blind bombardment, dumping of oil in the sea, oil fires etc. during wartime will fall under the category of an indiscriminate attack. However, the implementation of these rules has never been smooth (Libler 1992). It is difficult to prove in a court of law that a military commander knew beforehand whether the target was civilian or military. Use of landmines and drones has been particularly targeted because of their inability in many cases to discriminate between a civilian and a military target.

The rule of proportionality requires that the military means employed in warfare should be balanced. Any use of force should not be excessive to what is needed to reach the objective. Liebler

points out at even in cases where a particular means of warfare is deemed a military necessity it has to be in proportion to the military gain. He cites article 57(2)(a) of the 1977 Additional Protocol I to the Geneva Conventions which states that:

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 minimising, incidental loss of civilian life, injury to civilians and damage to civilian objects (Liebler 1992: 99).

The Article, however, provides very limited protection to the environment as it is only concerned with civilian lives and civilian objects. If the military target in question is not civilian property, then this article leaves the possibility of its destruction without any repercussions.

The rule of Military necessity states that any use of force that is not justified by military necessity is prohibited under the law of war. Liebler argues that in case of deliberate environmental damage, even a small advantage regarding military gain can be justified as a military necessity. He urges for a definition of military necessity that is balanced and justified (Liebler 1992: 98). Since the onus of determining as to what constitutes military necessity, lies with a military commander in real-time war situations, it becomes difficult to get the authenticity of the proportionality in retrospect (Liebler 1992: 98).

If the commander in charge chooses to be ignorant about the repercussion that their military decisions could have on the environment, they can very well claim ignorance as a full defence. Similarly, ignorance of the laws could also be used to claim defence (Drumble 1998: 133). Since the doctrine of military necessity is a product of customary law, Caggiano asserts that conventions and treaties can be detrimental in “transforming a vague consensus or general feeling regarding state action into a precise legal norm that can be used as a measure for proper behaviour, both by nations and courts of law” (Caggiano 1993: 498).

It has been argued that these four principles of laws of war could be applied in case of environmental destruction during Wars (Caggiano 1993: 495). Simonds claims that if these guidelines are implemented together, they can “outlaw wanton environmental destruction by prohibiting any widespread destruction that is disproportionate to an anticipated military goal” (Simonds 1992: 170). However, the protection granted by these principles of humanitarian law can

be subsumed by the doctrine of military necessity which could in practice excuse the breach of any of these principles and severely undermine any protection to the environment that the four principles might provide in case of a war. The doctrine of military necessity can only be helpful in retrospect but does not protect the environment during the times of war, and for this reason, it is merely a preventive theory (Simonds 1992: 170).

The rules of war are scattered in too many sources and treaties in different forms and lack specificity. The fact that not many countries seem so concerned with environmental issues especially in the context of war coupled with a lack of clarity on the issue of punishing violations and the means of investigating complaints renders these principles rather incompetent. Roberts points out, that the application of these principles during a civil war is rather limited and that these rules fail to address one of the most serious threats to the environment in case of a war – that is the problem of the use of nuclear weapons. However, he agrees that in spite of their shortcomings these rules constitute the “strongest legal basis for asserting illegality of much environmental destruction in war” (Roberts 2000: 67).

These four principles could together provide a certain level of protection to the environment during wars but these are also very anthropocentric and it seems like a stretch to expect them to be enough in this regard. Another component that cannot be overlooked is the inapplicability of these principles during civil wars and internal conflicts. Since most of the armed conflict in today's world are internal in nature and cause severe environmental destruction they must have an infallible system of protecting the environment, not just during International conflicts but also in internal ones. There is also a need to address the “military necessity” exception as it reimposes that old notion of putting certain issues over the environment.

3.3.2. The Hague Law

A treaty loosely advancing the cause of humanitarian principles during wars was proposed in 1874 by Alexander II which was rejected at the time, however, in 1899 the Treaty was accepted as the *Hague convention with respect to the laws and Customs of War on Land*. The Hague Convention of 1899 contained the Martens Clause which read:

Until a more complete code of the laws of war is issued, the High Contracting Parties think it right to declare that in cases not included in the Regulations adopted by them, populations

and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilized nations, from the laws of humanity, and the requirements of the public conscience.

Although the Martens Clause was introduced in order to grant residual humanitarian rights to the people of occupied territories and especially those who were resisting the occupation the clause has now become an important part of the international humanitarian law (Meron 2000: 80). It has also been called as the greatest achievement of The Hague Conference and should be understood as a clause that protects every human being in times of war (Beazatti and Vasconcellos).

The Hague Convention of 1899 laid down laws and customs of war. It recognized that warfare needed to be restricted. It was later revised in 1907 which became the primary source of law that defines crimes of war (Caggiano 1993: 485). These laws and customs of war, which spelt out the restrictions during wars are to be respected by all parties (Shaw 2008). It continues to be relevant to this date. The convention deals with different facets of warfare. Although it does not mention protection of the environment during war explicitly, some articles could be seen as the foundation for such laws.

One of the significant contributions made by the Hague Convention in this field was that it categorically prohibited the unlimited use of violence during wars. Article 22 mentions that “the right of belligerents to adopt means of injuring the enemy is not unlimited”. Article 23(e) of the convention proscribes any means that could cause “unnecessary suffering”. Means employed in war such as poisoning of wells and burning of forests which are not necessary for a military advantage would undoubtedly come under this category. Article 23(g) prohibits warring states “To destroy or seize the enemy’s property unless such destruction or seizure is imperatively demanded by the necessities of war”. Schmitt argues that Article 23(g) has the widest application regarding environmental protection during wartime.

McManus recalls the public trust doctrine establishes Article 23(g) as a strong binding international law that prohibits incidental environmental destruction during armed conflicts. However, the article codified the customary international law principle of military necessity, which

means that military conduct has to be balanced against the principle of military necessity (Schmitt 1993: 33). It is quite likely that in many cases the military necessity could trump over environmental concerns (McManus 2006: IV23). Similarly, Article 25 prohibits attacks on undefended property. The Hague Convention provides for the safeguarding of the capital of seized properties which also includes forest and agricultural estates in Article 55. Article 55 prohibits any permanent alteration or destruction to the occupied territory. The occupying power is free to exploit the natural resources of the territory unless they do any permanent damage (Schmitt 1999: 33). Article 27 of the Convention advocates the taking of necessary steps to spare religion, art, science and historical monuments during armed conflicts.

Even though The Hague Convention of 1907 does not deal with protecting the environment directly, these provisions [Articles 23(a), 23(b), 23(g) and 23(h)] of the Fourth Hague Convention prohibit wartime behaviour such as unnecessary destruction of enemy property and use of poisonous weapons, which protect the environment ancillary. They protect occupied property from plunder and suggest that the seized property should be used with care. However, the treaty is limited in the sense that it is not of much help when the destroyed property or land is not occupied and can be termed as enemy territory (Caggiano 1993: 486). Simonds argues that the Hague regulation only provides limited and indirect environmental protection during war since it only protects civilian property and fails to cover the protection of public property. The Hague regulation only protects the property but has no definite rule on the legality of pollution out of space (Simonds 1992: 171).

3.2.3. The principle of unnecessary suffering

In 1868 the Declaration of Saint Petersburg prohibited the use of small explosives or incendiary projectiles. The laws of war were codified at The Hague Conferences of 1899 and 1907, prohibiting the use of force against undefended villages and towns and imposing an embargo on the use of weapons that might cause unnecessary suffering (Shaw 2003: 1169). Later the Geneva Conventions echoed the same belief that ‘persons not actively engaged in warfare should be treated humanely’ (ICRC 2010). Article 23(e) of the 1899 and 1907 regulations on land warfare forbid states from employing arms, materials of a nature to cause superfluous injury or “to employ arms projectiles or materials calculated to cause unnecessary suffering (Carnahan 1996: 710).

Article 8 of the Rome Statute of the International Criminal Court criminalises the use of weapons with destructive effects on both humanity and the natural environment (Drunbl 1988: 137). Over the years, some weapons have been banned for causing unnecessary suffering. These include small calibre explosive bullets that were banned in 1868 under the Saint Petersburg Declaration, Dum Dum bullets that were prohibited by the 1899 Hague Convention (these bullets had a hard hollow point which expanded upon hitting the target).

The 1899 Hague Declaration concerning asphyxiating gases prohibited the use of projectiles and asphyxiating gases, as they cause unnecessary suffering (SIPRI 1980: 198). The Conventional Weapons Treaty of 1980 outlawed weapons that use fragments that is undetectable by X-rays (Carnahan 1995). On similar lines, the ban on poisoned weapons is one of the oldest continuing prohibitions in the world. The Geneva Protocol for the prohibition of the use in war of asphyxiating, poisonous or other gases, and of bacteriological methods of warfare of 1925 came into force in 1928. The gas protocol prohibited “use in war of asphyxiating, poisonous or other gases, all analogous liquids, material or devices,” it also extended the prohibition to the use of bacteriological methods of warfare. Schmitt argues that the 1925 gas protocol provides significant environmental protection since the chemicals used in warfare are persistent and can spread easily across the environment through the food chain.

Even though the gas protocol has 133 signatories it is not the most successful one since most countries only acceded to the agreement after making a reservation that the use of these weapons is acceptable in case of first use from the enemy, transforming the protocol into a no first use pact in effect (Schmitt 1999: 286). The Hague law was profound in many aspects since it had expanded protection to not just human beings but also to undefended property and advocated safeguarding of capital seized during the war. It also prohibited any kind of permanent damage to the occupied resources. On the other hand, The Hague convention failed to mention protection of environment in its own right and also failed to offer any kind of safeguard against internal conflicts since it only has provisions to protect occupied property and is silent on the case for the property can be either termed as enemy territory or is owned by the belligerents themselves. The notion of unnecessary suffering is also insufficient when it comes to protection of the environment.

3.2.4. IHL after the Two World Wars

The unparalleled and rampant destruction caused in the two world wars led world leaders to focus on the environment as a separate entity. Protection of the environment during wartime was still seen within the context of IHL. The Geneva Conventions are central to IHL along with The Hague Conventions. The protocol additional to the Geneva Convention dealt with environmental devastation during wartime. Even though these advancements continued to be essentially anthropocentric in nature, it did open the gates for more eco-centric laws and conventions in the future. It was also a step forward from protecting environment in its own right and not defined simply as private or civilian property.

3.2.5. The Geneva Law

The *Geneva Convention Relative to the Protection of Civilian Persons in Times of War* of 1949 dealing with the rights of non-combatants during wartime extends the rule to peacetime (Article 2) and also to armed conflicts of a non-international character (Article 3). The convention, however, fails to take the deliberate destruction of the environment or natural resources during a war, into account. This is somewhat surprising since the convention has 159 articles and covers a wide range of areas relating to the rights of the non-combatant population during wartime.

3.2.6. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977:

The protocol additional to the Geneva Conventions of 12th August 1949, and relating to the Protection of Victims of International Armed Conflicts, 1977 added Article 55 which deals with the protection of the natural environment. Article 35, which lays down basic rules or methods and means of warfare of the additional protocol, also mentions that “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”. Article 55 deals with the protection of the natural environment and states that “care shall be taken in warfare to protect the natural environment against widespread long-term and severe damage”. This protection includes the prohibition of the use of methods or means of warfare which are intended or may be expected to cause damage to the natural environment and thereby to prejudice the health or survival of the population”. Article 55(2) prohibits attacks against the natural environment by way of reprisals.

Article 51(5)(b) states that:

an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage *anticipated*.

The Article prohibits means of warfare that could cause “damage to the natural environment and thereby to prejudice the health or survival of the population”. It seems rather obvious that the primary concern here is human health and survival while the environment takes a backseat. The protocol fails to protect the environment in its own right in cases where a military action only affects the environment and has no repercussions for the human environment. The Travaux Préparatoires (official documents recording the negotiations, drafting, and discussions during the process of creating a treaty) of Protocol I suggests that “long-term” refers to the environmental damages lasting decades. However, it fails to define the terms “widespread” and “severe”. Hence, the protocol is less protective of the human environment in comparison to the ENMOD Convention. In the absence of a concrete definition, it is challenging to determine or prove in court that the commander was aware that the outcome of her commands would result in “widespread, long-term and severe damage”.

It is also rather difficult to determine whether an attack that resulted in environmental devastation was incidental or deliberate, in retrospect. For example, the NATO forces maintained that the attacks on oil refineries, chemical plant and fertilisers factories in Yugoslavia in 1999 were incidental and that they used very sophisticated weapons to minimise any kind of environmental or collateral damage. However, commentators have argued that the NATO forces deliberately created an ecological nightmare in Yugoslavia, to break the will of people (Jokismovich 2005:150). Further, the use of the term “anticipated advantage” in Article 51(5)(b) could be problematic because it becomes subjective and depends on whether or not the commander during the pressing circumstances believed that the attack was of military advantage to them (Lawrence and Heller 2007). It is imperative to mention the Rendulic case in the context of anticipated advantage. The Nuremberg Tribunal acquitted a Nazi commander General Rendulic in the case of his use of the scorched earth policy in Norway against the Russians since the court accepted his defence that he reasonably believed that the use of the scorched earth policy was a military necessity at the time. Article 54 of the protocol extends protection to objects that are indispensable to the survival of the civilian population. It prohibits the destruction of food stuff,

live stocks, drinking water installations, agricultural lands, irrigation supplies etc. However, it does not extend protection to these “objects” if they provide sustenance solely to combatants.

Additional Protocol 1 of 1977 in Article 56(1) prohibits any attacks on dams, dykes and nuclear electrical generating stations, even if the destructions serve military purposes and gives them an advantage. Such an attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Destruction of dams and dykes has been used as a military tactic against enemies which have resulted in massive floods destroying whole ecosystems. Destruction of a nuclear electrical generating station will also have devastating effects on the environment. Article 56(1) appears to be a provision that could potentially save the environment from the devastation of war. However, a closer look makes it evident that in case the destruction of the dams, dykes and the nuclear power generating station does not affect the civilian population then the provision offers no protection to the environment whatsoever. The next subsection of Article 56 further dilutes the provisions of Article 56(1).

Article 56(2) states:

The special protection against attack provided by paragraph 1 shall cease:

- a) for a dam or a dyke only if it is used for other than its normal function and in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support;
- b) for a nuclear electrical generating station only if it provides electric power in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support;
- c) for other military objectives located at or in the vicinity of these works or installations only if they are used in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support.

Tignino points out that there is a close link “between the protection of civilian objects, environmental protection and the protection of the civilian population” (Tignino 2011: 197). Both Articles 54 and 56 of the Additional Protocol can be evoked in cases of pollution of rivers or other sources of water, destruction of forests where civilians are depended on it for sustenance or destruction of dams and dykes all of which could be detrimental to both the survival of the peoples and the environment.

A cursory glance at the available literature and international treaties shows that most of the agreements signed in the first half of the 20th century that deal with the incidental destruction of the environment during wars, for example the 1907 Hague Convention and 1949 Geneva Convention, are concerned primarily with destruction of civilian property, villages, towns and dwellings and prohibit looting of both public as well as private property. This includes Article 23 and 25 of the Hague Convention of 1907. Similarly, Articles 46 and 55 are concerned with safeguarding enemy private property, although, Article 55 does mention safeguarding agricultural estates and forests (Lawrence and Heller 2007). Both The Hague and Geneva Law appear to be fairly anthropocentric and fail to recognise 'environment' as a victim of war in its own right. Before the Vietnam War, all the international agreements that offered any protection to the non-human environment during wartime were exclusively anthropocentric.

3.2.7. Mine Ban Treaty, 1997

There are approximately 80 million active landmines around the globe scattered in 78 countries. These mines are responsible for the death of more than 20000 people every year (Sidel et al. 2009:30). Anti-personnel landmines are against the rules of discrimination under the international humanitarian law since they cannot differentiate between civilians and a military footstep. There are two kinds of landmines. The first one is designed to go off on human contact and the other one by tanks. The second kind of landmines was developed during the First World War in response to battle tanks.

The Second World War also witnessed the extensive use of landmines. After the end of the war, cities were thoroughly inspected by experts to get rid of the landmines. However, an emanation of mines only began in the 1960s. Landmines continue to disrupt lives and environment mostly in countries that are currently at peace. More than 10 Million top filed mines still need to be destroyed by thousands of victims are still in need of adequate support. The victims of these land mines are children the small body suffer the most from the injuries afflicted by the landmines. The active landmines can remain active for decades and can go off indiscriminately. The landmines are a menace not just to human population but also kills and maims wildlife. Anti-personnel mines have been used extensively to protect strategic areas such as borders and camps. Landmines have also been used extensively in internal conflicts to deny access to farming lands to the people. When

a landmine goes off, it destroys the top layer of the soil. This results in serious ecological damage as the topsoil, which is crucial for vegetation. Not only have anti-personnel mines killed more than 1 million people they have also denied land access to people who rely on land for their sustenance.

The *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-personnel Mines and on their Destruction* of 1997 is also referred to as Ottawa convention or the anti-personnel mine ban treaty. It came into force on March 1st, 1999. The Treaty not only banned the use of anti-personnel land mines completely but it also aims to clear all mined areas within ten years. The Convention defines anti-personnel mines as “a mine designed to be exploded by the presence, proximity or contact of a person and that will incapacitate, injure or kill one or more persons. Mines designed to be detonated by the presence, proximity or contact of a vehicle as opposed to a person, that are equipped with anti-handling devices, are not considered anti-personnel mines as a result of being so equipped” the ban on the anti-personnel landmines is based on the principle of the international humanitarian law that “the right of the parties of armed conflict to choose method or means of Warfare is not unlimited”.

The 1997 convention bans the use of land mines and also prohibits states from developing, stockpiling and producing anti-personnel mines. The convention also demanded states to destroy or to insure destruction of all stockpiled anti-personnel landmines. There is also a provision to ensure that all states are provided with assistance whenever needed to facilitate the destruction of landmines. The assistance can be sought from the United Nations system, international or Regional organisation or institutions (Ottawa Convention 1997).

India has still not signed the Mine Ban Treaty, even though 164 countries have signed it. Major powers such as the United States, Russia and most of Asia remains non-signatories. The international campaign to Ban Landmines is a network of more than 400 NGOs around the world. The campaign is active in around 100 countries and has been very crucial in mobilizing thousands of citizens through their campaign network which was crucial in the adoption of 1997 Ottawa convention. The international campaign to ban landmine won the 1997 Nobel Peace Prize co-Laurate for its efforts in the area. The campaign has also issued the completion challenge to make

the norm against the use of anti-personnel mines Universal by mine clearance, stockpile destruction and victim assistance.

3.2.8. The Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III) of 1980

Protocol III addresses war time destruction caused by Incendiary weapons. It defines incendiary weapons as “any weapon or munitions which are primarily designed to set fire to objects or to cause burn injury to persons through the action of flame, heat, or combination thereof, produced by a chemical reaction of a substance delivered on the target”.

Article 2(4) of the article deals with the destruction of forests by incendiary weapons. It 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”.

Table 3.1. The scope and limitations of environmental protection during wars under International Humanitarian Law

Laws/convention	Protection to the environment	Limitations
Hague convention (1899)	<ul style="list-style-type: none"> a) Prohibited unlimited use of power during wars b) Prohibited attack on undefended property 	<ul style="list-style-type: none"> a) does not protect the environment directly b) does not extend protection to enemy property or in case of internal armed conflict.
Declaration of Saint Petersburg (1868)	prohibited use of small explosives or incendiary projectiles	Only provided incidental protection to the environment
Hague regulation (1907) and Geneva convention of 1949	<ul style="list-style-type: none"> a) Prohibited destruction of enemy property b) states and individuals could be held liable for violations 	<ul style="list-style-type: none"> a) only offers protection to the environment that falls within the ambit of property b) the provision of military necessity

Geneva Gas Protocol of 1925	Prohibits use of asphyxiating, poisonous or other gases which protects the environment from chemical and biological pollutants	Has been transformed into a first use pact by most of the signatory countries
Protocol I of 1977	<ul style="list-style-type: none"> a) prohibits destruction of objects indispensable to human survival b) provision of monetary compensation c) individual violators can be tried for war crimes 	<ul style="list-style-type: none"> a) Only binding on states that are parties to the protocol. Major western and middle eastern countries are not bound by this protocol. b) too many exceptions render its value negligible
Mine ban treaty of 1997	Prohibits the use of anti-personnel landmines	Major countries like the US, China and most of the Asian countries remain non-signatories

3.3. International Legal Framework on Deliberate Environmental Damage during Wars

The Persian Gulf conflict in 1991 brought to the forefront the problem of deliberate wartime damage to the environment. Studies have started focusing on the direct impacts of war on the physical landscape (Hupy 2008). The calamitous effects on the environment, resulting from traditional warfare had increased exponentially since ancient times when the extent of the battlefield and the timeframes of wars were limited. Warfare in modern times does not only harm the environment, but it also has the potential to exterminate the environment and all human life with it. Nuclear weapons caused unmitigated havoc on the environment in Japan during the Second World War. The devastating effects of war on the environment became more pronounced in the aftermath of the Vietnam War of 1961-73. The US used an herbicide ‘Agent Orange’ in a more than 31,000-kilometer square area which devastated the vegetation and ruined the ecosystem for years to come. Millions were affected by the toxic chemical, and to this day their offspring suffer deformities (SIPRI 1976:6).

All this prompted the international community into action, and various steps were suggested which ranged from laws and conventions, condemnation from the international community to imposing economic sanctions. There was clear need to have specific laws and treaties that dealt with environmental destruction during wars.

Convention on the Prohibition of Military or any Hostile Use of Environmental Modification Techniques (1976)

Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques (ENMOD) of 1977 and protocol one seems to be eco-centric as opposed to the conventions that came before them. However, even they remain partially anthropocentric (Lawrence and Heller 2003). ENMOD was adopted by the United Nations General Assembly on 10th December 1976 by Resolution 31/72, and it entered into force on 5th October 1978. The Convention aspires to prohibit effectively “military or any other hostile use of environmental modification techniques to eliminate the danger to mankind from such use”.

Article 1 of the Convention mentions that “parties to the ENMOD convention undertake to not engage in military or any other hostile use of environmental modification techniques having widespread, lasting or severe effects as the means of destruction, damage or injury to any other state party” (ENMOD convention 1976). Environmental modification techniques refer to any technique for changing – through the deliberate manipulation of natural processes – the dynamics, mission or structure of the earth including its biota, lithosphere, hydrosphere and atmosphere or of outer space. Even though the Convention fails to define the terms ‘widespread’, ‘long-lasting’ and ‘severe effects’, the *International Committee of the Red Cross* (ICRC) argues that understandings have been drawn up to define these phrases. ‘Widespread’ is defined as “encompassing an area of several hundred square kilometres”, ‘long-lasting’ is defined as a period lasting for months, approximately a season and ‘severe’ is defined as serious or significant disruption or harm to human life, and economic resources or other assets (ICRC 2003). Article 53 of the Convention states that any party to the Convention can file a complaint in the Security Council of the United Nations.

The US forces had used cloud seeding techniques to make the enemy raiders inoperable. The US also produced bad weather conditions to hamper the military advances of the adversaries and altered rainfall to help the US forces with their bombing mission in Vietnam. It was reported that the US Department of Defense tried to augment rainfall for civil purposes in different regions of the world (SIPRI 1977: 57). It is evident that the technology to modify the environment for war and civilian purposes now exists. It is, however, important to note that the ENMOD Convention

only prohibits environmental modification if it is for military or hostile purposes. It is silent in cases where environmental modification is used for civilian or scientific purposes. One also cannot ignore the fact that even though environmental modification is a possibility during wartime, it continues to be an exception rather than a rule. Thus, the Convention is extremely limited in its scope when it comes to protecting the environment from wartime devastation.

Neither Protocol I nor ENMOD allows the use of “military necessity” as a reason, unlike other laws that deal with the deliberate destruction of the environment during wartime. The Convention does not distinguish between the lawful and unlawful use of force (Liebler 1992: 82). Some governments criticize the terminology of the Convention as vague, arguing that this significantly undermines the practical value of the Convention (Liebler 1992: 83). International environmental law, which is also codified in great detail, is not adequately equipped to deal with deliberate wartime environmental damage (Liebler 1992: 85).

3.4. International Environmental Law

There is a lot of difference of opinion on the issue of International Environmental Law applicable during wartime. IEL has a well-established framework of mechanisms to ensure not just responsibility but also liability against environmental damage during times of peace. There are a number a number of international treaties and conventions under the IEL that protects the environment. An outbreak of war does not ipso facto suspend any treaty between the warring parties. However it has historically been the case that laws applicable during peace and armed conflicts were mutually exclusive, a trend that has been shifting since the 1990s. It has been argued that International Law would be in sync with the Martens Clause of the Hague Convention as it was meant to fill the gaps in the conventional law of war. The 1941 Trail Smelter case relating to injuries caused to the state of Washington by Sulphur Dioxide emissions from a smelter plant in British Columbia was an iconic case regarding state responsibility for environmental damage. The United States Supreme Court in the absence of any international judicial decisions on the issue deduced that, “no state has the right to use or permit the use of its territory in such a manner as to cause injury by fumes in or to the territory of another or the properties or persons therein, when

the case is of serious consequence, and the injury is established by clear and convincing evidence” (Leibler 1992: 70).

3.4.1. Stockholm Declaration, 1972

Principle 21 of the 1972 Stockholm Declaration on the Human Environment further backed the principles that emerged from the Trail Smelter case. The Declaration is universally recognized as a statement of customary international law. However, there is nothing to avert the applicability of the principles of state responsibility for environmental damage during wartime (Leibler 1992).

3.4.2. The Basel Convention, 1992

The Basel Convention on the control of transboundary movements of hazardous waste and their disposal that entered into force on 1992 directs that “state shall take measures for proper exchange of information on the control of the transboundary movement of hazardous wastes”. The Basel convention is essentially anthropocentric as it is concerned primarily with the threat to human health that is caused by environmental degradation and hazardous and other waste and the transboundary movement thereof. Article 4 of the Convention deals with the liability clause. Article for subparagraph 5(a) mentions that if the environmental damage were “the result of an act of armed conflict, hostilities, civil war or insurrection no liability would be attached”. This exception makes the Basel Convention inapplicable for any transboundary environmental degradation caused by wars.

3.4.3. The World Charter for Nature, 1982

The *World Charter for Nature*, 1982 also mentions that nature shall be secured against degradation caused by war or other hostile activities (UNGA 1982). A Resolution passed in the 73rd plenary meeting of the UN General Assembly in November 1992 was titled “*Protection of the environment in times of armed conflict*”. It recognized that the use of certain means and methods of warfare might have dire effects on the environment (UNGA 1992). It came in the aftermath of the Gulf War (1961-73) and expressed deep concerns about environmental damage and the depletion of natural resources, including the destruction of hundreds of oil wells and release of waste and crude oil into the sea. It also stressed that the destruction of the environment is not justified by military necessity and is contrary to the existing law. It also urged all parties to take measures to ensure

compliance with the existing international law applicable to the protection of the environment in times of armed conflict. The General Assembly requested the Secretary-General to report “activities undertaken in this framework of the ICRC in this regard”. Red Cross was requested to report on activities undertaken by the committee and other relevant bodies about the protection of the environment in times of armed conflict. In response, the ICRC gathered a group of experts from non-governmental and governmental organisations and academics to come up with a report.

3.4.4. Guidelines for Military Manuals and Instructions on the Protection of Environment in Times of Armed Conflict in 1996

The ICRC came up with “*Guidelines for Military Manuals and Instructions on the Protection of Environment in Times of Armed Conflict*” in 1996. The training of armed forces often neglects the issue of protection of the natural environment although this is an extension of IHL. The ICRC submitted the guidelines to the UN in 1994, which was a summary of the already existing international rules. The report is intended to act as a guideline in training of the armed forces in the most neglected area of humanitarian law which is the protection of the natural environment during times of War. In the preliminary remarks that the measures taken at the national level by the domestic legislation are indispensable when it comes to protecting the environment in times of armed conflict. The guidelines also encourage parties to a non-international armed conflict to protect the environment. It maintains the destruction of the environment that is not justified by military necessity is in violation of the international humanitarian law and could be punishable as a grave breach of the same.

The manual prohibits attacks on dangerous forces like dams, dykes and nuclear electrical generating stations even if they serve military objectives. Attacks on historical monuments, works of art and places of worship are also out of bounds. The manual also reinstated the ENMOD convention prohibiting any hostile use of environmental modification techniques that can have widespread, long-lasting or severe effects on the environment. The manual instructs states to determine if the employment of a new weapon means methods of warfare could have devastating effects on the environment. It also encouraged state parties to protect the work of impartial organisations in their work to protect the environment. Article 20 of the military manual states that “in the event of breaches of the rules of international humanitarian law of protecting the environment, measures shall be taken to stop any such violation and to prevent further breaches.”

Military commanders are required to prevent and, where necessary, to suppress and to report to competent authorities breaches of these rules in serious cases, offenders shall be brought to justice” (Guidelines for Military Manuals and Instructions on the Protection of Environment in Times of Armed Conflict 1996).

The UN General Assembly, in its 49th session, invited all its members to look into the possibility of incorporating the ICRC guidelines in their military manuals. The sensitisation of the military personnel could go a long way in protecting the environment during wartime and in stopping any exploitation of the environment that is not warranted by military necessities. The ICRC initiative may be one of the most crucial instruments in saving the environment during wartime.

3.4.5. The Rio Declaration on Environment and Development, 1992

The *Rio Declaration on Environment and Development*, 1992 contains principle 24 which states that “warfare is inherently destructive of self-sustainable development, states shall, therefore, respect international law protecting the environment in times of armed conflict and cooperate in further development, as necessary.” The 2030 Agenda for sustainable development adopted by the United Nations pledges to have a healthy environment for everyone, it also pledges to protect the planet from degradation, including through sustainable consumption and production. Sustainably managing its natural resources and taking urgent action on climate change so that it can support the needs of present and future generations. It also commits to the Rio Declaration on Environment and Development and stresses the determination to address decisively the threat posed by climate change and environmental degradation. However, the Declaration does not explicitly mention deliberate wartime damages to the environment.

Tara Weinstein points out that even after the huge repercussions that deliberate environmental damage may have, no state has ever been held accountable for environmental destruction and no individual has ever been convicted of war crimes (Weinstein 2003: 168). Existing international law is insufficient to deal with the issues of protection of the environment during wartime and on questions of compensation (Low and Hodgkinson 1994).

In the last few decades, however, certain developments look promising. For example, the Gulf War ended with Iraq’s acceptance of the former ceasefire embodied in Security Council

Resolution 687 under which Iraq admitted that it was liable for damages including environmental damage as a result of its unlawful invasion and occupation of Kuwait (Low and Hodgkinson 1994).

3.5. The International Criminal Court

The International Criminal Court was the first permanent forum where environmental crimes could be prosecuted (Brunch 2000: 704). The statute of the International Criminal Court incorporated destruction of the environment like a war crime in 1998. Article 5 states that the ICC aims to establish ongoing deterrent at the international level for core international crimes. Under article 8 of the Rome Statute rules that deal with war crimes “extensive destruction and appropriation of property, not justified by military necessity and carried out unlawfully and wantonly are prohibited”. Article 8(2)(a)(IV) states:

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

The terminology used in this article is the same as was used in the first protocol, but it also adds “a criterion of proportionality” (Tignino 2011: 199). The use of “or” indicates that a military attack that causes “widespread, long-term and severe damage to the natural environment” which is excessive about the military advantage and disadvantage is prohibited irrespective of any harm suffered by humans. The Rome statute in this regard views the environment in itself, as a victim of war. Lawrence and Heller call Article 8(2)(b)(IV) as the “first truly ecocentric” rule pertaining to environmental destruction during times of war (Lawrence and Heller 1996). It is because of this eco-centric character that the article potentially provides significant protection for the non-human environment. Although the authors mention that it is still a work in progress (Lawrence and Heller 2007).

Baker argues that in seeking to protect the environment in its own right, the temptation is strong to identify new or specialised protection, but the wiser course is to pursue broader acceptance and more vigorous enforcement of existing rules (Baker 1993: 38IV). The foundational principles of IHL have expanded its scope to protect more people, places and things from the

ravages of war and Baker argues that any development in the field of preventing wartime devastation of the environment should not stray too far from the existing IHL.

3.6. Significant Multilateral Treaties Protecting the Environment from Wartime Devastation

Treaties protecting the Outer space, the Antarctic and the deep seas etc are effective not only for arms control services but also help in protecting the environment during wars and ensure that certain areas such as the Antarctic, outer space and deep sea remain unaffected by war. Antarctic Treaty of 1959, Treaty on the Non -Proliferation of nuclear weapons of 1968 the Seabed Treaty of 1971 and Outer Space Treaty of 1967 are some examples.

Treaty banning Nuclear weapon test in the atmosphere, in outer space and under water was signed on 5th August 1963 in Moscow. Article 1 of the Treaty prohibits nuclear weapon test explosion: “(a) in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas; or in any other environment if such explosion causes radioactive debris to be present outside the territorial limits of the State under whose jurisdiction or control such explosion is conducted”.

Since nuclear weapon explosions cause enormous levels of environmental pollution whether it is tested in outer space under water or underground, the partial test ban treaty has been instrumental in curbing environmental pollution related to nuclear tests. During the Second World War, both the US and USSR tested some nuclear weapons which were detrimental to the environment. Deserts and islands have been used for this purpose. According to estimates, 595 nuclear weapons have been tested in desert regions of which 130 were above ground tests which resulted in severe ecological destruction (SIPRI1980: 109). The Arctic region has also suffered from the same fate.

The ecosystem of Arctic region is extremely fragile, and the presence of radar stations, naval bases and air fields disrupts the natural environment. One of the major sources of pollution is the radioactive pollution in the region which is mostly of military origin from nuclear weapons testing. During the cold war, USSR and US both detonated some nuclear devices in the Arctic region.

According to reports, the USSR detonated at least 77 nuclear devices from 1957 to 1962, while the US conducted three underground nuclear weapon tests in the region (SIPRI 1980: 121). The Arctic region occupies approximately 5% of the total global surface and has the most fragile ecosystem which repairs extremely slowly; it was thus considered important to save the environment from military exploitation.

The Antarctic Treaty of 1959 states that “Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord”. Article 1 of the Treaty prohibits “any measures of military nature such as the establishment of a military base”. It also prohibits testing of military weapons in the region. However, the second part of Article 1 provides for an exception for military presence which allows “military personnel or equipment for scientific research or any peaceful purpose”. [Hanessian argues that this exception was inserted to benefit the US which uses military ships and aircraft to facilitate its scientific program in Antarctica (Hanessian 1960: 468). Article 5 of the Treaty prohibits nuclear explosions as well as disposal of radioactive waste.

The Ocean

States have maintained a military presence in the ocean primarily to support their terrestrial interests. The navy is supposed to protect nations shores and to safeguard its merchant fleet on the High Seas. It is also instrumental in intimidating smaller nations. The navy is also responsible for ocean pollution by carrying out military activities such as “underwater explosion, contamination with radioactive isotopes, chemical warfare agents, coastal disruption and cutting of canals etc. (SIPRI 1980: 152). However naval warfare has much more direct and far-reaching effects on the marine ecosystem.

The 20th century has witnessed many disruptive naval engagements, for example, the battle of Tsushima in the Sea of Japan, the battle of Jutland in the North Sea, the battle of Midway in Central Pacific Ocean, the battle of Leyte Gulf in the Western Pacific Ocean a few of the many battles fought in the sea. Military activity severely undermines the marine environment through various activities such as underwater explosion during times of war or even as part of military exercise or by disposing unwanted explosives in the sea. Explosions could be caused by sea mines,

use of torpedo's or even bombs. There have been several instances where the military used the ocean as disposal ground for unwanted munitions (SIPRI 1980).

Nuclear weapons containing submarines also contaminated the ocean with radioactive isotopes. Nuclear weapon testing and training exercises lead to radioactive contamination of the sea. According to SIPRI data, 450 nuclear detonations took place between 1945 to 1977 which resulted in about 912 kilograms of fission material being introduced in the marine environment. The US dumped huge quantities of liquid and solid radioactive waste in the ocean from 1949 to 1960 and disposed of a lethal nerve agent VX and probably mustard gas into the ocean too (SIPRI 1980: 164). The immense damage that was done to the marine environment by these nuclear weapon tests led states to come up with a treaty that could specifically deal with the situation.

The United Nations General Assembly passed the Seabed Treaty on December 7, 1970. The Treaty like the Antarctic Treaty prevents the introduction of nuclear weapons and its harmful effects on the environment into an area which has been heretofore free of them. Article 1 of the seabed Treaty states that:

The States Parties to this Treaty undertake not to implant or emplace on the seabed and the ocean floor and in the subsoil thereof beyond the outer limit of a seabed zone, as defined in article II (12-mile coastal zone), any nuclear weapons or any other types of weapons of mass destruction as well as structures, launching installations or any other facilities specifically designed for storing, testing or using such weapons.

Apart from nuclear waste, the other major source of marine pollution is the major oil spills resulting from military activities. Oil tank is prime naval targets due to their crucial importance of oil in war. Oil fields could have a dramatic local ecological impact which devastates a biotically rich area since it takes more than six years for the marine environment to recover from a massive oil spill (SIPRI 1980: 167). The International Convention for the Prevention of Pollution from Ships (MARPOL) passed in 1970, modified by the protocol of 1978 is one of the most important international marine international conventions. The convention focuses on the protection of the human environment in general and environment in particular. It recognises accidental release of oil as a serious source of pollution. The convention is not applicable in cases of marine pollution resulting from military activities. According to Article 3 of the convention, it is not applicable to a "warship, naval auxiliary or any other ship owned or operated by a state and used for the time

being only on government non-commercial service”. Article 236 of UN Convention on the Law of the Sea (UNCLOS) mirrors the same argument.

The international convention on civil liability for oil pollution damage of 1969 that deals with liability and compensation in case of oil spills in the ocean explicitly mentioned in Article 3(2)(a) that no liability for pollution shall be attached if it is proved that the damage to the sea “resulted from an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional inevitable and irreversible character. Article XI (1) states that “The provisions of this Convention shall not apply to warships or other ships owned or operated by a State and used, for the time being, only on non-commercial government service” (The international convention on civil liability for oil pollution damage 1969).

The convention on the prevention of marine pollution dumping of waste and other matters (the London Convention) of 1972 aims to protect the marine environment by prohibiting the dumping of hazardous waste into the sea. Article 12(e) of the convention pledges to promote the marine environment against pollution caused by agents of chemical and biological warfare. The Convention also prohibits dumping of materials produced for biological and chemical warfare in the ocean.

There clearly is no dearth of international treaties and conventions that deal with oceanic pollution resulting from oil spills, dumping of chemical, biological and radioactive waste, weapon testing underwater explosion etc. However when it comes to pollution caused in the ocean from direct military activities and war most of these conventions and laws are rendered inapplicable. The scope of these laws and conventions must be expanded to include ecological devastation caused in the oceanic environment resulting from wars in the high sea.

Conclusion

The international law has been slow in keeping up with the environmental devastation that is caused during wars. Even after more than 150 years of evolution of international humanitarian law the laws regarding the environmental destruction during wars remain primary anthropocentric and quite inadequate in holding States liable for their actions in this area. The fact that only have two

conventions that specifically deal with the problem of wartime environmental damage shows just how much need to be done in this field. Most of the laws and conventions have the antecedent of military necessity which results in environment taking a backseat in the list of military priorities. The conventions have even failed as deterrents since hardly anyone has actually been found guilty of committing in the context of an ongoing military conflict.

Another major shortcoming of international law is the lack of conventions and laws that could be applicable during an internal conflict. Noting the fact that most of the conflicts today are internal in nature the shortcoming is especially problematic. Many of these conventions specifically and knowingly leave internal conflicts out of their domain. A lack of consciousness coupled with this deficiency in the international law leaves the environment completely unprotected during the civil war and other interstate conflicts. These laws and conventions are also inconsequential until they have the capacity to hold belligerent individuals and States liable for their actions and are made to offer reparations to the affected parties. The next chapter delve into the role of state and non-state actors in this field and looks into cases of environmental destruction and the scope for holding state liable for the same.

Chapter 4

Role of State and Non State Actors on the Issue of Environmental Damage During Wars

Introduction

Environmental destruction is a reality in armed conflicts. The present chapter will look at cases of environmental destruction and the way the international community, state and non-state actors have reacted to them. It will enquire the possibility of holding state and individuals responsible for their crimes against nature. The chapter also delves into certain cases of internal conflicts and international Wars and scrutinises the course of action that were taken in these cases.

Even though there are a number of normative provisions as well as an international legal order that condemns and prohibits the destruction of environment during wars, the environment continues to suffer in both inter-state and intra state wars. The deterrents in this field have failed to protect the environment and so have the laws, in effect. It is thus, important to hold States liable and responsible for their crimes against nature. The Nuremberg trials (1945-1946) have shown us the possibility of trying individuals for committing ecocide. It is important to ensure that both states and individuals are held responsible for their activities. Since the international law and norms have failed in acting as a deterrent to wartime environmental damage it becomes important to adapt measures such as compensation and reparation. State responsibility and reparation go hand in hand and can be the first step towards ensuring the safety of environment during conflicts. The United Nations established the compensation committee in the wake of the Gulf War of 1991 to ensure compensation to countries that were affected from the oil spill and fire set by the Iraqi troops.

Compensation in this sense is mostly understood as a monetary compensation but it could also be in form of a former apology or restitution. It is better to seek reparations after the end of the hostilities since obtaining restitution during active conflicts could prove to be really difficult. In cases of international armed conflict the wronged state can adopt a number of means to seek reparations such as influencing the global public opinion, getting a third neutral party involved or to take the case to the International Court of Justice to settle any disputes (Sharp 1992:39).

However, seeking reparations in case of an internal conflict could prove to be trickier, since domestic courts cannot be expected to be neutral. Despite the existence of a number of international laws that directly or indirectly provide a certain level of protection to the environment during the international conflict the same is not true for internal conflicts. Protection of the environment during wartime was seen within the context of IHL. There is definitely a need to shift focus from IHL to holding states liable for their actions during wartime that lead to environmental destruction. Even though we now have some specific conventions and treaties that deal exclusively with war time environmental damage they have failed to act as an effective deterrent against war time environmental damage or to prosecute individuals for committing environmental crimes during wars.

There have been rules regarding what can be and cannot be done to the environment during times of war since ages. Humanitarian law has always maintained that “the right of belligerents to adopt means of injuring the enemy is not unlimited.” this principle was enshrined in the Hague Regulations of 1907. It has been argued that this includes not just injury to people or destruction of objects but also the natural environment (Gasser 1995:637). However it was not until 1977 that protection of the environment during wars was given attention. This changed with Protocol I, which sought to actively prohibit war time environmental damage. It is obvious that for the longest time there were no repercussions for destroying the environment during armed conflict.

As discussed in Chapter 2 there are innumerable instances of use of water in environmental destruction during armed conflict in history. However, it is only after the Gulf War that the international community was awakened into action to take measures against it. After the Gulf War, governments, organisations, NGOs and individual academics suddenly started to take up an active interest in this area. There was also a general consensus on the idea of having international laws and treaties that not only prohibit destruction of environment but also hold states and individuals liable for their actions. The United Nations and specialised Agencies have also sprung into action. United Nations Environment Programme suggested a prohibition of weapons that have serious effects on the environment in 1991 (Gasser 1995:639). This was adopted in Principle 24 of the Rio Declaration, 1992 and later at Geneva Convention on protection of the environment in times of armed conflict was proposed at a conference in London.

The ICRC however backtracked in 1992 and the proposed convention could not see the light of day. Even though non-governmental organisations have certain limitations they have proved to be quite useful in many respects. NGOs have been crucial in being the neutral third parties that could be trusted with the fair assessment of the environmental damage caused during an armed conflict. Non-governmental organisation such as the International Committee for Red Cross, Greenpeace and the International Committee to ban landmines have been the flag bearers in pushing for some very crucial reforms and conventions that protect the environment from war time devastation.

4.1. Prosecuting Environmental War Crimes

Liebler points out that restriction on deliberate destruction of environment usually does not give rise to “grave breach” upon violation. It means that states do not necessarily have to impose penal sanctions on the violators (Liebler 1992:116). Liability for war crimes and environmental crimes are not unheard of but they are usually seen in their separate realms. The law of war or the humanitarian law is primarily preoccupied with the treatment of prisoners of War, weapons of mass destruction etc. The international environmental law, on the other hand, has been primarily focused on cases of civil liability arising from negligent environmental damage (Liebler 1992:68). The Trail Smelter Case of 1952 and Principle 21 of the 1972 Stockholm declaration of the United Nations clearly state responsibility in case of “transboundary environmental damage, wartime environmental damage such as those caused from warships and military articles under the international law” (MARPOL 1973).

International environmental law is clearly equipped to deal with the principles of state responsibility, there is however a need to expand its parameters to include responsibility of war time environmental damage (Liebler 1992:71). The Trail Smelter Case Tribunal as well as Principle 21 of the Stockholm Declaration deem the state to be responsible in case of environmental damage caused to other states. Liebler points out any individual liability or punishment cannot be made through these mechanisms (Liebler 1992:73). He argued that according to the traditional principles, only the states that have directly suffered the environmental damage would be in a position to demand reparations and compensation from the offending party (Liebler 1992:74). Since the effects of massive destruction of environment is felt even in

neighbouring States and sometimes even in States in different continents this provision is extremely restricted.

There are a number of scattered norms on the topic of criminal accountability for the protection of environment during times of conflict. Orellana argues that this protection of the environment is achieved through individual and criminal spheres of the international law. The provision of state and individual responsibility under international law plays a crucial role in preserving the environment and act as a deterrent against its wartime devastation (Orellana 2005:3). The fact is that most of these laws that ensure individual responsibility for crimes against danger during wars only do so indirectly. Where some could see it as a shortcoming Weinstein use that the prosecution of individuals for destruction of environment in order to submit other atrocities such as genocide could help further the cause since it would ensure that “prosecuting environmental attacks conducted in furtherance of another atrocity would document prosecution on environmental destruction in historical records” (Weinstein 2005: 713).

4.1.1. Prosecuting Environmental Destruction Resulting from Internal Conflicts

Armed conflicts result in environmental devastation, whether in an international conflict for a civil war. In modern times most of the armed conflicts are internal in nature and yet they receive little attention. Most of the laws and conventions remain strictly international in nature and leave environmental protected in cases of internal violence. It has been observed that it is rather complex to ascertain if a conflict is international or interested in nature. Lopez suggested that in order to qualify as a non-International armed conflict, the discordant party must have a command structure, must have exhausted control over part of the territory and the activities have to be sufficiently intense so that they cannot be dismissed as isolated and for that acts of violence (Lopez 2007:236).

In cases of internal conflicts there also challenges of uneven application. Bruch pointed out that in Rwanda and Yugoslavia, international tribunals were established, while there were no tribunals established for Russia or China to try them for their actions in Chechnya and Tibet respectively (Bruch 2001:751). The case of ecocide in the Mesopotamian marshlands by the Iraqi government in 1991 and the large-scale environmental devastation that took place during the Rwanda genocide of 1994 show how incidents of environmental destruction go unnoticed and

unpunished. This section looks into international laws and conventions and the scope for applicability in cases of internal violence.

Applicability of International conventions in protecting environment during internal conflicts

It is important to note that the ENMOD Convention of 1976 does not limit the scope of its applicability strictly to International conflicts. In effect, it only prohibits methods of warfare that involves modifying the environment so that it has widespread, long-lasting or severe effects. It is safe to conclude that the convention can also be applied in cases of internal armed conflict in cases where the transnational impact of the environmental modification is felt by a signatory country (Bruch 2001:703). However, the same cannot be said for the International Criminal Court under the 1998 Rome statute.

Article 8(2)(b)IV of the ICC clearly prohibit environmental damage which is excessive to the military advantage anticipated but the International Criminal Court has failed to Convict anyone on the basis of the said article. Bruch notes that even though the ICC provided for the first permanent forum where environmental crimes could be prosecuted it applies only to International armed conflicts since the framers of the Statue rejected the idea of expanding the scope of the Statue to include environmental devastation caused from internal armed conflicts (Bruch 2001:705). The ICC clearly states that “it is not applied to the situation of internal disturbances and tension such as riots, isolated and sporadic acts of violence or other acts of similar nature” (Lopez 2007:235).

The ICC prosecuted five individuals on the charge of committing crimes against humanity in Northern Uganda. However, in spite of having acknowledged the environmental damage that was done during the Civil War in Rawanda in 1994, none of the accused where charged with environmental war crimes (Lopez 2006:232). Lopez argues that the legal dichotomy that currently exists between the international and non-International armed conflict makes protecting the environment under the international law, extremely difficult.

4.1.1.2. The Lieber Code

The Instructions for the Government of Armies of the United States in the field 1863 also known as the Lieber Code was one of the first attempts to codify the laws of war drafted during the American Civil War (1861-65). The code was exclusively meant for the United States forces to instruct them what can and cannot be done by the United States troops in case of an armed conflict. The Lieber instructions had a strong influence on the Hague conventions. Even though the code did not specifically mention the environmental damage, in Article 16 it prohibits the infliction of unnecessary suffering and banned the use of poison in any way.

The Article also prohibits the wanton devastation of a district and states that “in general, military necessity does not include any act of hostility which makes the return to peace unnecessarily difficult” (Instructions for the Government of Armies of the United States in the field 1863). The Lieber Code is especially significant since the American Civil War witnessed starvation as a method of warfare in which supplies of food were severed and crops were destroyed to gain military advantage. The US civil war also witnessed the scorched earth policy in an attempt to starve the rebellion States. Similarly, in the US-Navajo wars, the US forces destroyed food crops and orchards to gain an advantage over the Navajo people (Ross 1992:517). The destruction of food crops and scorched earth tactics undoubtedly made it difficult for the people to return back to their normal lives. The US forces continued their practice of destruction of food crops in their internal conflict in the US Indian wars of 1865-98 and as late as 1899 in Philippines (SIPRI 1980:17). There was no action taken even though the action even though the US troops were in clear violation of the Lieber code.

Most laws that protect the environment during times of war, are advance for international conflict and even those few that can be applicable during internal conflict like the Lieber code, only protect the environment tangentially. Bruch points out that domestic courts might find it difficult to hold their own Troops accountable as witnessed in the case of union soldiers following the Civil War in the United States (Bruch 2001:699).

4.1.1.2. The International Criminal Tribunal for Rwanda

The International Criminal Tribunal for Rwanda (ICTR) was established by the United Nation Security Council Resolution 955 following the Rwanda genocide in 1994 which resulted in deaths of more than 800,000 people. The Tribunal had a resemblance to the International Criminal

Tribunal for Yugoslavia (ICTY). Albeit, it was given the power to prosecute individuals responsible for the violation of the international humanitarian law, it did not have the authority to prosecute individuals responsible for environmental crimes, just like the ICTY (Weinstein 2005). The Tribunal had concurrent jurisdiction with national courts and had primacy over National courts of all states. The tribunal also had the option to “formally request national courts to defer to its competence” (Shaw 2003: 409). The ICTR also appointed a separate prosecutor prosecute individuals who has the position of leadership and could be held liable for the genocide. A similar approach was adopted during the Nuremberg trials (Rendulic case), to hold those responsible who had the authority when the environmental wars were committed. The ad hoc international tribunal for Rwanda failed to acknowledge the environmental devastation that took place during the Civil War.

Rwanda has a very diverse ecosystem which boasts of several species of endemic mammals, amphibians, birds and butterflies. It is considered as a biological hotspot. The civil war has increased the pressure on the environment with large scale conversion of natural habitats for mining and agriculture. Rwanda also lost a considerable part of its wetlands due to the civil war (Moodley et al 2010:112). The Civil War also witnessed the agricultural land being rendered barren to coerce the migration of the prosecuted people. Landmines were laid in two national parks – The Parc National Des Volcans and the Parc National de l'Akagera, which has severe environmental consequences. Many endangered species such as a mountain Gorilla, Buck and elephants were poached and the forests were chopped down (Drumbl 1999: 145). Buffaloes and antelopes were also poached in huge numbers.

The Rwanda civil war also displaced approximately 50% of its civilian population which also put a lot of pressure on the environment (Dudley et al 2015:326). Resettlement process of the refugees and returnees in the post genocide phase has also put a lot of pressure on the land and has increased competition. Massive land clearing took place after the civil war to ensure logging for settlements, firewood, road construction etc. All this resulted in the forest cover in the country declining by 78% since the 1990 which is also one of the highest deforestation rates in Central Africa (Moodley et al 2010:112).

Even though the environmental crimes that Rwanda bore due to the civil war were colossal, it found no mention in the ICTR, let alone any prosecution for environmental crimes. After Nuremberg trials the war tribunals such as the International criminal tribunal for Yugoslavia international criminal Tribunal for Rwanda did not have the authority to try individuals for environmental war crimes. Drumble argues that the International Criminal Court is primarily meant to punish crimes against humanity while the environmental war crimes are just an add-on, and thus often go unpunished (Drumble 1999: 145). Weinstein argues that ICTY, ICTR and the International Criminal Court remain mostly anthropocentric. She also argues that according to the trends in international law, the environmental devastation is more likely to be recognised if the attacks on the environment also had a humanitarian impact (Weinstein 2005). There is an urgent need for the development of international law that would be applicable during internal conflicts that cause environmental destruction since internal armed conflict has become the norm.

4.1.2. International Conflicts

4.1.2.1. The Nuremberg Charter

International law has provisions to hold military commander and political leaders liable for crimes against humanity such as genocide. The same provisions could be expanded to include ecocide that is committed with the intention to commit genocide. The Nuremberg trials of 1945 and Tokyo tribunals of 1946 have been exemplary in holding individuals liable for war crimes. These tribunals not only held the head of states for high government officials responsible for the war crimes but also tried war criminals that held minor positions within the military and government. Both the trials rejected the age-old defence that the defendants were following orders from the superiors and hence held no responsibility for their actions. “Participants were found jointly and severally liable for the actions of the others in the formulation of execution of a common conspiracy to commit the crimes against humanity” (Bruch 2001: 731).

The Nuremberg trials were clearly effective in trying Army personnel for the role in crimes against humanity. However, modes of warfare and evolving standards of environmental protection modes of air and evolving standards of environmental protection the case of ecocide involving general Lothar Rendulic is very significant in terms of wartime environmental damage. In the

Nuremberg trials of United States versus list, General Rendulic a German commander was charged with ordering the scorched earth policy to deter the Russian troops from advancing to Norway. The commander also destroyed private property and other facilities in order to deny them to the Russians (Cohan 2003:493). General Rendulic was charged with the wonton destruction of property but was later acquitted (Drumbl 1998:134). The court found the general not guilty because it accepted his argument that he believed the Russians were advancing and using the scorched earth policy was necessary since he used the scorched earth technique to protect against Soviet flanking efforts. Even though his assumptions were later found to be wrong the court acquitted him on the basis of military necessity (Zedalis 1991: 736).

Article 6b of the Nuremberg charter holds individual responsibility for a number of War crimes which also includes “public or private property, wanton destruction of cities, towns or villages or devastation not justified by military necessity.” Article 6 extends the liability to include leaders, organisers, investigators and accomplices participating in the formulation or execution of a common plan or conspiracy to commit any of the foregoing crimes are responsible for all acts performed by any persons in execution of such plan (Nuremberg Charter 1945). Article 8 of the Charter states that even if the defendant acts under the commands of a superior it shall not free the defendant from responsibility.

Article 85 of Protocol I considers “launching an attack against works or installations containing dangerous forces in the knowledge that such attack will cause excessive loss of life, injury to civilians or damage to civilian objects” as great breaches to Protocol I have to have been committed wilfully (Protocol 1, 1977).

In the Germany V Poland Judgment of 1928, the Permanent Court of International Justice states that

The essential principle contained in the actual notion of an illegal act - a principle which seems to be established by international practice and in particular by the decisions of arbitral tribunals - is that reparation must, as far as possible, wipe-out all the consequences of the illegal act and re-establish the situation which would, in all probability, have existed if that act had not been committed. Restitution in kind, or, if this is not possible, payment of a sum corresponding to the value which a restitution in kind would bear; the award, if need be, of damages for loss sustained which would not be covered by restitution in kind or payment in place of it-such are the principles which should serve to determine the amount of

compensation due for an act contrary to international law.” (Permanent Court of International Justice, Factory at Chorzow, Judgement number 13, 13 September 1928).

Liebler points out that according to the traditional principles only the states that have directly suffered the environmental damage were in position to demand reparation and compensation from the offending party (Liebler 1992: 74).

4.1.2.2. The abuse of power by the US in the Kosovo conflict

The US used Depleted uranium in its attack on the former Yugoslavia in 1998-99 which has had serious repercussions on human health and natural environment. 52 sites in Kosovo and 36 in Bosnia Herzegovina were tested in January 2012. 5cm of soil, water food and aerosols samples were also taken by the nuclear and Technological Institute's research team (Carvalho and Oliveria 2010:351). According to the data released by NATO in a press release, almost 10 tons of depleted uranium was used in the 1999 Kosovo bombing (Carvalho and Oliveria 2010:354). Depleted Uranium is known to have increase the concentration of Uranium metal in water, soil and food (Carvalho and Oliveria 2010:355).

Depleted Uranium is especially dangerous for humans. It “irradiates the human body from inside” when inhaled or ingested. Zucchetti all shoes that the use of depleted Uranium is prohibited by international regulations (Zucchetti 2001: 2). Citing the resolution adopted by the sub Commission on prevention of discrimination and protection of minorities formed in 1947 Zucchetti points out that the weapons containing depleted Uranium in any form need to be eliminated (Zucchetti 2001: 3). According to a report published by the Science Application International Cooperation long-term effects of exposure to low dose depleted uranium can result in Cancer, kidney disorder as well as congenital defects. The “Gulf Syndrome” was reported by 90000 US servicemen which Zucchetti argues was a result of the use of depleted Uranium, and chemical and biological pollution from Bombing enemies industrial plants and stress or eating disorders (Zucchetti 2001: 5). He also concluded that the collective dose of the depleted uranium that was deposited by the NATO attack in Yugoslavia would result in around 2500 to 5000 cancer patients of which mm to 4000 would be Lethal. It was estimated that this amount of depleted Uranium would result in around 1000 genetic defects (Zucchetti 2001:9).

NATO's bombing of Yugoslavia caught the attention of the international community especially in the context of humanitarian intervention. It also prompted the international community to focus on norms and laws regarding the conduct of War. Security Council resolution 808 (1993) created the International Criminal Tribunal for the former Yugoslavia. The decision of the ICTY are often treated as definitive statements of international law much like the decision of the International Court of Justice. The ICTY plays a crucial role in the formation of normative expectations. The report of the office of the prosecutor does not enjoy a similar status (Schwabach 2001: 171). The office of the prosecutor of the International Criminal Tribunal for the former Yugoslavia issued a report on June 13th, 2000 into possible war crimes committed by NATO in the former Yugoslavia in 1991. The report did not find any action of NATO in Yugoslavia that required for the attention by the ICTY (Schwabach 2001: 168). NATO has not seen as extreme actions that required retention. It was a letdown in terms of environmental protection since the NATO bombing had severe environmental consequences. It was a great disappointment since the findings were based on more restrictive interpretation of environmental law even after the devastation that was witnessed in the 1991 Gulf War. Under the tag of environmental dimensions, the office of prosecutor categorised the use of depleted Uranium, cluster bombs as well as improper target selection (Schwabach 2001: 167). NATO used depleted uranium projectile and cluster bombs in its attack on Yugoslavia which were not illegal, however their use of anti-personnel mines could be deemed illegal under the existing customary international law. NATO insists that it used sophisticated weapons with the ability to hit precise targets to avoid or minimise any environmental or Collateral damages (UNEP & UNCHS 1999:4).

The use of depleted uranium projectile in armour piercing cells has dangerous consequences on humans and the natural environment (Jokismovich 2000:144). Tests that were conducted in Serbia after the NATO attack show alarmingly high concentration of Uranium which were 1000 times the natural level. Even though is high levels of Uranium lead to an increase in number of cancer cases that were reported, the office of prosecutor did not give this much consideration since the use of depleted Uranium projectiles and cluster bombs are not technically illegal (Schwabach 2001:173).

According to the UNEP report on the study of environmental consequences of the Kosovo conflict, the NATO attacks did not cause "an environmental catastrophe affecting the balkans

region as a whole”. However the report did point out that the pollution detected at some sites was serious and posed a threat to human health (UNEP & UNCHS 1999:39). The office of prosecutor employed the rules of protocol one which only prohibited the use of force that leads to widespread, long term and severe damage to the natural environment (Schwabach 2001). Not only was the damage to the environment deemed not widespread enough by the UNEP report the office of prosecutor also noted that the standard of widespread, and severe could not be met in ordinary battlefields since the damage has to be measured in years rather than months. Schwabach agrees with the office of prosecutors decision to free the NATO actions of any criminal conduct but argues that it unnecessarily restricted the application of Protocol I. He also believes that in the case of Gulf War the military advantage from the burning of oil wells was many times less than the NATO attack of Yugoslavia and the incidental destruction of the environment.

Schwabach also advocates for a broader interpretation of protocol one since the OTP's decisions according to him would have an “unfortunate effect of excusing almost all environmental damages caused by war” (Schwabach 2001: 176). It is also worth mentioning that two major NATO members the US and France have not ratified Protocol I and hence cannot be bound by it. NATO is also said to have committed ecocide in Gulf War in 1991, even though it was dismissed as military necessity and was dwarfed by the ecocide committed by the Iraqi forces. However, Jokismovich points out that the attack on Kosovo was illegal since the UNSC had not approved the attack. The attack was also in clear violation of the Rio Declaration (Jokismovich 2000:142). The United Nations Environment Programme was not the only international organisations that accessed the NATO ecocide committed in Serbia.

A humanitarian aid operation that was jointly formed by the government of Russian Federation, Greece, and Australia along with the Yugoslav government, Coghill research laboratories in England and the regional environment Centre for Central and Eastern Europe in Budapest also look into the matter of environmental destruction by NATO bombings (Jokismovich 2000:146). Both UNEP and FOCUS sent their experts to 20 contamination sites of which the UNEP recommended urgent clean up in Pancevo, Novi Sad, Kragujevac and Bor , while FOCUS suggested 16 cleanup project with 10 first priority and six second priority projects (Jokismovich 2000:146). Citing an analysis by Vukmirovic and colleagues, Jokismovich contemplate that it is a definite possibility that “NATO engaged in an orchestrated premeditated environmental assault”.

This argument was also backed by the evidence produced by Chossudovsky which claimed that the containers with toxic Chemicals were meticulously targeted by the NATO forces to create an ecological nightmare. This led Jokismovich to conclude that the NATO tried to break the will of the Serbian people since it failed in pushing out the Yugoslav army from Kosovo (Jokismovich 2000:150). The Balkans task force was created so that it could carry out “a detailed assessment of the environmental and human settlements impact of the conflict”. The Balkan Task Force had around 60 experts who were drawn from 6 United Nations Agencies and departments and 26 NGOs and scientific institutions (UNEP & UNCHS 1999:3). The task force was funded by Austria, Denmark, Finland, France, Germany, the Netherlands, Norway, Sweden and the United Kingdom (UNEP and UNCHS 1999:13). Jokismovich rightly pointed out that US and Canada, the principal aggressors did not even participate in any efforts to ratify the environmental damages that were done (Jokismovich 2000:15). Jokismovich argues that the immense environmental destruction and pollution caused by the NATO forces have left Yugoslavia in dire need to be integrated with the International environmental Framework which is being hindered by the sanctions that were imposed on the state (Jokismovich 2000:152). Pancevo that faced with the worst environmental catastrophe by the NATO attack was not even visited by the Balkan task force until very late in July when the most serious consequences of the bombing was felt somewhere around mid-April.

Jokismovich points out that the Balkan task force failed to consider the health and food chain effect. There were also no computer simulations done after the bombing to assess the environmental impact of the NATO bombing raids (Jokismovich 2000:151). In deciding whether the environmental damage was disproportionate to the military advantage gained in Pancevo the ICTY invoked the Rendulic case. (Schwabach 2001:176). This line of course would eventually be used as a line of defence to get any army personnel off charges. If the proportionality is determined by “reasonable military commander standard” then all actions that result in ecocide would go unpunished. Jokismovich also pointed out that the environmental destruction in Novi Sod where both the UNEP and the Novi Sod university chemical engineering lab sent their teams of experts to access the damage, not only did the UNEP send only two samples from two locations as opposed to the 11 locations by the Novo Sod university team, they also failed to take into account the measurement of heavy metals such as Cobalt, Vanadium, chromium, mercury etc. Considering all of this it does not come as a surprise that there was cleared discrepancies in case of data that was

generated from the Balkan task force and that of the Novi Sad universities' chemical engineering lab (Jokismovich 2000:152).

The Balkan task force also failed in getting documentation from the NATO forces regarding its use of depleted uranium in the attacks. It also did not take into account the use of depleted Uranium in Southern Serbia and this field to arrive at a meaningful conclusion regarding is abused by the NATO forces in the attacks. It is however interesting to note that the Balkan task force failed to take into account the gravity of the use of depleted uranium in the attacks while the office of prosecutor was concerned with the attacks that particularly received a lot of media attention. These attacks included attacks on trains, refugee convoy, television and radio station, Chinese Embassy and a village in Korisa (Schwabach 2001:176). In the case of the Chinese Embassy the CIA and the US government not only apologize but also paid more than 30 million dollars in compensation to the Chinese. The compensation that the CIA and the US government agreed to pay the Chinese is in contrast to the US attitude of apathy that it showed towards the ecological damages that the NATO forces caused in the Yugoslavia war.

4.2. The threat of nuclear devastation and the politics of nuclear ban

Nuclear weapons have devastating effects on the environment. The bombing of Hiroshima and Nagasaki hold witness to its destructive capabilities. Nuclear weapon testing also wreaks havoc on the environment for example the nuclear weapon testing in Pokhran resulted in extreme environmental pollution and destruction of crops, contamination of groundwater and increase radiation. The use of nuclear weapons at the end of the Second World War showed the willingness of states to destroy in war whatever might contribute to the realization of their goals. Any legal regime on the prohibition of nuclear weapons or the use thereof has not been very specific in its concern with the environmental consequences (Westing 1990: 54-57).

Most arguments against the production or use of nuclear weapons focus almost exclusively on its anthropocentric consequences. Yet the effect of nuclear war on the environment is no less devastating. Global nuclear war could lead to a worldwide fall in temperature of 15 to 20 degree celsius. These environmental effects would be worse than the direct impacts of war such as blast fire and radiation (Gleditsh 1998: 392). In the aftermath of the nuclear war, some parts of the world

could be subjected to prolonged darkness, abnormally low temperatures, and violent wind from storms, toxic smog and persistent radioactive fallout. This has been called “the nuclear winter” (Tuko et al 1984). The International Atomic Energy Agency and the United Nations General Assembly have also adopted a number of resolutions condemning military attacks on nuclear facilities. However, the mainstream literature on nuclear deterrence seems obsessed with ‘high politics’ issues and hardly take the environmental effects of a nuclear war under consideration.

In spite of the developments in the field the literature on deliberate wartime destruction of environment remains anthropocentric and focuses on cases that have had adverse effects on human beings. The amount of literature on the effects of wartime environmental damage on the physical and mental health of the veterans of the US army is considerably hefty when compared to research that views environment as a victim of war in its own accord. Similarly it is rather ironic that more literature exists on the ill effects on veterans than those on the locals most of which are civilians have to live with the consequences for years. In this regard a lot more work needs to be done in the field of deliberate wartime environmental damage. The silence of the security studies community on the topic further holds testimony to the argument.

As opposed to chemical and biological weapons there are no international treaties that ban the use of nuclear weapons or mandates for the destruction of existing nuclear weapons. The treaties that ban nuclear weapon testing like the Partial Test Ban Treaty of 1963 and the Comprehensive Test Ban Treaty that was opened to signature in 1996 nuclear weapon testing have been successful in having a considerable number of signatories. Since it is a major source of environmental pollution banning nuclear tests could be seen as a step forward in direction of environmental protection.

The CTBT however, does not prohibit computer simulations and subcritical tests which essentially means that the states can continue to develop new nuclear weapons in spite of a test ban treaty (Sidel et al 2009:35). The CTBT which was opened for signature in 1996 has been ratified by 164 countries out of 183 signatories. The US has still not ratified the CTBT and claims to have observed a unilateral moratorium of nuclear weapon explosive testing “since 1992 which is based on their national security assessment that they “do not need to cut the nuclear explosive test in order to ensure the safety, security and effectiveness of the nuclear forces”. It is clear that the US has only

observed the unilateral moratorium since it has the capability to develop its nuclear weapon program from computer simulations and subcritical test. Its decision to opt out of nuclear testing has nothing to do with the environmental consequences of it. In spite of this the US has refused to ratify the CTBT also withdrew from anti-ballistic missile Treaty of 1972 in 2001 stating that it “hinders our government’s ability to develop ways to protect our people from future terrorist rogue state missile attacks.” (Sidel et al 2009:36). The International community must show the same commitment towards doing away with nuclear weapons as they did with the chemical and biological weapons. However one can see why developed powerful Nations would hesitate and even oppose “poor man’s nuclear weapons” i.e biological and chemical weapons while zealously safeguarding their nuclear weapons. Even the overlapping and incomplete treaties that put some restrictions on nuclear weapons testing and proliferation do almost nothing when it comes to the five Nuclear weapon States. The treaty on the non-proliferation of nuclear weapons of 1968 which entered into force in 1970 is not signed by Israel, Pakistan, India and North Korea all of which are known to have significant nuclear capabilities (Sidel et al 2009: 35).

Sidel et al cite the US attempt of blocking the strengthening of the verification measures of the biological and toxic weapons convention in 2002. Since the 1975 convention lacked proper verification measures the international community sought to develop stronger verification measures for the convention. The US block this attempt by stating that strict verification measures could “expose the US industrial or military secrets” (Sidel et al 2009:36). The US stand on this issue could be detrimental and it must refrain from setting such an example given its status as a great power.

4.3. Iraq’s Ecocide in two Cases

4.3.1. Iraq’s Ecocide in Kuwait and the international reaction

The UN resolution 687 that was passed on April 3, 1991 held liable for unlawful invasion of Kuwait. The resolution noted that has violated its applications under the Geneva Protocol for the prohibition of the use in war of asphyxiating former poisonous or other gases, bacteriological methods of warfare. It was also recalled that Iraq has subscribed to the 1925 Geneva protocol had also signed the convention on the prohibition of the development, production and stockpiling of

bacteriological and toxic weapons and on their destruction 72, 1972. Resolution also states that Iraq is:

liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign governments national and co operations, as a result of Iraq's unlawful invasion and occupation of Kuwait. (UN Res 687, 1991).

The Resolution also created a fund to pay compensation for claims and also established a permission to administer the fund claims from its illegal occupation (Edgerton 1992:156). The compensation Commission was established to process claims and determined reparation award for environmental damages. The injured parties also had the option to submit their claims to International and Domestic Tribunal if the compensation Commission was unable to meet their needs (Edgerton 1992:156). Iraq had also signed the Kuwait regional convention for cooperation on the protection of the Marine environment from pollution in 1978, which address the issue of marine pollution in the Persian Gulf (Edgerton 1992:158). The convention sought to protect the Persian Gulf from pollution. Article III be specifically mentioned combating pollution caused by oil, pollution caused from ships, aircraft, land based sources, human activities and from exploration of the bed of territorial sea and its sub soil. The convention also has provisions for compensation an article XIII. It states that:

The Contracting States undertake to co-operate in the formulation and adoption of appropriate rules and procedure for the determination of:

- a) civil liability and compensation for damage resulting from pollution of the marine environment, bearing in mind applicable international rules and procedures relating to those matters; and
- b) liability and compensation for damage resulting from violation of obligations under the present Convention and its protocols.

The Stockholm declaration of 1972 also contains provisions that incidentally tackle the issue of oil dumping by Iraqi forces. Principal 6 and 7 of the declaration are most relevent here. They state that:

Principle 6

The discharge of toxic substances or of other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems. The just struggle of the peoples of ill countries against pollution should be supported.

Principle 7

States shall take all possible steps to prevent pollution of the seas by substances that are liable to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Iraq is a signatory to the law of sea convention which calls upon “states to take all measures that are necessary to prevent, reduce and control pollution of the marine environment from any source” (Article 194 (I) Law of Sea Convention).

Oil spill by Iraq war was also against the spirit of Geneva convention that prohibits destruction of property in absence of military necessity (Edgerton 1992:164). Edgerton argues that the UNSC resolution 687, international environmental law and international law can be applied to hold Iraq liable for environmental destruction. He also noted that it is rare for the UN resolution to induce liability in such cases and even in this case the resolution failed to generate money to be paid to those who claim for compensation. Rather it has only served as a “source of international contamination”. He also found resolution 687 lacking in other respects. The resolution failed to hold Saddam Hussein personally responsible for the environmental damage and it is limited in its scope as it only provide for compensation for short-term environmental damages to the region. He does conclude that in absence of better means of imposing liability for environmental damage during conflicts, the culprits will get liability in future as well (Edgerton 1992:166). Edgerton also pointed out to the shortcomings of the existing environmental law. Iraq is not financially in a position to compensate for all the claims that may be raised against it. She also suggested that “a new Geneva convention on environmental welfare” in order to protect the environment from military activities (Edgerton 1992:174).

4.3.2. Iraq’s ecocide and genocide in the Mesopotamian Marshlands

Saddam Hussein’s attack on Kuwait and the ecocide that he committed caused an uproar from the international community. It made headlines and grabbed much attention not just from the global media but also from academic and diplomats. It also prompted the United Nations into action and

the United Nations Security Council held Iraq liable for environmental crimes under resolution 687. However, the same leader and his government drained the marshlands of Southern Iraq in 1991 who crush the Shiite rebellion, received hardly any attention from the legal scholars (Schwabach 2004:2). One cannot help but compare the huge compensation that first demanded of Iraq for environmental harm under the UNSC resolution where almost little to no attention that was given to the complete destruction of a whole ecosystem including some endangered wildlife and more than two hundred thousand people. Iraq violated a number of customary international laws and its commitment under the international conventions when it drained its marshlands. Iraq has signed treaties such as convention against genocide, the 1925 Geneva gas protocol and the four Geneva conventions all of which happened to provide some degree of protection to the environment from armed conflict albeit face pale to address the issue specifically (Schwabach 2004:5).

The treaties that came as a response to the use of Agent Orange in Vietnam War like the ENMOD convention may be seen in context of the legality of Iraq conduct in the southern marshes. Schwabach argues that the Iraqi attack on the southern marshlands was second only to operation Ranch Hand in terms of environmental destruction. He also pointed out the genocidal nature of the Iraqi attack as opposed to the American ecocide that was primarily motivated by the military gain from the defoliation of the Vietnamese jungles (Schwabach 2004: 7). If anything that makes the ecocide in the southern marshes much deplorable than operation Ranch Hand. The Iraqi ecocide of the marshlands was preceded by an elaborate plan approved by Saddam Hussain to destroy Marsh Arabs and to destroy their way of living completely. Tara Weinstein cited documented evidence that was found in 1989 which reveals a plan to destroy homes, poisoning, patients and resettlement of Marsh Arabs that was approved by Hussain. There is also circumstantial evidence that proves the intent of Iraq to destroy the marsh culture by destroying The Marsh ecosystem (Weinstein 2005: 718).

Article 2 of the genocide convention of 1951 defines genocide as:

...acts committed with intent to destroy in whole or in part, national, Ethical, racial or religious group such as

(a) Killing members of the group;

- (b) Causing serious bodily or mental harm to members of the group;
- (c) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part;
- (d) Imposing measures intended to prevent births within the group;
- (e) Forcibly transferring children of the group to another group.

Weinstein argues that it is a fact that genocide was committed against the Marsh Arabs by Saddam Hussain (Weinstein 2005:716). Schwabach also agreed that Iraq's premeditated destruction of the Marsh Arabs' homeland was under the scope of the convention and pointed out that, this was in spite of Iraq's agreement to be bound by the convention. Under the genocide convention, Schwabach argues that there is a definite possibility of trying some individuals for committing genocide (Schwabach 2004: 8). The documentary evidence that was recovered by the Kurdish Rebels in 1989 regarding the planning of drying out Marshlands could be of help in punishing those who were responsible (Weinstein 2005: 718).

However no steps were taken in this regard and no one was held accountable for the ecocide that resulted in the destruction of more than ninety percent marshes and the genocide that left more than 200,000 people homeless and many dead. Both the Hague law and the Geneva law prohibit "extensive destruction of property when carried out wantonly and not justified by military necessity" (Schwabach 2004: 9). These conventions were preceded by the Saint Petersburg declaration of 1868 which condemned employment of means that cause unnecessary suffering during an armed conflict. Liebler argues that the use of the term suffering conveys more than just from or suffering to the people and it also includes the natural environment (Liebler 1992:100). The scale of damage that was done to the marshlands not only destroyed the environment but also resulted in the disruption of the way of life for the Marsh Arabs that was around 5000 years old and unique in its own right. The Iraqi government was in clear violation of both the Hague and Geneva law. However, both these laws are primarily used in cases of interstate conflicts.

Schwabach mentions how certain States at the 1949 conference were in favor to expand the protection provided by the four Geneva Conventions to all armed conflict whereas others wanted to limit the scope to just interstate conflicts. To settle this, Article 3 included in all the four Geneva Conventions. The Preamble to the protocol addition to the Geneva convention of 12 August 1949,

explicitly states that “the humanitarian principles enshrined in Article 3, common to the Geneva convention of August 1949 constitute the foundation of respect for the human person in cases of armed conflict not of an international character.” (Protocol I,1949). Article 3 states that:

In the case of armed conflict not of an international character occurring in the territory of one of the High Contracting Parties, each Party to the conflict shall be bound to apply, as a minimum, the following provisions:

- (1) Persons taking no active part in the hostilities, including members of armed forces who have laid down their arms and those placed hors de combat by sickness, wounds, detention, or any other cause, shall in all circumstances be treated humanely, without any adverse distinction founded on race, colour, religion or faith, sex, birth or wealth, or any other similar criteria. (Schwabach 2004:10).

Both the Hague law and the Geneva law prohibit “extensive destruction of property when carried out want only and not justified by military necessity” (Schwabach 2004:9). These conventions were preceded by the Saint Petersburg declaration of 1868 which condemned employment of means that cause unnecessary suffering during an armed conflict. Liebler argues that is the use of term ‘suffering’ conveys more than just from or suffering to the people and it also includes the natural environment (Liebler 1992:100). The scale of damage that was done to the marshlands not only destroyed the environment but also resulted in the disruption of the way of life for the Marsh Arabs that was around 5000 years old and unique in its own right. The Iraqi government was in clear violation of both the Hague and Geneva law. However, both these laws are primarily used in cases of interstate conflicts. Schwabach mentions how certain States at the 1949 conference were in favor to expand the protection provided by the four Geneva Conventions to all armed conflict whereas others wanted to limit the scope to just interstate conflicts.

Citing the Marsh Arab case Schwabach noted when Iraqi troops were killing the Marsh Arabs, the hostilities were almost over, and the attack resulted in lack of livelihood and deprived the people of the lives that they were used to. However, the author argues that article 3 falls short of addressing the illegality of the whole Iraqi campaign and only addresses the deprivation of individual Human Rights. Citing the principle 21 of the Stockholm declaration Schwabach argues, that even though States hold a sovereign right to exploit the natural resources they also have the responsibility to ensure that such activities do not lead to environmental damage beyond the limits of their own jurisdiction. This principle was also the verdict of trial smelter case. Although, many

countries specially the United States has held the view that this principle is not applicable in the cases of wartime environmental damage.

The author also argues that it is likely that environmental destruction within once own boundary could be taken as an exercise under the sovereign right to exploit one's resources. Iraqi attack on the Marsh Arabs also violated customary law of War. The attack was clearly disproportionate since the rebels were already defeated. It caused unnecessary suffering due to the destruction of livelihoods of thousands of people and the attack can also not be justified by the principles of military necessity since there were no attempts on the part of Iraqi troops to distinguish between the Rebels and the civilians (Schwabach 2004:18). Schwabach argues that the severe destruction of the ecosystem in the Mesopotamian wetlands qualify under the ENMOD convention height required for military actions to have “widespread, long lasting or severe” effects on the environment. However Iraq is not bound by the convention since it never ratified it. Iraq is also not a party to Protocol I. (Schwabach 2004:19).

4.4. Role of Non State actors

The Second World War witnessed unparalleled destruction of the environment which awakened a general concern to explore the possibilities offered by international law to protect the natural environment in the event of armed conflict. Another interesting development was that international organizations, nongovernmental organizations and individual academics also started to take an active interest in the question of safeguarding the environment during war time (Gasser 1995: 638). This section looks into the work of some non-traditional players in this field.

The United Nation Security Council can have a stronger role in protecting the environment during armed conflicts. In cases of internal conflicts the Security Council could be authorised and intervention and deployment of force to protect the environment as it has done since the end of the cold war in the form of humanitarian intervention, in cases of Human Rights violation. However, in order to do so the security council will have to dim environmental degradation cost from armed conflicts, a gross abuse of human rights. Elliott believes that the international law currently lacks the certainty of recognising clean and safe environment as a human right. The international humanitarian law could also be revoked to claim that Security Council has the mandate to protect individuals from what time environmental devastation (Elliott 2003:51).

The international committee of the red cross maintains that environmental destruction during war is punishable as a “grave breach of international humanitarian law” and prompted that action shall be taken against the violators. The ICRC however, fails to specify the competent authority that to take such measure. Elliott argues that the UNSC has demonstrated its ability to “prevent, halt or punish the breaches of IHL”. The provision of the ENMOD Convention that invoked the UNSC in cases of a breach of the convention (Elliott 2003:53). Article 5(3) of the ENMOD convention states that:

Any State Party to this Convention which has reason to believe that any other State Party is acting in breach of obligations deriving from the provisions of the Convention may lodge a complaint with the Security Council of the United Nations. Such a complaint should include all relevant information as well as all possible evidence supporting its validity.

Article 5 also requires for states to co-operate with the UNSC in any investigation that may be initiated by the UNSC. State parties are also required to provide assistance. Elliott points out to resolution 687 to back her argument that UNSC is somewhat competent to deal with the issue of environmental destruction during times of War. The resolution that held Iraq liable for the oil spills in the dessert and setting fires to the oil wells was indeed the “first determination under International Law of a state liability for harm to the environment itself.” the resolution does show the possibility of the UNSC having what it takes to protect the environment from the havoc of war (Elliott 2003:53). There are however certain reservations in expanding the mandate for United Nations Security Council to enforce the international environmental law just yet since such an action has the potential to be rigged in favor of the permanent members. Quoting Tinker, Elliott note that there is also a risk of authorising states to pursue unilateral and punitive actions on environmental grounds (Elliott 2003:57). “Complete or partial interruption of economic relations or the severance diplomatic relations” to deal with environmental destruction has also been suggested. However, economic sanctions have been rather controversial under the GATT and WTO trade agreements. It has been widely accepted that these sanctions eventually affected the poorest and the most vulnerable sections of the society. Thus, sanctions could end up doing more harm than good in the long run by forcing the most did disadvantaged groups into environmentally destructive patterns of economic activities to survive (Elliott 2003:58).

The United Nations environment programme was also actively involved with the Security Council Commission to determine the compensation after the Iraq invasion of Kuwait and the

ecocide committed by Iraq. Elliott argues that environmental degradation blurs the distinction between domestic and international jurisdiction”. He suggested that the idea that states lose the sovereign right after gross Human Rights violations can be applied in cases of ecocide as well (Elliott 2003:56).

Article 36(3) of the United Nations Charter states:

Security Council should also take into consideration that legal disputes should as a General principle be referred by the parties to the International Court of Justice in the accordance with provisions of the statute of the court.

Elliott argues that the Security Council can also establish a compliance measure regarding matters of environment and resources. The Security Council can also see arbitration from the icj in dispute relating to the environment (Elliott 2003:58).

4.4.1. Greenpeace International

Another important international governmental organization is Greenpeace that boasts of 4.5 million members worldwide. Greenpeace has not only opposed war on military grounds but also on environmental grounds. In March 1991, in the aftermath of the Gulf War which witnessed incredibly destructive fighting strategies, Greenpeace called for 5th Geneva Convention on the protection of the environment in the times of armed conflict. The purpose of such a convention is supposed to outlaw the use of the environment as an intentional or unintentional weapon of war. Greenpeace sponsored a round table in London on 3rd June, 1991 to discuss the scope and merits of the proposed fifth Geneva Convention. The proposed Geneva Convention is founded on the belief that the current International law is limited in its scope when it comes to dealing with wartime environmental damage. It assumes that with the codification of a new Geneva Convention the International community could finally be able to have tools that could protect the environment during armed conflicts since the existing legal order only provides a very limited protection and tends to always give priority to military necessity.

However certain authors argue that the assumption that one more convention can protect the environment during times of armed conflict is faulty since it overlooks “fundamental principles of deterrence” and that principle of military necessity in effect ensures that the damage to property

including the environment is minimal and is limited to what is imperatively demanded by the war (Sharp 1992:56). Sharp also argues that the five basic requirements that are set by Greenpeace International are overambitious and practically untenable. The first two basic requirements demand that military interests cannot over rule environmental protection. These two basic requirements fail to minimum threshold of environmental damage which according to Sharp, is in violation of the state's inherent right to self defence under article 51 of the UN charter. He also called the third requirement vague and unworkable since it requires that a military action is ruled out in Environmental consequence are unknown and can be expected to lead to severe damage. Sharp also argues that this Requirement is in contradiction to the first two since the language such as that "some environmental damage that is not severe is permissible" whereas the first two requirements really state that "no environmental damage is permissible". The last two requirements advocate for holding each party responsible for the environmental damage that they cause, which according to sharp, is just restating existing international law (Sharp 1992:58).

Citing articles 2 and 3 of the four Geneva Conventions Jensen mentions that all the four Geneva conventions are applicable only to interstate conflicts and in order to be relevant the fifth Geneva convention must expand its scope to protect environment in all kinds of armed conflict (Jensen 2005:182). Even though there are various views on the Greenpeace initiative, it cannot be denied that the organisation has succeeded in bringing the issue of wartime environmental devastation to the forefront. It is something to be applauded since even after environmental movements and the debate on climate change are capturing people's attention, wartime environmental devastation still has not found a place in the debate.

4.4.2. International Committee of Red Cross (ICRC)

The ICRC started as a private organization of Swiss citizens. It has had a distinct role in saving of prisoners of war and other victims of war. It has often assumed the responsibility of a protective power (Shaw 2003: 707). The 1949 Geneva conventions emphasize the importance of this organisation in cases of armed conflict (Carnahan 1996: 706). On its role on environmental protection during armed conflicts ICRC comments:

The ICRC is a neutral and independent humanitarian institution the mission of which is to provide assistance and protection to the victims of armed conflict. The international community has given it a number of mandates that are precisely defined in the Geneva

Conventions. The institution thus may find itself acting as a substitute for Protecting Powers. It also has a recognized right of initiative that assigns it a role in monitoring the implementation of international humanitarian law.

International Committee of the Red Cross and Red Crescent held its 26th International Conference in Budapest in 1991, where it was suggested that the inadequacies of the present laws, and conventions that deal with wartime environmental devastation should be studied. Even though the suggestions were not implemented, the United Nations General Assembly took the matter on the recommendation of the Rio declaration and ask the secretary general to report any development in this area under the framework of ICRC. This prompted the ICRC into forming a group of experts proposed Government and Non-governmental sectors and from academic community.

The report from the efforts was submitted to the secretary general which was reported in the 47th session of the general assembly in 1992. The report was titled “protection of the environment in times of armed conflict.” the adopted resolutions 49/50 that urges States to become parties to the relevant treaties and conventions that speak to protect the environment from what time devastation also invited “the ICRC to continue working in this field and report conclusions to the general assembly” (Gasser 1995:640). The ICRC then sort to re-examine all the existing laws and treaties that deal with the issue of protection of environment from devastation caused by armed conflicts. This action was welcomed by many experts, since it could ensure and enhance compliance with existing tools. One of the suggestions was to include rules related to environmental protection in the military manuals as guidelines. In the third meeting a draft of these guidelines was submitted to the secretary general to be incorporated in the report to the General Assembly.

In the 49th session a new draft was resubmitted by the ICRC to the Secretary General for discussion (Gasser 1995:640). The General Assembly then invited States in its resolution title “United Nations decade of international law to disseminate widely, the revised “guidelines for military manual and instructions on the protection of the environment in times of armed conflict” received from the ICRC and to give it due consideration of the possibility to incorporating them into their military manuals and other instructions address to their military personnel (Gasser 1995:641). Military manuals of the countries are really crucial in assessing how much attention is

given to the issue of “environmental protection” by the forces under the UN mandate (Elliott 2003: 53).

Baxter also argues that it is essential that members of the armed forces, especially the officer corps, have an awareness of the objects of the use of force and sensitivity to ethical and legal consideration in the conduct of warfare (Baxter 1997: 183). In this regard, the ICRC “guidelines for military manuals and instructions on the protection of the environment in times of armed conflict” of 1995 could be seen as the right step forward since it says that states should incorporate rules of warfare that aim to protect the environment during wartime, into the military manuals. Even though these guidelines are just a summary of the already existing international rules, they become crucial when it comes to accountability of the destruction of the environment during war. Since under the present international law, an accused’s actions are to be evaluated in the light of the relevant circumstances and information available to the accused at the time. With the possibility of this defence around, it becomes essential to educate the military as well as the political officials about the harmful effects of certain types of warfare on the environment (Drumbl 1998: 131).

The ICRC published a statement in 1992 titled “the protection of the environment in time of armed conflict” which was submitted to the 47th session of the UNGA. The statement was seen as a step backwards from the proposed Vth Geneva convention on the issue by Greenpeace International. The ICRC registered its reservation on the codification of rules protecting the environment from wartime devastation stating that the result could be of “dubious value and could even be counterproductive”. The ICRC also echoed the reservations of commentators who claim that the existing international legal order is equipped to deal with the issue of environmental destruction during armed conflicts. It was thus suggested that there was a need to increase compliance with the existing rules and ensure proper implementation.

The ICRC came up with a report on “Strengthening legal protection for Victims of Armed Conflict” in the 31st international conference held at Geneva in 2011. The report recognised natural environment as one of the victims of War. The report stated that the destruction of chemical and industrial plants, drains, power stations and sewers contaminate sources of water arable land and air. The report also noted that there is no specific mechanism to ensure compliance by the parties to protect and preserve the environment during Non International armed conflicts. The report calls for the belligerent to be held accountable for their actions if they fail to comply by the existing

rules. The ICRC in 2011 pledged to work on the issue of protecting the environment from wartime damage.

4.4.3. Role of NGOs in the landmine ban

Cheap land mines and other hidden indiscriminate explosive traps have been used for a long time. They persist in the environment long after the conflict is over. They pollute the land and injure innocent civilians and children. There are approximately 80 million active landmines around the globe scattered in 78 countries. These Mines are responsible for the death of more than 20000 people every year (Sidel et al 2009: 30). The International Campaign to Ban landmines has been fundamental force behind the adaption of the Ottawa Convention of 1997. The campaign is a global network of around 100 countries that work together to make the world free of landmines. The Campaign also won the 1997 Nobel Peace prize co-Laurate for its efforts in the area.

The Convention on the prohibition of the use of stockpiling, and transfer of anti-personnel mines and on the destruction also recognised the efforts taken by the international Red Cross and red Crescent movement, campaign to Ban landmines and numerous other Non governmental organisations against the use of landmines. The convention also listed the ICRC as an organisation that can provide assistance for the care and Rehabilitation for the landmine victims and awareness programme. The ICRC was also invited to attend the amendment conference of the convention. Amnesty international has also been at the forefront in the fight against mine ban. The ICRC in its 1992 statement on the protection of the environment during armed conflicts made special mention of landmines and stated that “careful attention should be paid to the problem of environmental damage caused by the indiscriminate and unrecorded laying of mines”.

Conclusion

It cannot be denied that initiatives have been taken to deal with wartime environmental damage in the last few decades. There have been conferences, roundtables and seminars on this issue but hardly any concrete decision and how to tackle the issue has come out of these. The existing mechanism to check and deter attacks on the environment during armed conflicts and protracted civil wars flounder in the face of crisis. The existing apparatus also fail from the failure of states to ratify certain treaties and conventions. State actors continue to put the national interests before

environmental concerns. Negligence and military necessity continue to condone environmental destruction by military activities. Efforts made by the Non-governmental organisations becomes crucial in this regard since the reluctance of states to put nature about their National interests good effectively hamper the efforts to protect the environment during armed conflicts. NGOs have not only provided States with forums and platforms to discuss the issue of War time environmental damage but have played a pivotal role in bringing the issue to the forefront in the first place. Non-governmental organisation put forth the model of compensation and criminalization to deter attacks on the environment during wars. The reluctance of state actors to prioritise environmental protection during armed conflicts seems justified from a realist point of view. However, it also accentuates the need for a more proactive role of the NGOs and individual academics working in the area.

Chapter 5

Conclusion

This study has made an effort to assess wartime devastation of nature by looking at the historical accounts and the responses to the damage from the world community across time. The history of conflict is almost as old as humans and the history of war is full of instances where the environment was used as a weapon in war. Fire, stone, animals and forests have been used as a tool of warfare for ages. One cursory glance will tell us that the modern exploitation and victimisation of the environment during wars is just a progression of what has been happening for a long time. However, destruction of the environment today is much more troublesome because it is now aided and magnified by the modern industrial technology.

Going as back as 4000 BC, there are instances of combatants polluting the air in ancient India to produce fumes to cause slumber and yawning. Similarly, the Spartans used toxic fumes to get an edge over the Athenian army in the Peloponnesian war of 431-403 BC. The Spartan forces also destroyed farms, vineyards and orchards. There are also numerous examples of biological warfare in history. In ancient Rome, dead animals were used to poison the enemies' wells. The Tartans spread plague in the city of Kaffa in 1346 with infested dead bodies. This has been cited as one of the first instances of armies engaging in biological warfare at a significant level. In 1763 the British gave the Indians blankets infected with smallpox in the French and Indian Wars, which resulted in a break of an epidemic and was responsible for many deaths of the Indian people.

By the 17th century, environmental modification had become a defensive tactic. For instance, the Dutch cut down their dams and dykes to stop the French forces in the Franco-Dutch war of 1672-1678. This resulted in massive flooding and destroyed the top layer of soil and vegetation cover. Similarly, the Russians used the scorched earth policy to stop Napoleon's progress during the Napoleonic war of 1796-1815 (Hourcle 2000: 655). Food denial and crop destruction have also had a rather long history in military tactics. The US has continuously used food denial as a military strategy in various Wars. In the US-Navaho wars of 1860-64 the US forces deliberately destroyed standing crops, live stocks and food stock. They also used the scorched earth policy to stop the

rebellious Confederate states during the Civil War. The US forces devastated 700,000 hectares of agriculturally productive land in Virginia in 1864.

Even though the deliberate destruction of environment was common, it was not until the first World War (1914-1918) that the environment suffered large scale devastation – both deliberate and incidental. Chemical and biological weapons were used at a massive scale in the first World War which resulted in the severe devastation of the environment. The conventional weapons such as battle tanks, machine guns, landmines and other explosives destroyed not just the battlegrounds but cities as well. The trenches that were dug during the first and second world wars also damaged the lithosphere. Carpet bombing and destruction of dams were rampantly used tactics in the Second World War which resulted in massive destruction of the environment. The end of the Second World War also witnessed the US dropping two nuclear bombs in the Japanese cities of Hiroshima and Nagasaki in 1945 which caused destruction at a scale that was unimaginable to humankind. Unfortunately, this did not mean an end of states using violent conflict as a method to resolve their differences. The Cold War that followed the Second World War witnessed proxy wars between the two superpowers. Environmental degradation caused due to wars and military activity had started gaining the attention of the international community around the 1960s, which also coincided with the environmental movement in the West.

The Vietnam War of 1961-1973 witnessed environmental devastation at a large level. In Operation Ranch Hand, the US forces used Agent Orange, an anti-plant chemical to defoliate the jungles of South Vietnam. The Vietnam War also witnessed the use of environmental modification techniques by the US forces. Cloud seeding techniques were used to manipulate the weather to favour the US army. They also used incendiary weapons to set rural fires and Rome Ploughs to clear the jungle since they provided for food, shelter and logistics support to the guerrilla fighters. The US troops even destroyed dams and dykes in Vietnam but later claimed that the damages that were done to the dams were collateral and not deliberate in nature.

The worst of these attacks was the use of herbicides. The herbicide that was used had extremely dangerous chemicals which were detrimental not just for the plants but also for human beings. More than 55 million Kg of this anti-plant chemical were sprayed which did not even spare the aquatic life. The attack from the US forces destroyed more than 10% of jungles in Southern Vietnam and completely devastated the wildlife and aquatic life of the region. The chemicals that

were used were extremely toxic substances. Medical Research later found out that the chemicals affected both the Vietnamese and the US war veterans. It was found that people who were exposed to Agent Orange had extremely high chances of getting prostate cancer, neurological diseases, and liver cirrhosis. Exposure to Agent Orange was also found to have strong linkages to an increased vulnerability towards soft tissue sarcoma and Hodgkin disease. All in all, Operation Ranch Hand proved to be a disaster for the United States as it caused widespread denunciation of US policies in Vietnam.

Another instance of ecocide and environmental crimes committed during wars at a huge scale was committed by Saddam Hussein during his regime. In the first case, Iraq attacked Kuwait in 1990 with the intention of destroying the crude oil reserves of Kuwait to gain an advantage in the international market since the countries had failed to settle their debt disputes in a dialogue that had happened shortly before. Iraqi forces set fire to the oil wells in Kuwait which destroyed 1164 oil wells and around 60 million gallons oil were dumped in the deserts which contaminated around 900 kilometre square area which amounts to roughly 40 million tonnes of Terrestrial soil. The desert ecosystem which is already fragile suffered immeasurably.

In the second instance, the Saddam Hussein regime decided to punish the Marsh Arabs for their part in the 1991 uprising against the government. The Marsh Arabs were of Shia identity and had lived in the southern Mesopotamian wetlands for around 5000 years. They had a unique lifestyle which was in sync with their rare dwellings. The Saddam Hussein regime in a planned and premeditated scheme drained the marshlands of Southern Mesopotamia reducing the marshlands to less than 10 per cent of what it originally was. In civil wars the environment is the silent victim and suffers even more than the conventional wars.

Most of the armed conflicts today are internal in nature which makes it more difficult for international law to deal with the environmental destruction that takes place as a result of such armed conflicts. The Stockholm Declaration established that states have the sovereign right to exploit their natural resources and have the responsibility to ensure that the activities within the jurisdiction do not cause damage to the environment of other states. The declaration also makes it difficult to protect the environment in cases of internal conflict.

Laws of War deal with regulating the war and have also been argued to be useful in providing certain protection to the environment during armed conflicts. The Hague Conventions of 1899 and 1907 contain articles that could be relevant in cases of wartime environmental destruction. The convention prohibits the use of weapons that cause unnecessary suffering. The same principle was behind the formulation of the 1925 Geneva gas protocol which prohibited the use of poisonous gas during wars. The Geneva conventions of 1949 also help provision that could be used for environmental protection during wars.

International environmental law has also recognised the need to ensure the protection of the environment from armed conflicts. The Rio Declaration states that nations must “respect international law providing protection for the environment in times of armed conflict and cooperate in it for the development, as necessary” (Wilcox 2007: 146). Observers have suggested that rules of humanity, proportionality, discrimination and military necessity that are central to the laws of war can also be expanded to include protection for the environment during armed conflict and from military activities. Others, however, like the Greenpeace International believes that there is a need to have a specific tailor-made convention to deal with war time environmental destruction in its own right.

The four principles of the law of war are limited in their applicability since they are for the most part international in nature and fail to take into account internal conflicts that result in environmental damage. Since the end of the Cold War at the beginning of the 1990s, the global population is constantly facing the challenge of having stability and the rule of law at the regional level since most of the active conflicts in the modern world are internal (Hourcle 2000). Even though there are some laws and conventions at the international level that can be applied in case of environmental damage resulting from armed conflicts there are only two of these that specifically deal with environmental crimes committed during wars. These are the Protocol I additional to the Geneva Convention of 1949 and the Convention on Prohibition of Military or any other Hostile Use of Environmental Modification Techniques of 1977. Even though these conventions are progressive in their own right when it comes to protecting the environment from war time devastation, they fail to include internal armed conflicts within their scope.

Even if one agrees that the existing laws and conventions are capable of providing more than just tangential protection to the environment, other impediments such as the reluctance of

states to abide by these laws cannot be ignored. As discussed in previous chapters, the United States has been responsible for environmental crime during armed conflicts on a number of accounts such as the use of Agent Orange in Vietnam in the decade-long war of 1961 to 1971 and the deliberate targeting of chemical and industrial complexes in the Kosovo conflict against the former Yugoslavia in 1999. However, the fact that the United States never ratified the 1977 Geneva Protocol I calling the protocol “fundamentally and irreconcilably flawed” makes it difficult to hold the United States liable under the scope of Protocol I. Similarly, Iraq which is responsible for destroying Kuwait ecosystem during the 1990 Gulf War and its 5000-year-old marshlands in southern Mesopotamia had also not adopted the 1977 Geneva Protocol I. It has been suggested that Protocol I could be enforced as customary international law but the fact that it is “too new, original and unestablished” makes it difficult to qualify it as customary international law just yet.

An international tribunal was also envisaged as a platform that could prosecute environmental war crimes and thus provide deterrence for environmental crimes during wars. The international tribunal was supposed to make decisions without influence from other nations making the prosecution for war crimes more frequent. The US, however, withdrew its support from the Treaty creating the International Criminal Court on 6 May 2002 citing the possibility of politically motivated investigations against US citizens. The US decision to opt out of the treaty that established the International Criminal Court did not sit well with judge Richard Goldstone of the Yugoslavia war Crimes Tribunal (Wilcox 2007: 157). This decision was also a blow to those who viewed the ICC as a legitimate platform equipped with ecocentric rules enshrined in Article 8 of the Rome Statute that established the ICC. Other states have also registered their reservations regarding the ICC. For instance, both Australia and Spain reaffirmed the primacy of their domestic laws.

Another way to ensure compliance with existing laws and conventions is through the public opinion of the global community. Commentators have noted that nations are very mindful when it comes to how they are perceived by the international community; this is also supposed to make them cautious of the way they act during wars and minimise the damage that does not have a direct military advantage. The argument, however, does not always hold firstly because it does not cover environmental damage caused by an internal conflict that happens away from the public eye of the

international community and secondly it assumes that all nations care enough about their public image that they would be willing to sacrifice something as paramount as the military advantage.

For example, the United States, a democratic country which is considered as one that is mindful of its global image, has not shied away from environmental damage during its military operations overseas. It should be noted however that the US has always made it a point to claim that any damage to the environment was either incidental or was out of military necessity (Wilcox 2007). This could be contrasted to Saddam Hussain's policy of ecocide in the Marshlands or the oil spill and oil fires in the Persian Gulf War of 1991. The military advantage that was claimed by Iraqi commanders was disproportional to the environmental damage that was caused in Kuwait.

Global public opinion is certainly not a definite way to ensure that States would be mindful of the environment during wars. A biased global media coupled with the possible indifference of states makes this course of action to protect the environment open-ended and unreliable. The appeal for a new ecocentric international law or convention has already been dismissed by many commentators as being unnecessary. It has been argued that the existing customary international law, international treaties and conventions are enough to protect the environment if they are implemented properly. However, one cannot ignore that barring a handful of conventions and treaties, international law only protects the environment tangentially during armed conflicts, almost all of which is confined to international armed conflicts.

A closer look at the ENMOD convention would make it obvious that the convention not only fails to define what exactly it means by environmental modification but also allows it for reasons that are unrelated to war. It is also true that in cases of environmental devastation caused by war, environmental modification is just a miniscule part of it. Even though the fifth Geneva Convention suggested by Greenpeace has some shortcomings, it is promising to have a proposed convention that put environmental protection at the pedestal even during armed conflicts. Having a separate convention would also draw attention to this rather neglected area of law of war which is the first step towards increasing sensitivity towards this issue area. This leads us to another extremely important aspect of protecting the environment during conflicts, which is awareness among the armed forces about environmental protection.

The “guideline for military manuals and instructions on the protection of the environment in times of armed conflicts” of 1993, which was put forward by the International Committee of the Red Cross, is a milestone in this area. Environmental protection during wars is impossible without those who are active on the field. Environmental catastrophes happen during wars because the environment is seen as an expendable stock. It is imperative that the military personnel are trained to view the environment at least as resources to be protected during wars. Incorporating such guidelines in the military manuals would help if the war is fought by the armed forces but not in cases of civil wars or attacks by non-state actors. The most effective way to deal with environmental destruction during civil wars or non-state actors would be to try individuals for their war crimes. Even though this could be tricky it is imperative that individual perpetrators are punished for their crimes against environment since wars fought by illegitimate means are much more devastating for the environment and in the present day and age most armed conflict is not being fought by armies of two states. That being said ensuring individual criminal responsibility would also be an effective means to deter military commanders from using excessive force against nature. The provision of state and individual criminal responsibility together could in effect act as a deterrent for environmental destruction during wars.

A compensation based model has also been put forward by many. A Compensation Commission was established in the wake of the Persian Gulf War of 1991, by the United Nations. The compensation based model has not been very successful in protecting the environment from wartime devastation. Similarly, the suggestions of putting sanctions on states violate the norms of environmental protection during wars have been criticised for being unfair to the poorer countries.

The problem of war and environmental destruction cannot be resolved in a one-dimensional approach but has to be dealt with in different ways simultaneously. An ecocentric law clearly spelling out what can and cannot be done to the environment during wars backed by the provision of state and individual responsibility and an awareness not just among the armed forces but also among the policymakers and the security community could, in fact, be the safest bet in protecting the environment from wartime devastation.

Environmental protection always requires non-traditional approaches in international politics since state boundaries are meaningless when it comes to saving the planet. The state actors alone cannot be expected to deal with the issue of environmental destruction during wars. Non

state actors can play a pivotal role in this area, not just as neutral third parties but also as effective enforcing agencies. Environmental negotiations and cooperation in the field of environmental protection require a synergic effort from the state and non-state actors. It becomes all the more important in cases where two conflicting states are in question or where the environment is in danger from a civil war. A proactive role of the United Nations is crucial in protecting the environment from war time damage. Other INGOs have also proved to be instrumental in environmental activism and being the voice of nature in international forums and could prove to be vital in safeguarding environment during armed conflicts. With the problem of climate change and environmental degradation becoming a serious threat to our sustenance on the planet, environmental protection is not something that we can overlook in any circumstances. War has always been seen as an exception or special circumstance that warrants an acceptance of actions that would never be accepted under normal circumstances. However this should not come in the way of ensuring environmental protection during armed conflicts.

The Toxic Remnants of War Project, on 6th November 2017 on the occasion of *International Day for Preventing the Exploitation of the Environment in War and Armed Conflict*, urged the international community to integrate environment into humanitarian response. It also called to strengthen the United Nation system to be able to “identify, monitor and respond to conflict-linked environmental threats”. The project also suggested the integration of sustainable and equitable management of natural resources into reconciliation processes post conflict and the availability of long term assistance in rebuilding environmental governance in areas affected by armed conflicts. The need for governments, international organisations and civil society to work coherently was also put forward (TRW 2017).

A Fifth Geneva Convention could not materialize even after efforts by NGOs. It failed to garner support from state actors and even some NGOs (ICRC 1992). Even though the prospects look bleak in this field, the last few decades have witnessed some promising advances in the field. In the wake of the Kosovo conflict, UNEP initiated a post conflict branch in 1999. The ICRC also redeemed itself by first publishing the military guidelines intended to minimise environmentally damaging behaviours in 1996 and by including the protection of the natural environment as one of the five issue areas that it covered under the topic of “strengthening legal protection for victims of armed conflict” in its 2011 Report. The ICRC also pledged to work on the issue in future.

However one cannot ignore the failure of one of the biggest initiatives in this area, i.e. the fifth Geneva Convention. It showed the world that this topic is still relatively new and extremely complex. It would help to take one step at a time and engage the international community to make the issue relatable and a point of discussion even in domestic politics. Environmental damage caused by armed conflict is extremely relevant since the world is going through various protracted internal conflicts in West Asia and Africa. It would thus be unwise to leave this topic solely to international law, conventions, conferences and seminars. An active engagement of people around the globe on this topic could eventually lead to mainstreaming the issue of wartime environmental damage in the current environmental discourse.

Annexure I

ICRC Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict, 1995

The ICRC adopted the “Guidelines for military manuals and instructions on the protection of the environment in times of armed conflict” in its 26th conference in 1995 held in Geneva. The guidelines are a summary of existing International laws that are crucial in protecting the natural environment during wars. It is imperative for environmental protection during armed conflicts that the members of the armed forces are aware of these rules.

Guidelines for military manuals and instructions on the protection of the environment in times of armed conflict

I. Preliminary remarks

(1) The present Guidelines are drawn from existing international legal obligations and from State practice concerning the protection of the environment against the effects of armed conflict. They have been compiled to promote an active interest in, and concern for, the protection of the environment within the armed forces of all States.

(2) Domestic legislation and other measures taken at the national level are essential means of ensuring that international law protecting the environment in times of armed conflict is indeed put into practice.

(3) To the extent that the Guidelines are the expression of international customary law or of treaty law binding a particular State, they must be included in military manuals and instructions on the laws of war. Where they reflect national policy, it is suggested that they be included in such documents.

II. General principles of international law

(4) In addition to the specific rules set out below, the general principles of international law applicable in armed conflict - such as the principle of distinction and the principle of proportionality - provide protection to the environment. In particular, only military objectives may be attacked and no methods or means of warfare which cause excessive damage shall be employed. Precautions shall be taken in military operations as required by international law.

G.P.I Arts. 35, 48, 52 and 57

(5) 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.

Obligations concerning the protection of the environment that are binding on States not party to an armed conflict (e.g. neighbouring States) and that relate to areas beyond the limits of national jurisdiction (e.g. the high seas) are not affected by the existence of the armed conflict to the extent that those obligations are not inconsistent with the applicable law of armed conflict.

(6) Parties to a non-international armed conflict are encouraged to apply the same rules that provide protection to the environment in international armed conflict and, accordingly, States are urged to incorporate such rules in their military manuals and instructions on the laws of war in a way that does not discriminate on the basis of how the conflict is characterized.

(7) In cases not covered by international agreements, the environment remains under the protection and authority of the principles of international law derived from established custom, the principles of humanity and the dictates of public conscience.

H.IV preamble, G.P.I Art. 1.2, G.P.II preamble

III. Specific rules on the protection of the environment

(8) 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.

H.IV.R Art. 23(g), G.C.IV Arts. 53 and 147, G.P.I Arts. 35.3 and 55

(9) The general prohibition on destroying civilian objects, unless such destruction is justified by military necessity, also protects the environment.

H. IV. R Art. 23(g), G.C.IV Art. 53, G. P. I Art. 52, G. P. I I Art. 14

In particular, States should take all measures required by international law to avoid:

(a) making 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;

CW.P.III

(b) 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;

G.P.I Art. 54, G.P.II Art. 14

(c) attacks on works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, even where they are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population and as long as such works or installations are entitled to special protection under Protocol I additional to the Geneva Conventions;

G.P.I Art. 56, G.P.II Art. 15

(d) attacks on historic monuments, works of art or places of worship which constitute the cultural or spiritual heritage of peoples.

H.CP, G.P.I Art. 53, G.P.II Art. 16

(10) The indiscriminate laying of landmines is prohibited. The location of all pre-planned minefields must be recorded. Any unrecorded laying of remotely delivered non-selfneutralizing landmines is prohibited. Special rules limit the emplacement and use of naval mines.

G.P.I Arts. 51.4 and 51.5, CW.P.II Art. 3, H.VII

(11) Care shall be taken in warfare to protect and preserve the natural environment. 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 and thereby prejudice the health or survival of the population.

G.P.I Arts. 35.3 and 55

(12) 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 term " environmental modification techniques " refers to any technique for changing - through the deliberate manipulation of natural processes - the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space.

ENMOD Arts. I and II

(13) Attacks against the natural environment by way of reprisals are prohibited for States party to Protocol I additional to the Geneva Conventions.

G.P.I Art. 55.2

(14) States are urged to enter into further agreements providing additional protection to the natural environment in times of armed conflict.

G.P.I Art. 56.6

(15) Works or installations containing dangerous forces, and cultural property shall be clearly marked and identified, in accordance with applicable international rules. Parties to an armed conflict are encouraged to mark and identify also works or installations where hazardous activities are being carried out, as well as sites which are essential to human health or the environment.

e.g. G.P.I Art. 56.7, H.CP. Art. 6

IV. Implementation and dissemination

(16) States shall respect and ensure respect for the obligations under international law applicable in armed conflict, including the rules providing protection for the environment in times of armed conflict.

G.C.IV Art. 1, G.P.I Art. 1.1

(17) States shall disseminate these rules, making them known as widely as possible in their respective countries, and include them in their programmes of military and civil instruction.

H.IV.R Art. 1, G.IV Art. 144, G.P.I Art. 83, G.P.II Art. 19

(18) In the study, development, acquisition or adoption of a new weapon, means or method of warfare, States are under an obligation to determine whether its employment would, in some or all circumstances, be prohibited by applicable rules of international law, including those providing protection to the environment in times of armed conflict.

G.P.I Art. 36

(19) In the event of armed conflict, the parties thereto are encouraged to facilitate and protect the work of impartial organizations contributing to preventing or repairing damage to the environment, pursuant to special agreements between the parties concerned or, as the case may be, the permission granted by one of them. Such work should be performed with due regard to the security interests of the parties concerned.

e.g. G.C.IV Art. 63.2, G.P.I Arts. 61-67

(20) In the event of breaches of rules of international humanitarian law protecting the environment, measures shall be taken to stop any such violation and to prevent further breaches. Military commanders are required to prevent and, where necessary, to suppress and to report to competent authorities breaches of these rules. In serious cases, offenders shall be brought to justice.

G.C.IV Arts. 146 and 147, G.P.I Arts. 86 and 87

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