



The environment as a military target

How does international humanitarian law protect the environment during international armed conflicts?

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Abstract

Since the end of the Vietnam war, it has begun to be widely acknowledged that military tactics during armed conflicts can have devastating and long-lasting impacts on the environment. Environmental impacts of war became more discussed among states and the subjects of meetings at international bodies including the UN. As a result of this, the first legal instruments under international humanitarian law (IHL) to directly mention the environment were drafted and adopted. This marks a change in attitude to these issues, but since the adoption of these provisions, little has been done to enforce them and the corpus juris has not been expanded further. In fact, these provisions have not been the subject of any jurisprudence from international legal bodies.

This research is focused on the applicability and effectiveness of those provisions from the Additional Protocol I to the Geneva Conventions that deal directly with environmental harms and the potential applicability of the general principles guiding IHL to this issue. Doctrinal legal research into this area of IHL and principles, along with a case study on the international armed conflicts of Afghanistan are used to carry out a critical analysis of legal materials and the legal framework.

The thesis examines the content of the black letter law in this area along with the context for the development of these rules and their application so far. Several weaknesses and potential gaps in the existing protective framework are identified and discussed with Afghanistan as a background. The reason for these gaps is also addressed and potential measures to close and remediate gaps and increase the effectiveness of protection are discussed.

Keywords: international humanitarian law, public international law, international environmental law, law of armed conflict, environmental protection, environmental protection, international armed conflict, Afghanistan

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List of abbreviations:

BWC	Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction
CCW	Convention on Certain Conventional Weapons
ENMOD	United Nations Convention on the Prohibition of Military or Any Other Use of Environmental Modification Techniques/Environmental Modification Convention
HRL	Human rights law
IAC	International armed conflict
ICC	International Criminal Court
ICJ	International Court of Justice
ICL	International criminal law
ICRC	International Committee of the Red Cross
ILC	International Law Commission
IEL	International environmental law
IHL	International humanitarian law
IUCN	International Union for the Conservation of Nature
NIAC	Non-international armed conflict
RES	Resolution
UN	United Nations
UNEP	United Nations Environment Programme
UNESCO	United Nations Education, Scientific and Cultural Organization
UNGA	United Nations General Assembly

Table of cases and legal instruments:

International Legal Instruments:

Hague Conventions (1899 & 1907) and annexed Hague Regulations

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

Geneva Conventions (1949) and their Additional Protocols I and II (1977)

Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict (1954) and its two Protocols (1954 and 1999)

Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention) (1972)

Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BWC) (1972)

UN Convention on the Prohibition of Military or Any Other Use of Environmental Modification Techniques (ENMOD) (1976)

Convention on Certain Conventional Weapons (formerly known as the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects) (CCW) (1980)

Convention on the Prohibition of the Development, Production and Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention) (CWC) (1993)

Ottawa Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (1997)

Convention on Cluster Munitions (2008)

International Criminal Court (Rome) Statute

International Convention for the Prevention of Pollution from Ships (MARPOL)
(1973/1978)

UN Convention on the Law of the Sea (UNCLOS) (1982)

Montreal Protocol on Substances that Deplete the Ozone Layer (1987)

Vienna Convention for the Protection of the Ozone Layer (1985)

UN Charter (1945)

Customary Law:

ICRC, Customary International Humanitarian Law (2005)

Cases:

Nicaragua v. United States, ICJ (1986)

Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, ICJ (1996)

Tadic Case, ICTY (1994)

Soft Law:

Declaration of the UN Conference on the Human Environment (Stockholm Declaration)
(1972)

Declaration on the UN Conference on Environment and Development (Rio Declaration)
(1992)

1. Introduction

1.1. The history of warfare and the environment

When two elephants fight, it is the grass that gets hurt - African proverb

When thou shalt besiege a city a long time, in making war against it to take it, thou shalt not destroy the trees thereof by forcing an axe against them: for thou mayest eat of them, and thou shalt not cut them down (for the tree of the field is man's life) to employ them in the siege: Only the trees which thou knowest that they be not trees for meat, thou shalt destroy and cut them down; and thou shalt build bulwarks against the city that maketh war with thee, until it be subdued. - Deuteronomy 20: 19-201

Since the beginning of human societies, there have been wars and conflicts between groups vying for survival and resources and competing for dominance. It is impossible to separate the history of humanity from the wars that have formed it. While armed conflict has been an indivisible feature of our societies longer than written history, the character of these wars has developed and changed greatly over centuries, with huge technological and societal changes in the last few decades in particular. While there have always been wars, the nature and impact of these wars on the environment around the combatants has changed greatly in recent years. With technological advances, the potential for harm, both for humans and the environment, has grown hugely. Purposeful environmental modification techniques can be seen throughout history, and some argue that the destruction of environment is as 'old as warfare itself' as 'since time immemorial, war has visited its excesses on nature, excesses that many fear the Earth can no longer tolerate' (Parsons 1997, p.441).

However, the difference in destructive capability between spears, swords and muskets and modern nuclear weapons, chemical weapons and cluster bombs is undeniable and has raised the stakes in international warfare. Alongside weapon developments, changes in global connectedness and travel have meant that wars can break out between geographically unconnected countries. Wars are increasingly happening on a global scale and the scale of attacks often mean that there are impacts even for neutral parties.

The first recorded instance of deliberate environmental attacks as a tool of warfare was by the Scythians, who carried out a series of scorched earth attacks and policies against the Persians in 512 B.C (Weinstein 2005). Other historical examples of scorched earth and environmental attacks during armed conflict include the salting of soils of Carthage, destruction of Confederate lands during the American Civil War, the destruction of the Huayuan Dam on the Yellow River by the Chinese Government in 1938 (widely called the ‘largest act of environmental warfare in history’), the use of poison gas in Verdun during World War I, and the burning of lands in Finnmark by the Germans during World War II. (Weinstein 2005, p.5). Environmental destruction tactics have been used as a form of ‘total warfare’ for a considerable period of time, often historically involving large-scale burning of land and are often known as ‘scorched earth’ tactics (Wyatt 2010, p.597).

However, the deliberate use of environmental destruction in armed conflict has become much more prevalent in modern history from World War II and onwards. Modern technology has meant that these attacks also have the potential to have a wider geographical scope, larger range of harms, and impacts can be more long lasting. After World War II, many states moved beyond the simple ‘scorched earth’ attacks to a more sophisticated and insidious form of environmental warfare. This can be exemplified by the US attacks on dams during the Korean War in the 1950s and the environmental modification techniques carried out by the US during the Vietnam conflict during 1961-1971.

This introduction will provide an overview of why environmental provisions were introduced following the Vietnam War and how provisions have been applied since the 1970s. It will also examine why the inclusion of environmental protection provisions

applying during armed conflicts is important and the potential lasting effects and consequences an absence of such rules could bring.

1.2. Vietnam War and introduction of new directly environment-related international legal provisions

During the Vietnam War, US armed forces began a campaign of spraying highly toxic chemical defoliation agents (e.g. the most well-known herbicide ‘Agent Orange’) over more than 6 million acres of crops, trees, and wildlife in an attempt to destroy natural groundcover, as well as using the incendiary weapon napalm to destroy plant life and property (Wyatt 2010). They also attempted to influence weather patterns by using cloud-seeding techniques to gain military advantage. This indiscriminate use of dangerous and destructive herbicides as a tool of war led to large scale damage with severe and long-lasting effects and marked a change in awareness and a degree of condemnation of these techniques in the international community (Thomas 2013). After the end of the Vietnam War, there was a backlash against this deliberate and wanton use of environmental destruction and modification techniques that led to the adoption of the 1976 Environmental Modification Convention (ENMOD) and the adding of environmental provisions in the 1977 Additional Protocol I to the Geneva Conventions (API) and Additional Protocol II to the Geneva Conventions (APII). These are the main international legal instruments relevant to the protection of the environment during armed conflict.

Before the Vietnam War and the adoption of ENMOD and API, the international legal framework relevant to armed conflicts did not explicitly mention ‘environment’. The legal framework did have some provisions that could be relevant to the protection of the environment, but these were all vague or of an implied rather than direct nature. These provisions also largely depended on the protection of the environment in light of its importance to humans and human interests and survival. These anthropocentric provisions protected the environment solely as something valuable to humans and that destruction would be against human interests (Goble 2010).

The introduction of ENMOD and API changed this and brought the concept of environment into the field of international humanitarian law (IHL), but both have come under fire for a number of shortcomings in practice, inconsistencies in rationale, and criticisms based on a lack of real-world applicability.

ENMOD prohibits states from using hostile environmental modification techniques that have ‘widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State party.’ This standard is not cumulative, and so meeting one of these criteria is sufficient to constitute a breach of the convention. However, like all international legal instruments of this nature, ENMOD only applies to other signatories and so is limited in application. ENMOD is also an instrument to be applied post hoc, so its provisions are reactive and do little to prevent environmental damage. Like other instruments, its enforcement is also largely political in nature, and so faces criticism on lack of effective enforcement (UNEP 2003).

API introduces environmental protections directly in two provisions:

Article **35** prohibits ‘methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment ’

Article **55** proscribes that ‘care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods and means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population’

API criminalises individual actions. Art. 35 criminalises intentional or expected environmental destruction with the legal standard of a reasonable person. Art. 55 states that the environment is a protected object and recognizes a link between environment and human survival (Weinstein 2005)

1.3. How have provisions been applied?

Although these provisions impose standards for environmental protection during international armed conflicts, they do not apply in non-international armed conflicts, and have never been successfully applied to establish a breach of law in any armed conflict situations. There have been many armed conflict situations that have caused a great deal of environmental destructions since the implementation and acceptance of these provisions, but no state or individual has been held accountable for breaches of these instruments. Many critics and international humanitarian law scholars have suggested that these provisions have such a high threshold that they cannot be applied in practice and suggest this was intentional in the way they were formulated. Some key states such as the US are also not parties to these provisions, and so are not bound to them unless they are accepted to have reached the level of customary international law.

Since the introduction of these international legal instruments, there have been many examples of warfare tactics aimed at environmental destruction. The United Nations Environment Programme has undertaken studies of several armed conflict situations, from Kosovo to Afghanistan, Sudan and the Gaza Strip and has found a great deal of evidence of these conflicts causing significant harm to the environment, natural resources, and human communities (UNEP 2003). As the historical concept of warfare has changed from handheld weapons to atomic missiles, landmines, cluster bombs and chemical and biological weapons, these new technologies have served to accelerate damage to the environment as well as increase human casualties of war (UNEP 2003).

Some major examples highlighting this level of destruction can be found in the 1991 Gulf War when more than 700 Kuwaiti oil wells were targeted, causing an estimated 2.5-3 million barrels of oil to spill into the Gulf (Omar et al) and harming the aquatic ecosystem as well as human lives. During this attack the intention was to set these oil wells alight. During the 1980s Iraq-Iran war, Iraqi armed forces targeted Iranian oil infrastructure in the Nowruz offshore field. These attacks '[sent] enough smoke into the atmosphere to partially block out the sun for days and enough oil into the Red Sea to create a slick of 12,000 square miles' (Wyatt 2010, p.598). This had catastrophic consequences for wildlife in the region, including endangered species of animals and plantlife (Al-Duaij 2004) During the

Kosovo intervention, NATO forces are alleged to have deliberately bombed infrastructure including a petrochemical plant, nitrogen fertilizer plant, and an oil refinery at Pančevo. This led to the flooding of large amounts of various chemicals into the Danube River (Wyatt 2010).

The wars in Afghanistan over the previous decades are also key to illustrating this. Use of chemical and biological weapons have threatened the depletion of the stratospheric ozone, led to destruction of important and endangered ecosystems, and caused other local and transboundary environmental risks. There are also huge risks from landmines, as well as ongoing damage from bombing campaigns and troop activities (UNEP 2003) The case study of the armed conflicts in Afghanistan will be discussed in more detail in following chapters.

The full consequences from these attacks are still not known and many environmental scientists have speculated that these incidents will have long-lasting effects beyond the initial destruction. However, even these attacks were not seen to be of a serious enough level to breach the provisions of API or other international legal instruments. While the environmental consequences of the NATO attacks were considered in assessing the legality of the attacks, they were not considered breached by this. These instances have added to the criticism of these provisions as presenting an impossible threshold of harm (Bruch 2000).

In many cases, the concept of ‘military necessity’ is the deciding factor in whether a breach has occurred. The only example of a case based on environmental damage going before a tribunal was acquitted on the same test of military necessity. This was the Nuremburg Tribunal’s prosecution of the Austrian General Rendulic in *US v Wilhelm List & Ors (1948)*. Rendulic was found not guilty of scorched earth tactics on the basis of military necessity – even though there was no real necessity. Rendulic’s subjective perception of need was enough. Although this predated many more modern legal instruments and established customs that apply to environmental protection in modern times, this jurisprudential precedent of the subjectivity of military necessity has impacted how modern provisions are formulated and applied. Weinstein (2005, p.709) calls this ‘the only case in history where military necessity was balanced against environmental damage’ and thus it

makes sense within international jurisprudence that this would be influential on modern tests.

While there is a lack of cases going before international legal bodies, the principle and test of military necessity is one that has been analyzed in great detail by many leading academics and practitioners within the fields of IHL and international environmental law (IEL). This example is one that has been pointed out when looking at the theoretical application of the API provisions to the Vietnam War. While these provisions were implemented as a response to this conflict, many have argued that they would not have applied in this context; it can be argued that the Vietnam attacks would not breach the criteria required for the protections that they inspired (Wyatt 2010)

For example, if a US military officer who had directed the spraying of herbicides over areas of the Vietnamese jungle were tried under these provisions, he could point to a subjective view of the necessity of removing the jungle cover to prevent Vietnamese fighters from utilizing it as ground cover. A court would need to show that the damage caused was clearly excessive to the military advantage, as well as establishing that the military officer's subjective views were that it was in fact required.

1.4. Why does the environment matter in armed conflict?

There are four main bodies that are relevant to the protection of the environment during armed conflicts. These are international humanitarian law (IHL), international environmental law (IEL), international criminal law (ICL), and human rights law (HRL). The existing legal framework does contain provisions that are directly and indirectly relevant to environmental protection. However, in practice these have rarely been enforced and have largely been ineffectively implemented in practice. There have been some attempts to hold states liable for environmental damages, but results have been notably poor (Orellana 2005). The one exception here is that the international community held Iraq liable for damages caused during the 1990-1991 Gulf War. This related mainly to monetary responsibility and compensation for environmental damage. This decision was not made under the rules of IHL, but under general state responsibility. No state has been

held accountable directly for environmental destruction under IHL and no individuals have ever been successfully prosecuted for environmental crimes. The environment continues to be a causality and a widely used method of war (Weinstein 2005).

There are many reasons that can be highlighted as potential explanations for this lack of enforcement. These range from political problems relating to victors' justice, state sovereignty and freedom, prosecutorial barriers enmeshed in environment-related legal instruments, and the values of the international community to the natural tendency for environmental damage to be overshadowed and eclipsed by other atrocities and human losses during armed conflicts.

Some argue that the priority during armed conflicts should be the minimization of human damages and that this prioritization and anthropocentrism is correctly reflected in IHL and international legal provisions. Can this really be a legitimate separation when the prospects of humanity are so closely linked to the natural environment?

As the International Court of Justice (ICJ) has stated: the '*environment is under daily threat*' and '*it is not an abstraction but represents the living space, the quality of life and the very health of human beings, including generations unborn.*' (ICJ 1996, p.19).

Taking an anthropocentric view, it is clear that protecting the natural environment should also protect and further the interests of humanity. UNEP reports call attention to the contribution of environmental destruction to global degradations and the role of environmental damages in perpetuating and exacerbating armed conflicts. The IPCC has pointed out that resource scarcity can play a huge role in sparking regional and global conflicts, and where there is massive destruction caused during warfare, this increases the probability of future wars as communities struggle to live with the long-lasting after-effects (ICJ 1996)

Natural resources such as water, trees, wildlife, soil, and plants have been characterized as the 'wealth of the poor'. Damages of this natural environment during armed conflicts can undermine livelihoods and traditional ways of life, and thus act as a driver of forced migration, poverty, loss of traditions, and can spark conflicts. Natural resources and the natural environment can help to unite or to divide societies. Where communities are

damaged from armed conflicts, leaving a legacy of environmental destruction can undermine the peace-building process and cause a cycle of wars and conflict (UNEP 2003)

Even with a greater scientific and social understanding of the importance of the environment and the key role it has to play in our lives, in the current international legal system few protections have been applied or enforced to help protect it. We acknowledge the need for protections with the adoption of direct legal provisions such as ENMOD and API, but these are not applied. This raises questions about the true purpose and underlying rationale of these laws and of the intentions and workings of the international legal system that has led to their creation. As the International Committee of the Red Cross, the protector of IHL, points out: ‘the fact that the environment continues to be the silent victim of modern warfare raises a number of important legal questions’ (UNEP 2003, p.9). The most important questions here include which laws directly and indirectly protect the environment? Who is responsible for their implementation and enforcement? How is the system working in practice and how can we really assess its effectiveness with a lack of cases and jurisprudence to interpret and build on? Can we make the current international process around this more systematic and effective? These are the questions that inform the main focus of this thesis.

In this thesis I looked at the development of this field of law and identify the relevant existing provisions that aim to provide protection for the environment during armed conflict. I examined how legal provisions protect the environment during international armed conflicts under the international humanitarian law regime, how effective these provisions are in practice and their limitations. The thesis specifically focused on the legal rules in API as the only provisions expressly protecting the environment, and on the general principles as potentially providing indirect protection.

The central research question was, ‘is the environment adequately protected by existing IHL rules during international armed conflicts?’. Secondary questions relate to why IHL provisions exist in their current form, notable weaknesses in these rules, and how they would be applied in the case of a specific international armed conflict situation in their current iteration.

Chapter two provides an overview of the existing literature and theoretical approaches for this area. It sets out a brief overview of the legal background and relevant legal instruments, case law, and secondary literature as well as setting the discussion in the context of anthropocentric vs. ecocentric approaches. The next chapter includes a more in-depth exploration of the legal framework, including the backgrounds and interconnections of IHL, IEL, ICL, and HRL. This chapter identifies the most relevant legal principles and instruments that will be discussed in more detail in later chapters and applied to the case study of Afghanistan. Chapter four is an overview of the research methodology used to gather and analyse data for this thesis as well as the aims and objectives and research approaches. Chapter five sets out the case study of Afghanistan and introduces the history of armed conflicts in Afghanistan and the environment impacts of these conflicts. It also sets out the aims of the case study analysis. Chapter six examines the theoretical application of the legal framework to the facts of the case study in Afghanistan. That chapter analyses the applicability of the legal framework in practice and highlights the potential shortcomings of these provisions in a real-world context. Chapter seven concludes on the findings of the thesis and sums up the overall conclusions on the research questions.

2. Environment during armed conflict: literature review and theoretical approaches

It is well known that international armed conflicts and modern means and methods of warfare have the potential to catastrophically damage the environment. As well as this, armed conflicts can, alongside direct and indirect damage to the environment, weaken fragile governance structures and disrupt state institutions, initiatives and mechanisms of policy coordination. This can lead to further damages by way of poor management, illegality, and collapse of positive environmental practices (UNEP 2003) Natural resources such as trees, wildlife, water and soil are characterized as the wealth of the poor (UNEP 2003). In this respect, damage and destruction to these resources during armed conflicts can undermine peace and livelihoods and act as drivers of poverty, local conflict and forced migration. The natural environment and natural resources can unite or divide post-conflict societies. It is therefore vital that they should be protected adequately during conflicts.

This chapter looks at the discussions around the protection of the environment during armed conflict, the existing rules, literature, and theory and rationale behind these. This is done by first presenting an overview of the relevant legal instruments underpinning the field, including case law, treaty law, and general principles, then secondary literature is addressed, and following this, a discussion of anthropocentric vs. ecocentric approaches.

2.1. The Legal Background

2.1.1 International Legal Instruments

There are several international legal instruments relating to the protection of the environment under international legal regimes during situations of armed conflict. One of the most recent provisions relating to this is found in the Rome Statute of the International

Criminal Court under Article 8 on war crimes. Article 8(2)(b)(iv) makes it a crime to: "Intentionally launch an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated". Additional Protocol I to the Geneva Conventions dealing with international armed conflicts reaffirms the original conventions to account for developments in modern international warfare that have taken place since World War II. Article 35 bans weapons that "cause superfluous injury or unnecessary suffering," as well as means of warfare that "cause widespread, long-term, and severe damage to the natural environment". Article 55 also concerns protection of the natural environment in similar terms.

The Environmental Modification Convention 1978 was agreed upon and entered into force as a response to concerns about military environmental modification techniques raised after US use of Agent Orange during the war in Vietnam. This instrument, in similar wording to the Additional Protocol I to the Geneva Conventions prohibits the military or other hostile use of environmental modification techniques having widespread, long-lasting or severe effects. There are also several other treaties that may indirectly contain provisions relevant to environmental protections. For example: The Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925); The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction (BWC) (1972); Convention on Certain Conventional Weapons (CCW) (1980); Chemical Weapons Convention (CWC) (1993); Convention on the Prohibition of the Use, stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction

2.1.2 Case Law:

There is a lack of case law in this area due to the very limited number of cases brought before courts or tribunals. These provisions have not yet been applied seriously in international law. In those few cases that do relate to environmental damage, the reasoning handed down has been based on procedural considerations rather than merit-based, and the

provisions have not been further clarified by international courts or tribunals. This lack of case law contributes to the lack of clarity as many similar instruments are refined in front of the courts when they are applied in practice. In this case the standards have not been applied, and so have not been the subject of any judicial reasoning or clarification. Some authors argue that this contributes to a sense that there is ‘reluctance’ or difficulty in enforcing these kinds of laws. There is also no specific permanent legal mechanism in place to monitor and address these shortcomings (UNEP 2003)

The adequacy of the API and specific environmental provisions enacted after the Vietnam War was called into question during the Gulf War. There was significant pollution caused by the intentional destruction of over six hundred Kuwaiti oil wells by the retreating Iraqi army. There was a case brought for these damages, but this was decided on procedure and on the public international law dealing compensation for damages rather than on the specific environmental provisions (UNEP 2003)

There are other examples of case law that has set precedents for environmental harms under public international law. The Trail Smelter case is important in establishing liability for damages if one state’s emissions caused damages in another’s territory. This principle was based on a fundamental property right: *‘sic utere tuo ut alienum non laedas’* – that one must use one’s property in such a way as not to cause harm to that of another, but this is now recognized as a right under international law between states. This recognized principle could be useful if applied in an IAC situation, but this has not yet been carried out and there are uncertainties over whether the specific IHL provisions, including the wide exceptions and justifications, could override this in potential cases as *lex specialis*.

2.1.3 General Principles of International Humanitarian Law

The general humanitarian principles may be useful in protecting the environment during armed conflict, but in their current manifestation they are not likely to be sufficient. There is a difficulty in establishing the threshold of these principles as they lack internationally agreed standards. This leads to issues in application. For example, the test of military necessity is very imprecise, and this means that in the way it is currently understood and

formulated, it may be possible to justify any level of environmental damages if the military necessity is considered to be high enough. The International Committee of the Red Cross (ICRC) have emphasized that a precautionary approach should be taken in the absence of scientific certainty about potential effects of military actions, but the precautionary principle is not yet embedded in IHL in the same way it is in IEL. In this respect, it is possible that IEL principles could be used to further clarify those insufficiently clear norms of IHL. It is now more widely accepted that IEL continues to apply during armed conflicts unless the instruments stipulate otherwise, but in practice it is not so clear which instruments and principles could be carried over as this has not been tested. HRL may also provide principles that can be used to indirectly protect the environment during armed conflict. Although some critics have pointed out the anthropocentric nature this protection would give, this could still be a useful interim tool. Linking environmental damages during armed conflicts to the violation of human rights could offer a new way to sanction environmental damage.

2.1.4 The Martens Clause

The Martens clause is a basic provision of IHL. It was introduced into the preamble to the 1899 Hague Convention from a declaration read by Friedrich Martens at the Hague Peace Conferences of 1899. It appears in a slightly modified form in the 1907 Hague Conventions:

Until a more complete code of the laws of war has been issued, the High Contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience.

— *Laws and Customs of War on Land (Hague IV)*, 18 October 1907

It is accepted as an important principle of IHL. However, there is disagreement as to how it has been interpreted and its scope. One view is that it means that there is a principle that customary international law is not automatically replaced by codified laws of war. The other end of the spectrum argues that it means that in addition to the laws of war, belligerents are bound by principles of international law. It has been argued that environmental protection is included in the principles referred to in the Martens clause (Thomas 2013; ICRC 2020).

This has been supported by the views of Vöneky and Bothe, and the scholars Low and Hodgkinson. It is suggested that international concern for the environment expressed through IEL has resulted in environmental protection becoming a factor which the military must take into account in determining the means and methods of warfare (UNEP 2003). This view would suggest that as the concern for the environment is more widely accepted by states, this should be established firmly as being under the remit of the Martens Clause and that environmental concerns and protection should be within the ‘dictates of the public conscience’. The development of API and ENMOD have clearly shown an ‘emerging norm’ of environmental protections during armed conflicts. In 2000, at the Second World Conservation Congress, The International Union for Conservation of Nature (IUCN) propounded the adoption of a Martens Clause for Environmental Protection to focus on ‘protecting the biosphere and all of its constituent elements and processes’ until a ‘complete international code’ was formulated and adopted (IUCN World Conservation Conference 2000)

2.1.5 The Rio Declaration

The Rio Declaration confirmed and modified the Stockholm Declaration’s Principle 21. It changed the emphasis of the sovereign right of exploitation ‘pursuant to their own environmental policies’ to a right limited by ‘their own environmental and developmental policies’. Analysts have argued that a direct interpretation of this principle would impose ‘responsibility for environmental damage during armed conflict even when such damage is justified under the law of armed conflict and humanitarian law’. Principle 24 states that ‘warfare is inherently destructive of sustainable development. States shall therefore respect

international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary'. This provision can be interpreted as meaning IEL continues to apply in situations of armed conflicts, or that states must stick to the provisions of IHL during armed conflicts and must contribute to strengthening the international legal framework (Thomas 2013).

2.2. Secondary Literature: NGO reports and legal research

2.2.1. The UNEP Report

The United Nations Environment Program (UNEP) wrote a report summarizing the current legal framework relevant to the protection and targeting of the environment during armed conflicts in 2009 – on the International Day for Preventing the Exploitation of the Environment in War and Armed Conflict, observed annually on 6 November. The report inventories and analyses the international laws that deal with the protection of the environment during armed conflict. The authors aim to identify the gaps and weaknesses in the system with reference to four bodies of international law. This report provides a useful overview of the current legal provisions in this area and is widely regarded by legal scholars and practitioners as a comprehensive examination of the law (UNEP 2003)

The UNEP report highlights the significant harm that can be caused to the environment and communities through armed conflicts, as well as the potential of armed conflicts to perpetuate further conflicts through destruction of much depended on natural resources.

The current legal framework contains provisions that both directly and indirectly protect the environment during active armed conflicts. The main issue highlighted by legal researchers, scholars and practitioners is that these provisions have not been implemented or enforced effectively. There are four main bodies of law that can be seen as relevant here: international humanitarian law (IHL), international criminal law (ICL), international environmental law (IEL), and human rights law (HRL). The focus here in this research will be on IHL provisions as IHL is the *lex specialis* that would apply during armed conflicts.

The authors of the UNEP report argue that articles 35 and 55 of API to the 1949 Geneva Convention do not adequately protect the environment during armed conflicts due to the 'stringent and imprecise threshold' required to demonstrate damages. These two articles share a prohibition on 'widespread, long-term and severe' damage. This is a cumulative requirement and all three must be met for a violation to occur. However, it is argued that in practice this standard is almost impossible to achieve, especially given the imprecise nature of the definition of these terms.

Other provisions in IHL may protect the environment indirectly (e.g. restrictions on the means of warfare or protections for civilian property and objects). However, these do not address many new means of warfare and new technologies such as use of depleted uranium, and have rarely been enforced in this manner.

2.2.2. The ICRC 2005 Report on Customary IHL rules

This report discusses 161 rules that the ICRC consider to represent customary IHL. While this is not necessarily a hard law source, this is very persuasive and the ICRC is regarded as the custodian of IHL. Three of these rules discuss natural resources and they expand upon the implications of the general principles for environmental protection during armed conflicts. These rules are: Rule 43, which specifies that the general principles on the conduct of hostilities apply to the natural environment, including a military necessity and proportionality exception; Rule 44 relates to the means and methods of warfare and specifies that these must be employed with due regard to the protection and preservation of the natural environment; and Rule 45 which states that the use of methods or means of warfare that are intended or may be expected to cause widespread, long-term and severe damage to the environment are prohibited.

These ICRC guidelines offer a useful articulation of the principles of proportionality, military necessity, and distinction in regards to the natural environment. These rules have been interpreted to impose a responsibility on states, under customary international law, to consider the potential and likely environmental impacts of military methods (UNEP 2003).

2.2.3. Development of the means and methods of warfare and potential consequences

Mete Erdem highlights the fact that technical advancements in the means and methods of warfare have changed the ‘landscape of the theatre of war’. New developments have fundamentally changed the scale of the destructive impact that use of certain weapons during armed conflicts can have (Erdem 2017, p. 436). There should be a review of wartime environmental protections in light of these advancements to examine whether current provisions meet these new challenges (Stone, 2010; Islam 2014, p.364).

Islam (2014, p.365) lists some of the various developments and technical advancements in warfare that can have a destructive impact on the environment, including: ‘fog and cloud dispersion or generation, hailstone production, the release of materials that alter the electrical properties of the atmosphere, generation of destructive storms, rain-making and snow-making, the control of lightning, climate modification, small nuclear explosion techniques developed to create earth vibration that can cause earthquakes and volcanoes, generate avalanches and landslides, burn or otherwise destroy large areas of vegetation, divert rivers, and destroy dams or nuclear facilities’. Although some of these techniques are prohibited under various legal instruments, not all of them are. And those that are covered have also not been generally enforceable.

Stone (2010, p.23) questions which threats from modern warfare are most damaging in practice and should be included potentially in new legal protections. Lundberg (2008, p.495) argues that some forms of environmental damage caused by armed conflict, namely resource plunder, may already be covered under the war crime of pillage of public and private property. However, this leaves pure environmental damage out of this category of protection. Lixinski (2014, p.157) also confirms this distinction, suggesting that protection of the environment during wartime is less established than cultural property protections. Erdem (2017, p.436) further demonstrates that the current international treaty-based legal framework for the protection of the environment has gaps in term of the ‘pure environmental aspects of armed conflict’ despite the potential for greater destruction of the natural environment.

2.2.4. Identifying gaps in the existing legal framework

Erdem (2017, p.436) forwards a call for a new ‘eco-centric’ approach to protect the environment as a victim of war in its own right. This links in to calls for the creation of a new ‘ecocide’ offence. However, the development of this type of international prohibition would require a recognition of environmental rights as separate from human rights or resource related provisions. It has been argued that the current international legal system operates on an anthropocentric approach, and that to enforce any environmental rights that are not directly related to human benefit would present serious political hurdles and a lack of will from states.

Several authors also highlight the gaps present in the current body of international law for the implementation and enforcement of environmental protection measures in all conflict situations (Erdem, 2017, p.436; Lixinski 2014, p.157; Falk 2010, p.137). Islam (2014, p.365) also suggests that a major issue with these treaties governing environmental protection is the differing positions at an international level and a lack of enforcement.

The majority of international humanitarian law instruments do not apply to those situations categorised as ‘non-international’ – for example Common Article 2 of the Geneva Conventions state that: ‘In addition to the provisions which shall be implemented in peacetime, the present Convention shall apply to all cases of declared war or of any other armed conflict which may arise between two or more of the High Contracting Parties’. Some of those provisions that have been adopted as customary law may apply to non-international armed conflicts, but which provisions constitute customary international law is not always clear. Thus under international law there may be a considerable difference between which laws may be applicable in a situation depending on its classification. There is a difference in applicable laws between non-international armed conflicts (NIACs) and international armed conflicts (IACs). Most IHL laws are limited to applicability during IACs and not do apply during NIACs unless a threshold of humanitarian concern is reached. In these cases international involvement in the conflict is more likely and will then elevate these conflicts to IACs. This relates to limitations of international public law generally – namely that the subjects of international public law are states which hold

sovereignty in their own territories. Public international law is also reliant on consent and a state is not likely to agree to laws that would limit its own sovereign powers.

Stone (2010, p.24) points out that ordinary treaties protecting the environment can be suspended during hostilities due to derogation or through other means. In this sense, this can be seen as a compelling reason showing the need for wartime specific protections, and international humanitarian law protection. The question remains to what extent environmental treaties have been derogated during conflicts, and how much this reduces protections actually available in practice. Again, there is a gap in looking at the extent to which available protections are in practice mitigated due to concerns surrounding state sovereignty and the principle of nonintervention – particularly in relation to internal and international conflicts. There is also a question about which parts of the legal framework have been recognised, or should be recognised, as customary international law. Bruch (2010, p.40) suggests that some legal instruments, although ratified by only half of nation states, have become customary international law and now apply universally but again these do not seem to have been used in practice. Falk (2010, p.138) argues that it is possible that improvements could be made by implementing existing environmental standards both preventively and reactively but argues that this outcome is practically unattainable based on the framework of ‘vague and scattered legal norms’. He advocates for the adoption of a new convention exclusively for the protection of the environment during wartime as the current legal framework does not provide a realistic basis for acceptable levels of implementation under wartime conditions. This view of the difficulty of implementing current legal instruments is a largely prevailing one, but not often supported by specific case studies, or examinations of local, transnational or international jurisprudence.

Bothe et al (2010, p.569) suggest that one of the main deficiencies in the current framework is restrictive and unclear definitions and legal uncertainties. In this respect the argument is that current issues could be resolved within the existing framework with modifications. They argue that principles found already in international environmental law might be extended to help clarify definitions relating to the environment within international humanitarian law and the law of armed conflict (Bothe, et al 2010, p.569). This is an approach that has not really been tested in the arena of international public law

but could have interesting potential. However, Bothe et al (2010, p. 570) also raise concerns about the general applicability of non-international humanitarian law treaties during situations of armed conflict and point out that for some instruments, their continued applicability or suspension remains unclear.

Under the existing IHL rules, protection of the environment is subject to wide exceptions and justifications. The military necessity principle offers a wide scope for use and abuse and is seen as a largely subjective determination. Military commanders must balance military necessity against environmental and humanitarian norms and values. As Falk argues, 'from the perspective of a military actor, almost any environmentally harmful initiative can be given a subjectively acceptable legal rationale' (Falk 2000, p.144). These basic principles of IHL could present a large obstacle for effective protection from IHL or from other sources. Any attempts to broaden or clarify the scope of environmental legal protections will need to consider these provisions. Both military necessity and the proportionality determinations are key to understanding and evaluating the real applicability and adequacy of provisions.

Carson Thomas (2013) argues that the current provisions do not reflect the scope and depth of environmental concerns in contemporary times or in light of contemporary scientific understanding. He proposes that in addition to the difficulties of the anticipatory nature of the measurement and determination of environmental harm, there is also a problem with determining the weight of environmental considerations in the proportionality calculus. For example, 'can environmental damage be excessive even if the full extent and damage of the damage are uncertain'? Is environmental harm 'only a proxy for civilian harm' (Thomas 2013, p.98)? These questions raise more than just procedural and applicability issues. These questions raise more basic philosophical questions that go to the rationale and reasoning for the existing framework: issues of anthropocentrism and culturally contingent environmental valuations.

As the ICJ has recognized, there are very real differences, legally, morally, and practically speaking, between conflicts that threaten the survival of a state and conflicts where goals are geopolitical, economic, or humanitarian. Thomas argues this could be a useful factor in determining the weight to give necessity against environmental damages. If a conflict

could be placed on a spectrum from existential threats to wars of policy, this would change the level of necessity and thus the level of environmental consciousness needed (Thomas 2013).

In reality this is hard to put into practice or to measure coherently. How should a war constituting an ‘existential threat’ be measured? Equally, if wars of this kind are to be given more leeway in terms of permissible environmental damages, this is also likely to compound these issues and threat. Excessive environmental damage undermines long-term peace and viability after an armed conflict and the natural environment is important in post-conflict peace-building and recovery (UNEP 2003)

There is also a *realpolitik* factor in that states with a lot of political power on the world stage, are much more unlikely to face international sanctions, while internationally isolated states can potentially be subjected to harsher sanctions (Thomas 2013). After the Gulf War, Security Council Resolution 687 (1991, p.12) declared that Iraq would be, ‘liable under international law for any direct loss, damage, including environmental damage and the depletion of natural resources, or injury to foreign Governments, nationals and corporations, as a result of Iraq’s unlawful invasion and occupation of Kuwait’. There have not been similar actions taken against the US in response to actions in Vietnam or Afghanistan, or against NATO for the Kosovo campaign.

2.3. Anthropocentric or Ecocentric?

This section will look at the difficulties of balancing ideas of environmental protection, environmental worth, traditions, norms and values, and subjective valuations with other compelling issues such as human rights and humanitarian efforts. This can be characterized as a balancing or competition between anthropocentric and ecocentric viewpoints and values. These viewpoints and theories contribute to the formulation of international norms and values and the formation of international law and therefore play an important role in the formation and application of international legal rules. IHL and armed conflicts are one of the highest stake fields where these ideas compete due to the scale and potential for damages and the often complex natural and human landscapes.

Prior to the Vietnam war, no legal provisions protected the environment in itself or for its own sake – all protections afforded to nature were done so in respect of its importance to human interests and survival (e.g. the protections in the Geneva Conventions prior to API). Legal instruments focused on nature as valuable to humans and prohibited destruction only so far as it would be unwise and against the interests of humanity. Protections were created and enforced with an anthropocentric focus.

Leebaw (2014) argues that one explanation for the fragmentation and lack of environmental focus in IHL provisions is because the impact of armed conflict on the environment remains firmly on the periphery of contemporary debates on humanitarian norms and the just war tradition. They argue that this is the result of a gulf in research and scholarship between those focusing on anthropocentric concerns and those advocating for a more ecocentric approach in international norms (Goble 2010). This can be seen to be a natural outcome of scholars of human rights and humanitarian law tending to focus intensively on efforts to prevent a range of grievous crimes against humanity such as torture, genocide, and ethnic targeting. Even where seemingly strong environmental laws have been enacted, the ‘urgent’ imperatives of war can routinely be invoked to justify abrogation of these laws. In relation to these shocking and egregious crimes and wartime abuses, it is not surprising that many scholars focus on human impacts rather than environmental concerns. Does there need to be a focus on one over the other? Many see the environmental impacts of armed conflicts as essentially peripheral to humanitarian concerns, but in actuality these concerns are very linked (Goble 2010).

There are several schools of thought on how these two approaches can interlink. Some suggest that there is a natural precedence set on protection of humans and human interests, and that environmental concerns can be protected as a secondary concern where this will also impact on human interests. This approach argues that the immediate focus of relief and protections must be on human victims of wartime abuses and largely implies the environment is only of concern in so far as it is of benefit to humans. Others argue that it is incorrect to conceptualize ‘environmental war crimes’ as something conceptually distinct from claims about ‘humaneness’ and crimes against humanity in armed conflicts.

Leebaw (2014) argues that this leads to the concept of environmental war crimes being explicitly or implicitly questioned in respect of how to weigh up the importance of protecting humans against the relative importance of preventing environmental degradation. Scholars following this suggestion propose an alternative framework suggesting that the focus should be on how the relationship between ‘humaneness’ and nature are formulated in international law and international norms. This approach therefore rejects the explicitly anthropocentric approach for a middle ground – the idea that humanity and the natural environment are symbiotically inter-linked, and more value is given to the environment. While moving away from the traditionally human-centered approach, this framing still opens itself to criticisms of being somewhat anthropocentric in that it is still focusing on how the environment is useful or natural resources are vital to human survival.

There are few legal scholars that suggest a strong or exclusively ecocentric approach or argue for affording the environment rights outside of its value to humans, although more often in modern legal scholarship now are theories of environmental rights being raised (Falk 2000; Leebaw 2014). Fundamentally the question of affording the environment protections in its own right comes across issues of context-dependent and subjective valuations and cultural differences.

There are many ongoing and historical debates about the value and meaning of nature. For example, an army that is carrying out military attacks on foreign and distant soil may be less likely to be concerned about environmental harm; they may view the territory as enemy or as unimportant (Thomas 2013). An exception to this is presented when the invading forces are interested in the territory or value of natural resources, in which case they may assign more value to the desired asset and use more care. Now, in the emerging field of environmental political theory, scholars have sought to highlight a concern related to the Frankfurt School; they seek to examine how mechanisms for justifying domination of nature have become implicated in mechanisms for dominating human beings. Others have argued that the logic of environmental protection can be used in some cases to justify displacement or hide exploitation and racism. For example, in some settings of national parks or protected areas that have been traditionally used by marginalized or minority

groups (Leebaw 2014). In these cases, researchers and advocates challenged ‘ahistorical’ or ‘romanticised’ notions of nature that compel certain environmentalist approaches (Leebaw 2014, p.771).

In early debates, as well as in contemporary interpretations of IHL, a popular approach to viewing destruction of the environment during armed conflicts has been to evaluate it in relation to property protection claims (as is seen reflected in the ICRC 2020 Guidelines alongside earlier IHL treaty provisions such as in the Geneva Conventions and Hague Regulations). In this respect, one of the main approaches to protections is defined in relationship to human dominion, ownership and control of nature.

This has historically been the main approach to analysing environmental damage during wartime. In the classic legal text, *The Law of War and Peace*, Grotius observes that ‘we may find in History, almost in every Page . . . whole Cities destroyed, or their Walls thrown down to the Ground, Lands ravaged, and every Thing set on fire.’ (Grotius as in Leebaw 2014, p.772). Grotius evaluates legitimacy of this kind of destruction in relation to how enemy property should be treated under armed conflicts. He argues that prior to explicit private property claims, all of humanity had a weak claim to ownership of what exists in the natural world as ‘almighty God at the creation gave to Mankind in general a Dominion over Things of this inferior world’ (Grotius as in Leebaw 2014, p.772).

In this formulation, destruction of the environment is held under the question of the legitimacy of destroying enemy property. In Grotius’ formulation, he expounds that if it is legitimate to kill the enemy, it must be legitimate also to destroy the belongings and property of the enemy. He qualifies this position, later arguing that these destructions can be legitimate for three reasons: ‘in cases where the original property right has been deemed illegitimate, as when “one throws a sword into the river to prevent a madman from using it”; to satisfy a debt that has gone unpaid; and to destroy a country in order to punish cruelty or aggression’ (Grotius as in Leebaw 2014, p.773).

In other situations, combatants should only take those resources that are necessary to take a strategic advantage in battle. Following Polybius, he suggests that it would be an ‘act of [extrem] Madness to destroy those Things, which by being destroyed do not weaken the Enemy, nor advantage the Destroyer’ (Grotius as in Leebaw 2014, p.772).

In some cases, it has been argued that nature is classified or viewed as a combatant or anthropomorphized threat. For example, during the Vietnam war, many viewed the thick foliage and jungle landscapes as something aiding the enemy, and a legitimate target. Fred Anderson of the US Army War College was a proponent of herbicidal warfare, arguing that defoliation in Vietnam had led to reduced casualty rates, revealed enemy ambush positions, and allowed the US armed forces to destroy food supplies of the enemy. He characterized these as 'high on the scale for humaneness' in comparison to most weapons of war. (Leebaw 2014, p.54). In this sense, the relationship between humans and nature is presented as not just one of separation, but of untamed nature as threat to humans.

Rachel Carson (2002) challenged the way humanity views damage to the environment in relation to time. The argument here is that we can only anticipate and appreciate our relationship with nature by looking to the past, but also looking to the environmental effects of today's actions that will be inherited by future generations. Increasingly, as science and technology advances, we are becoming more aware of the potential impacts even seemingly inconsequential actions now can have. Even with modern advances, we are still not able to understand many complex chains of causation in nature and in different natural contexts and biomes.

Recognising that 'all warfare is detrimental to health and the environment' and that environmental devastation is an 'inevitable byproduct' of wartime tactics, Falk (1973, p.84) called for a new law that would criminalise 'ecocide'. These being: 'acts, committed with intent to destroy, in whole or in part, a human ecosystem' (Falk 1973, p.84). Another of Falk's (1973, p.84) proposed draft protocols prohibited environmental warfare that 'disrupts the ecological basis of life on earth'. However, Falk (1973) ultimately concluded that IHL is too fundamentally anthropocentric to allow for meaningful ecocentric reforms. Falk and others challenged the concept of 'humaneness' that is the basis for IHL as being grounded in control over nature, consumption and use, and argued that this concept should be reframed so that our concern for the environment should be an extension of our concern for ourselves (Falk 1973; Galston 1967).

Many of the existing rules of IHL are based on older ideas of 'just war' that have been characterized as being Eurocentric. Some critics argue that this means these provisions are

not relevant to the non-Western world and represent colonial empires and attitudes. As well as the norms and ideas of just war being Eurocentric, the law-making processes of international law are also criticized as Eurocentric and lack authority in other regions and cultures (Falk 2000). These criticisms have been used to try and explain the absence of some states from key treaties, and lack of compliance.

After the Cold War, both IHL and IEL have expanded considerably. In the 1992 Convention on Biological Diversity, the goal of conserving biological diversity is seen to have 'intrinsic value' as well as value to 'educational, scientific, and recreational purposes'. This recognition of the intrinsic value of biodiversity falls in line with new theoretical movements and critiques of anthropocentrism articulated by a range of scholars, theorists and ethicists. For example, the 'Deep Ecology' as outlined by Arne Næss (1973, p.95) pointed out and rejected the 'shallow' focus of environmentalism on pollution in affluent areas and tunnel vision on human impacts and argued for extending 'the right to live and blossom' beyond the human context and to other forms of life. Philosopher Goodpaster (1978, p.309, 325) also argued against the case for restricting 'moral considerability' to 'sentient or rational human beings' and argued for the extension of moral standing to encompass the more general 'condition of being alive'. These theorists work to advance a common enterprise to expand the concept of moral worth beyond just humans. They look to expand this concept to include the non-human environment.

However, these concepts have not yet been accepted into the legal and policy fields and are not reflected in the current provisions of IHL. Most of the provisions in IHL are in response to providing protection for wartime abuses and victimization of vulnerable persons. Even the ICRC, widely regarded as the gatekeeper and protector of IHL, has its efforts measured by reference to humanitarian criteria (Falk 2000). If increasing environmental protections results in the exposure of groups, combatant or civilian, to increased risk, it would be inconsistent with the spirit of IHL. This is one of the major arguments levelled against environmental protections – in particular by military commanders who argue the necessity to take actions in order to protect their soldiers. Environmental protections are now explicitly included in IHL at least to some extent. However, there is still a problematic relationship between the goals of insulating society

from wartime abuses and upholding environmental protections. This can be seen in the permissible derogations and justifications of military necessity and proportionality.

Stone (2000) raises the question to what extent is it a viable undertaking to entrench more powerful environmental protections in IHL? Should this effort be viewed as a largely fruitless and ineffectual exercise that has no real expectation of altering belligerent behaviour? Some critics point out the difficulties and fragility of IHL in general and the issue surrounding enforcement where states are the subject of regulations. In this international playing field, political and economic factors and relationships between states play a huge part in creating outcomes. Admiral Elmo Russell Zumwalt, Jr., a renowned and ethically sensitive military leader, argues that military commanders will throw legal considerations aside if likely to hinder the pursuit of their assigned mission. He argues that these priorities and practices in armed conflict have been consistently endorsed by political leaders. He suggests that these leaders have a tendency to defer to the military on their choice of tactics and weaponry, as long as they 'remain within the parameters set as war goals' (Zumwalt Jr. in Falk 2000, p.142).

Many policymakers are considered to be realists in terms of the relevance of law to armed conflict. Realism suggests that national interest prevail over any other contrary considerations. This leads to the assumption that law should be ignored if abiding by it would interfere with military objectives that would benefit the nation state.

International law requires the consent of states to come into being and often suffers from problems with enforcement as there is a lack of 'policing' institutions above state level. States are unlikely to consent to rules that hinder them unless they gain something by doing so. For example, many states adhere to IHL rules on treatment of civilians and combatants because it assures them reciprocity in other assenting parties. For environmental rules to be applied and accepted in the same way, there must be a largescale acceptance that environmental concerns are important. In other words, it requires political will and an acceptance or change of prevailing norms. In many new provisions in IEL, the environment is framed as being a 'victim' or potential victim of war crimes. Some have argued that this could be the result of developing norms and ethics that govern warfare and peacetime (Falk 2000).

It could be argued that it would be a mistake to try to prioritize the protection of the environment over other issues relating to the conduct of military operations. Environmental considerations often have to take their place alongside other factors, including the saving of the lives of both soldiers and civilians. Roberts (2008) argues that the most important thing is to develop a legal and institutional framework in which environmental factors are represented and considered. However, in the current legal framework, even if institutions were created to apply current norms and rules that regulate environmental damage, they would find these lacking teeth (Bruch 2000). Schmitt identifies why the norms are substantially flawed including: vagueness in their terms and provisions; cultural, temporal, conceptual, and contextual differences in placing values on the competing interests; gaps in the normative structure; competing anthropocentric and environmental interests; and a lack of knowledge about environmental effects in making normative, targeting, or valuation decisions (Schmitt 1999). Falk (2000) additionally criticizes the existing norms for not allowing ‘reasonable implementation’ during wartime, for arbitrary enforcement leading to victors’ justice and for being of an incidental character.

2.4. The Scope of this Thesis

This thesis focuses more specifically on some of the areas that have been identified in the literature as hard to apply in practice, or the ‘grey areas’ of applicability. In particular, the focus is on the determination of proportionality and military necessity – both tests that have been identified as lacking clarity and enforceability. This thesis also looks at the explicit provisions of IHL relating to environmental protection, and the underlying rationale behind these. These are areas that have been widely highlighted as potentially weak or problematic areas of the legal regime. While there has been some theoretical and jurisprudential research into these areas and their potential shortcomings, this thesis aims to add a more contextualized approach to this by holding the legal framework up to a real-world case study to examine applicability and shortfalls in enforceability. Here there is also be an examination of the enactment of these regimes, and the rationale behind them.

The scope of this thesis is limited to those conflicts classified as IACs and the IHL rules that apply in these cases. While the legal rules covering NIACs are also potentially

problematic, and many NIACs do present significant risks of long-term environmental damage, it is more difficult to gather data from these conflicts due to the destructive and often politically hidden nature of these conflicts. NIACs are internal conflicts within a state's territory and often there is no oversight on the consequences of these by other parties. Where an internal conflict is occurring, it is often the case that no environmental data or information is gathered. This is also a potential issue in IACs, but these tend to garner the attention of more state parties and more NGOs and IGOs. This research focuses more in depth on specific problematic areas of IHL that have been identified as presenting the biggest obstacle to effective enforcement on an international level. The focus of this thesis is therefore on IACs, although where relevant NIACs may be mentioned also.

2.5. Aims and objectives:

This thesis aims to examine what legal provisions exist to protect the environment during international armed conflicts under the international humanitarian law regime, how effective these provisions are in practice and their limitations. The thesis will specifically focus on the legal rules in API as the only provisions expressly protecting the environment, and on the general principles as potentially providing indirect protection.

The central research question is 'is the environment adequately protected by existing IHL rules during international armed conflicts?' Secondary questions relate to why IHL provisions exist in their current form, notable weaknesses in these rules, and how they would be applied in the case of a specific international armed conflict situation in their current iteration.

Objectives:

- Review what legal provisions within IHL are relevant to the protection of the environment during international armed conflict
- Analyse the scope and applicability of specific environmental provisions and the general principles
- Determine where there are lacunae in the existing provisions with reference to the case study scenarios

- Identify weaknesses in the current regime and look at the background and rationale of these provisions
- Using the case study of the Afghanistan international armed conflicts, evaluate how the relevant provisions and principles would have been applied in their current form and difficulties in practical application
- Appraise the adequacy of existing IHL legal rules relating to environmental protection

3. Methodology

3.1. Research methods

This research is based on a combination of legal research methods and approaches. The thesis is grounded in legal texts, cases and statutes as well as case study data gathered from other bodies. This thesis focuses on traditional doctrinal legal research, but also incorporate non-traditional, interdisciplinary methods through case study analysis. Including interdisciplinary methods as well as traditional legal research broadens the legal discourse in terms of conceptual and theoretical frameworks.

When carrying out legal research, it is important to understand the difference between ‘law in books’ and ‘law in action’, as well as the actual operation of law in society. Much legal research has been concerned with more abstract questions about what law is, philosophical questions about the nature of law, or specific applications of legal text and statute. This thesis is concerned with understanding not just the technical and black letter operation of IHL, but also the real-world implications and applications of the law, the effects of the legal rules on the international society and protection of the interests of states and the public.

3.1.1. Doctrinal Legal Research

When looking at legal research methods, a lot of focus is naturally given to doctrinal legal research or ‘black letter’ research methodology. The law is often seen as a sum of primary written sources such as statutes, cases, or regulations. Black letter analysis aims to gather these sources to describe the law by providing commentary on the sources and analysing what the ‘letter of the law’ prescribes. Doctrinal research can be useful in identifying and describing how sources of law are connected and how underlying themes, systems and rules of law are implemented.

This method is most useful when researching bodies of law that are largely governed by written, black letter, law. For example, when looking at contract law, or property law

which are largely based upon black letter law. Under this type of analysis, a critical, qualitative analysis of legal materials are carried out in order to support a hypothesis; the researcher identifies specific legal rules and then looks into the legal meaning of the rule, the underlying principle and decision making that has been carried out under this rule. The researcher also identifies any potential ambiguities of the law in theory or in practice and any criticisms of the law. Often this methodology is used to generate ‘solutions’ or suggestions to overcome perceived weaknesses in the legal rule. Doctrinal research will most often include sources such as the rule itself, cases decided and generated under the rule, the legislative history and the literature on the rule.

Doctrinal legal research is a large part of the research that composes this thesis but is not the sole methodology. This research was focused on the black letter law of API and of the other written instruments relevant to the environmental protection within IHL. This black letter law is not drafted and formulated in a vacuum and in this respect, examining the letter of the legal rules gives a background on why and how they were formulated and brought into force in the form in which they exist today. Research into how the laws have been applied will also show how they have not lead to the creation of a coherent body of law in application and enforcement.

This text focuses on specific areas of the IHL regime relevant to the protection of the environment during armed conflict. In particular, the research focused on the provisions of API and the general principles of IHL and the balance of proportionality and test of military necessity. Doctrinal research is be used to identify and establish the relevant provisions and background of these, written provisions, legislative history, and surrounding literature.

3.1.2. Comparative legal research

The comparative legal research method is based upon critical analysis of different bodies of law and an examination of how a legal issue could have a different outcome under each set of laws. Comparisons can be made between jurisdictions or between time periods. This research draws upon the comparative legal research theory in terms of drawing

comparisons between the application of international humanitarian law in different country contexts, and between effectiveness of protections in different historical periods. This method can help to determine best practice and identify potential issues and solutions. The comparative method is useful as a critical analytical tool to narrow down and distinguish particular features of a legal rule by showing it in different contexts.

In this research, the focus was on public international law – the law of states. Comparison of how these legal provisions have been approached, formulated and adopted between different states and the international community will highlight the underlying rationale and purpose behind the adoption and implementation of these legal rules.

3.1.3. Case Study Approach

This research used Afghanistan as a case study and as a way to illustrate the practical impact of the legal rules in focus through the use of theoretical scenarios and analysis of the legal rules in context. While the doctrinal method also looks into the application and legislative history of rules, in this case where there is a distinct lack of applications, a case study approach can be utilized as a way of examining potential real-world hurdles and functionality of the rules.

A case study approach moves away from the strictly legal research methods and incorporates some aspects of interdisciplinary research methods. The idea underlying the inclusion of a case study is that analysis of black letter law and comparative analysis cannot necessarily highlight weaknesses of the law in practice when there is a dearth of cases and jurisprudence to turn to. Here, when looking at environmental protections and provisions in IHL, there is a lack of cases and enforcement of these legal rules and thus looking at the rules in reference to a real-world context and working with contextualized theoretical scenarios can help shed light on the law.

Gathering data on environmental consequences of war in an active warzone, or even in a country recovering from an armed conflict, presents many challenges. In many instances of armed conflict there may be no data on environmental standards before the war, or records may be destroyed. In the case of Afghanistan decades of wars reduced the capacity to carry

out these kinds of environmental impact assessments and government bodies were effectively destroyed. In this sense, while a case study approach can be useful, it presents difficulties in terms of accessing reliable data.

3.2. Data collection

I started the data collection process for this thesis by looking at the recognized expert bodies in the field of IHL. This led me to the ICRC webpages and casebook. Here there was a large amount of information regarding the general principles and the specific treaties and cases relevant to this field. I searched within the ICRC online archives to find those provisions and pages relevant to environmental protection. Here I found more information about the framework for this specific area within IHL and the Geneva Convention and Hague Convention provisions.

I used the ICRC online resources to read and identify relevant provisions from the Geneva Convention API and APII along with other black letter law. Here I also identified useful passages from the commentaries to the API for my analysis. I also used the ICRC to find relevant case law and to find more information about the IHL general principles and where these are codified in law.

The ICRC is a reliable resource as it works as the guardian of IHL. This role is one that it has undertaken since the beginning of IHL and this is now entrenched and formally recognized in the Statutes of the International Red Cross and Red Crescent Movement. Article 5 of the Statutes states that the role of the ICRC is ‘to undertake the tasks incumbent upon it under the Geneva Conventions, to work for the faithful application of international humanitarian law applicable in armed conflicts and to take cognizance of any complaints based on alleged breaches of that law’ and that it will ‘work for the understanding and dissemination of knowledge of international humanitarian law applicable in armed conflicts and to prepare any development thereof’.

From these resources I was able to develop an outline framework of the applicable laws that would set the background for my analysis. These documents laid the foundations for the doctrinal legal outline and analysis.

I also searched for relevant materials from NGOs and governmental bodies that I had identified as being relevant in this area. This included the United Nations, which led me to the United Nations Environment Programme where there is a comprehensive report on IHL and the environment as well as a study on environmental impacts of war in Afghanistan. I decided to include these documents as the UN is a reliable source. I also sourced other articles and research documents from those used in the UNEP reports. Where using these other documents, I undertook searches on where these came from, the standing of journals and ensured these were peer reviewed.

I also searched for documents relating to environmental impact and policy from the Afghanistan government and NGOs operating in Afghanistan. Here I found some results, but there was a lack of updated or comprehensive studies carried out by the Afghanistan government or NGOs in that area. The documents that I found provided some insight into trends generally in the environment in Afghanistan and some background on Afghanistan's environmental law. These documents provided information on the state and the impacts of war on the environment. There is a lack of consistent data in this area, but this can be largely ascribed to the subject nature and the conditions of research during armed conflicts. The lack of substantive data can also point to a lack of focused interest in this specific area.

After this I undertook a search on the ORIA library system and other databases for keywords including 'environment', 'international humanitarian law', 'armed conflict', 'law of war', and afterwards the same keywords combined with 'Afghanistan'. This returned a number of results including books and articles. I looked at a number of these books and articles. I initially selected around 40 that were relevant to the topic of my research. Some of these were related to

environmental protection during armed conflict, some to Afghanistan directly, and some to the general IHL provisions. Those articles that I chose to include were those from reputable sources. I also identified a number of ‘key’ texts that were repeatedly referenced throughout most of the books and articles, including texts by Richard Falk and texts on the development of IHL by Grotius. I included these texts in my analysis as they build the foundation of existing IHL and environmental analysis.

Overall, I selected a number of documents to include in my analysis. This covers black letter legal documents such as international treaties, soft law, case law, UNGA resolutions, ICJ decisions, reports from influential and reputable NGOs and organisations, the Afghanistan government, the ICRC, and legal scholars and researchers.

4. The Legal Framework

The existing international legal framework contains several provisions that directly or indirectly relate to environmental protection and the use of natural resources during periods of armed conflict. These can be found in four main bodies of law: International Humanitarian Law (IHL), International Criminal Law (ICL), International Environmental Law (IEL), and Human Rights Law (HRL). While there are relevant principles, provisions, customary law and soft law in these four, IHL contains the most directly applicable provisions aimed at armed conflict and is the *lex specialis* governing armed conflict situations. For this reason, IHL will be the focus, with other bodies of law brought in as relevant.

In practice, provisions have not been effectively implemented or enforced. The drafting and adoption of provisions related to environmental protection show that the international community has sought to hold states accountable for damages caused during armed conflicts. There have not been many cases where provisions have been tested in reality. One exception to this is the ruling that Iraq was accountable for damages caused during the Gulf War which included compensation for environmental damage.

This chapter examines the legal framework applicable to environmental protection during armed conflicts.

4.1. International Humanitarian Law

There are several different types of law that contain provisions relevant to the environment within IHL. These are treaty law, general principles of IHL, customary international law (CIL), soft law, and case law.

While there are many areas of IHL that may be relevant or indirectly capable of being used to protect the environment, very few principles of IHL address the environment directly. Many treaties that make up IHL were drafted and entered into force before concerns about environmental damage became widespread in the international community. Concern

regarding potential long-lasting effects of armed conflict on the environment started to surface after the Vietnam and Gulf wars, with the first direct mention of the environment coming into IHL treaties after the Vietnam War. Very few provisions directly address the environment, and other protections are generally inferred from other provisions that regulate the means and methods of warfare or protections for civilian objects and properties (UNEP 2003).

4.1.1. Treaty Law that Directly Addresses the Environment

Treaty law has three main categories as it relates to environmental protection: treaty provisions that directly address the environment, the general principles of IHL applicable, and treaty provisions that can be seen to offer some indirect protection.

These Treaty provisions are only applicable to states that are party to them - except for where the provisions are recognized as having achieved the status of customary international law as these are general provisions that bind all states.

(a) Additional Protocol I to the 1949 Geneva Conventions 1977

The two main treaty provisions of IHL relevant here can be found in Additional Protocol I (API) to the 1949 Geneva Conventions (1977) in Article 35(3) and Article 55(1). The negotiation, drafting and addition of these two articles happened in the aftermath of the Vietnam War and other wars of national liberation. These conflicts, and especially the Vietnam War, raised awareness and questions about damages inflicted upon both the environment and civilian populations during warfare. This time period was also one of a growing environmental awareness and concern generally in many states. The concern over the consequences of tactics used in Vietnam led to the inclusion of these two articles in API; the first two provisions in IHL to explicitly address the environment and environmental harm.

The 1987 commentary to Article 55 (p.662) notes that this article along with Article 35 was a 'new feature', going on to note that 'respect for the environment, even in peacetime,

has only recently become a matter of concern’ but that ‘today it is foremost in the conscience of nations’.

Article 35 is on basic rules on the means and methods of warfare and 35(3) states that:

3. It is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.

This was the first article in IHL to protect the environment per se. It applies to direct and collateral damages and contains no requirement for specific intent to be required, only foreseeability.

Article 55 provides protection for the environment in the context of protection given to civilian objects. It states:

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

Both of these articles share the triple standard of ‘widespread, long-term and severe damage to the natural environment’. Initially, the scope of protection offered by these two provisions seem comprehensive, but there are questions surrounding the threshold at which an activity would be in breach of these articles. The triple standard is a cumulative one, which means that all three must be met in order for an action to violate the law. To qualify as damage the outcome must be long-term, widespread and severe – and there is a lack of clarity over the meaning of each of these criteria.

These three criteria are not defined within API, leading to uncertainty about the exact applicability of the two articles. Commentary on API has noted that the standards seem to be set high enough that they do not impose any significant limitation on conventional

warfare but would be limited to unconventional tactics such as widespread use of chemical agents (API Commentary). The protection offered by these provisions thus seems limited in practice.

(b) UN Convention on the Prohibition of Military or Any Other Use of Environmental Modification Techniques (ENMOD) (1976)

The ENMOD Convention was also established in the aftermath of the Vietnam War. The objective of this convention was to prohibit the use of environmental modification techniques as a means of warfare.

Article 1 of ENMOD requires that each party to the convention, ‘undertakes not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party’. ENMOD thus seeks to prohibit the use of techniques aiming to use the environment as a weapon.

ENMOD also has almost the same wording as API in terms of the threshold of damage, requiring ‘widespread, long-term or severe’ effects. This is a lower standard than the cumulative one used in API. Additionally, while the terms in API have no definite interpretations, the terms in ENMOD are defined. Therefore under ENMOD, long lasting damage is counted as a period of months or a season. Under API it has been suggested that long lasting refers to a period of decades.

ENMOD presents a much lower threshold of damage. It was drafted and entered into force before API, and the terms ‘widespread, long-lasting and severe’ were discussed and defined. The fact that API shares almost the same standard but rejects the same interpretation and sets the threshold much higher is therefore a deliberate choice.

(c) The Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have

Indiscriminate Effects (CCW) and its Protocol III on Prohibitions or Restrictions on the Use of Incendiary Weapons (1980)

The CCW contains in its preamble a prohibition on employing ‘methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment’. This is the same standard as adopted in API and ENMOD. This therefore seems to be the widely accepted standard in IHL for analysing the impact of environmental damage. Here the cumulative standard was adopted again, moving away from the ENMOD definition.

Article 2(4) of the CCW Protocol III also addresses environmental protection directly as it prohibits the making of:

‘forests or other kinds of plant cover the subject of an attack by incendiary weapons except when such natural elements are used to cover, conceal, or camouflage combatants or other military objectives, or are themselves military objectives’.

This addresses the environment directly but allows a lot of space for military necessity justifications to make attacks legitimate.

4.1.2. Treaty Law that Indirectly Protects the Environment

As well as the few provisions directly addressing the environment, there are also several instruments that can provide indirect protection by limiting or prohibiting certain weapons and methods of warfare, by protecting civilian objects and property, by protecting cultural heritage, and placing limitations on certain areas.

Some examples of these are outlined here:

(a) The Hague Convention IV (1907)

The provisions of this treaty that regulate the means and methods of warfare are very relevant to both human protection and environmental protections. Article 22 of this convention states that ‘the right of belligerents to adopt means of injuring the enemy is not

unlimited'. This is one of the most significant provisions in the convention and implies a precautionary imperative.

While the Hague Conventions have not been enforced much in international judicial bodies, they are undoubtedly an influential source of law and principle. Article 22 along with the Martens Clause could also be very relevant in terms of new weapons that are not strictly prohibited yet. This is also covered in Article 36 of API.

(b) Treaties relating to the protection of civilian objects and property.

Those provisions relevant to the protection of civilian objects and property could provide a legal basis for protection of the environment during armed conflict. Some have argued that these indirect provisions may in fact provide more effective protection than the provisions that protect the environment per se under the existing framework.

The Hague Regulations (1907) states that it is prohibited to, 'destroy or seize the enemy's property, unless such destruction or seizure be imperatively demanded by the necessities of war'. Enemy property could be interpreted to include the environment, natural resources, and environmental goods.

The Geneva Convention IV (1949) concerns the treatment of civilians and civilian property during warfare and occupation. It declares that non-combatants are protected and that their lives and livelihoods should be kept safe. Where the environment is considered to be civilian property it could thus be protected under this provision and thus destruction of the environment and natural resources would be a grave breach of the convention unless justified by military necessity.

API also provides protection for civilian objects against the effects of hostilities in Article 48. It states that 'in order to ensure respect for and protection of the civilian population and civilian objects, the Parties to the conflict shall at all times distinguish between the civilian population and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives'. This is an iteration of the principle of distinction. Article 54(2) also prohibits attacks against objects

that are ‘indispensable to the survival’ of the population. Article 54(3)(b) applies protections even when farmlands and foodstuffs are used to directly support military action if the destruction of them could cause starvation or forced relocation. This also precludes scorched earth policies.

4.1.3. General Provisions of IHL

The general principles of IHL underpin all IHL instrumental and apply to all countries. They are often related to as a source of law in themselves. One of the foundational bases of the provisions and of their wide application is found in the Martens Clause; a provision adopted in the preamble of the Hague Convention IV (1907) after discussion at the 1899 Hague Conference.

The Martens Clause broadens the applicable norms that govern armed conflict, allowing for limitations beyond those laid out in treaty law. The Martens Clause states that:

‘Until a more complete code of the laws of war has been issued, the high contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience.’

It essentially allows for gaps in treaty and codified laws to be filled as necessary according to the principles of the law of nations developed from common usage, the laws of humanity and dictates of public conscience. This could be very relevant when there are gaps in the international framework – for example in armed conflict and the environment. It sets a minimum standard for behaviour by states based on common standards of humanity and public conscience. The Martens Clause is a core part of IHL. It offers a means of protection where needed in the absence of specific treaty or customary law. It is seen to be customary law alongside the general principles (ICRC 2020).

The general principles of IHL are distinction, military necessity, proportionality, and humanity. All of these can be seen as relevant to the environment. While they are generally accepted, there is a lack of agreement on how they apply in specific cases. There is some jurisprudence on this in international law, but it still remains for judicial bodies and policy makers to clarify the real limits of these principles in practice.

(a) The Principle of Distinction

The principle of distinction relates to the requirement to distinguish between military and civilian persons and objects. It prohibits indiscriminate attacks and direct attacks on civilian objects.

Military objectives are defined in Article 52(2) of API as those that by ‘nature, location, purpose or use’ make an effective contribution to military action and whose ‘total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage’. Therefore, is it prohibited to attack environmentally significant sites and protected areas where they do not qualify as military objectives. However, this can prove difficult to apply in practice with many grey areas during active warfare. It is not clearly defined what constitutes definite or direct military advantage. For example, if a forest is being illegally exploited by enemy combatants for resources, would it offer a definite military advantage to attack this? Would this be an acceptable target if it was considered that exploiting the resource was giving the enemy troops resources or revenue that contributed to their war effort? Or would this be too much of an indirect advantage to qualify?

(b) The Principle of Military Necessity

This principle provides that the use of military force is justified only so far as it is necessary to achieve a military objective or purpose. This principle is reflected in the Hague Convention IV (1907) Article 23(g) where it states that it is forbidden to destroy or seize enemy property unless demanded by the ‘necessities of war’.

This principle can be relevant to environmental protection and provide indirect protection. Combatants are limited in their use of military force and must have a purpose behind action.

(c) The Principle of Proportionality

This principle prohibits attacks against military objectives that are ‘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’. It requires that the means and methods used must not be disproportionate to whatever military advantage is sought – it must not cause disproportionate collateral damages.

This provides indirect protection for the environment where it is seen as a civilian object. In many cases the uncertain extent and lasting effects of environmental damage may be seen as disproportionate and thus a violation of this principle.

(b) The Principle of Humanity

This principle prohibits the infliction of unnecessary suffering, injury, or destruction. This prohibits tactics such as the use of starvation, or removal of objects needed for human survival such as water wells.

4.1.4. Customary International Humanitarian Law

The General Principles of IHL are elements of customary international law (CIL). These principles underpin various international humanitarian legal instruments, and they apply to all states except for those that have persistently objected to them.

With CIL, even where states have not become party to treaties, where those treaty provisions are recognized to have achieved the status of CIL, they are applicable to all states except for persistent objectors.

As the general principles and the Martens Clause represent CIL, action that results in environmental destruction that is directed at non-military objectives, is inhumane, is disproportionate, or that does not serve a military purpose, could be a breach of international law - even where there are no specific rules addressing them.

The grave breaches of IHL defined in the 1949 Geneva Conventions and API are also considered CIL. These breaches include the 'extensive destruction of property, not justified by military necessity', and 'launching of an indiscriminate attack affecting civilian objects in the knowledge that such attack will cause excessive damage to civilian objects'. The 1949 Geneva Conventions have been universally ratified but the API and APII have not been. Many states are not party to the additional protocols and they have therefore not been applicable in some recent international conflicts. It is under debate to what extent they can be said to have achieved the status of CIL.

In 2005, the International Committee of the Red Cross (ICRC) set out a multi-volume explanation of customary IHL. It discusses 161 rules that the ICRC suggest to represent customary international law. As the ICRC is such an important body in IHL, these can be given a lot of credibility as representing CIL.

Three of the rules set out relate to natural resources and highlight the implications of the general principles for environmental protection. These are rules 43, 44, and 45. Rule 43 states that the general principles on the conduct of hostilities apply to the natural environment, including that: no part of the natural environment may be attacked, unless it is a military objective, destruction of any part of the natural environment is prohibited, unless required by imperative military necessity, and launching an attack against a military objective which may be expected to cause excessive damage in relation to the concrete and direct military advantage anticipated is prohibited. Rule 44 states that methods and means of warfare must be employed with due regard to protection and preservation of the natural environment. This means that in military operations, all feasible precautions must be taken to avoid and minimize incidental damage to the environment. It also states that 'lack of scientific certainty as to the effects on the environment of certain military operations does not absolve a party to the conflict from taking such precautions'. This could be important when looking at foreseeability and causation and what is required. Rule 45 states that the

use of methods or means of warfare that are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment are prohibited and that destruction of the natural environment may not be used as a weapon.

These rules articulate the general principles and extend upon how they apply to the natural environment. They also incorporate a precautionary approach to environmental damage that could be key considering scientific uncertainty over the extent of effects on different environments.

4.1.5. Soft Law

Soft law includes those instruments that are not legally binding or have weak binding force but are persuasive. Examples include Resolutions and Declarations of the UN General Assembly, principles, codes of practice, action plans, and other non-treaty obligations.

(a) UN General Assembly (UNGA) Resolutions

UNGA Resolutions can be influential on international law and the conduct of states. There are several UNGA resolutions that can be relevant to the protection of the environment during armed conflict.

UNGA Resolution 47/37 (9 February 1993) states in its preamble that ‘destruction of the environment, not justified by military necessity and carried out wantonly is clearly contrary to existing international law’. This resolution also highlighted concerns over the current international legal framework and how its provisions are applied, saying that they ‘may not be widely disseminated and applied’. The resolution doesn’t identify specific gaps in the framework but suggests that states take all measures to comply with existing law, such as becoming party to treaties and applying the relevant provisions into military manuals. This suggestion for states to incorporate the provisions into military manuals was repeated in UNGA Resolution 49/50 (17 February 1995).

4.1.6. Case Law

Case law is usually a useful way for legal provisions to be tested and applied in real world situations, for treaty law to be interpreted, and for customary law to be recognized and discussed. Cases often reveal gaps and weak spots in international legal instruments and allow these to be filled. Cases addressing the responsibility and liability of states for IHL violations have typically been rare. There have therefore been few interpretations by judicial bodies of the provisions of IHL relating to environmental protection.

While the environmental provisions in API have not been directly applied in case law, there are some international cases that provide some insight and guidance on the protection of the environment during armed conflict. These include the *ICJ Advisory Opinion on Nuclear Weapons (1996)*, *ICTY Decision on Yugoslavia v. NATO (1999)*, and the *ICJ Decision on Armed Activities on the Territory of the Congo (DRC v. Uganda) (2005)*. The ICJ's decisions are only binding on the parties to the dispute, but they nevertheless constitute persuasive evidence of international norms.

4.2. International Criminal Law

International criminal law (ICL) is a body of law that deals with cases in which individuals incur international criminal responsibility. Whereas IHL deals with state responsibility for violations of international obligations, ICL can be seen to be a subset that adjudicates individual liability for breaches.

ICL contains several instruments relevant to the protection of the environment. This includes the grave breaches of IHL, the provisions of the Rome Statute, and case law of the International Criminal Court that is relevant to environmental protection, including the ICC prosecutor's Application for a Warrant of Arrest against President Omar Al-Bashir of Sudan. In that case, the ICC explored the possibility of using environmental damages as an underlying act of an international crime.

ICL deals with individual criminal responsibility. This could be a useful avenue to consider when looking at environmental damages. The Rome Statute classifies the environment as a

potential victim of genocide. From this it can be seen that more explicit attention is being paid to environmental damage during warfare, but as yet no cases based on this have been taken. Environmental damage has only been brought up in relation to other grave breaches, not as a specific violation. Having the possibility of individual responsibility for damages that breach international law could be a deterrent for state leaders and military personnel to ignore precautions and guidance. If there is a risk of being held accountable for actions taken during warfare, it may be one method of ensuring that provisions are not ignored.

4.3. International Environmental Law

International Environmental Law (IEL) provides an international legal framework for environmental protection and responsibility during times of peace. There is a large and growing body of IEL that provides a range of protective provisions and principles. The question here is to what extent this body of IEL may apply for damage occurring during armed conflicts. There has been some debate on how far IEL may apply during armed conflict. As the *lex specialis*, IHL applies during war, but does this necessarily exclude IEL protections from being in effect?

It has become the generally accepted viewpoint that there are areas where IHL and IEL overlap and that there are times when both the law of war and some peacetime laws apply simultaneously. Some IEL agreements explicitly mention that they continue to be in effect during times of war. For example, the Convention Concerning the Protection of the World Cultural and Natural Heritage (1972) that recognizes the duty to identify and safeguard certain places that constitute part of the heritage of humankind states that the ‘outbreak or the threat of an armed conflict’ can place a property on the World Heritage in Danger List. The fact that this provision can be specifically triggered by armed conflict shows that the Convention continues to apply during hostilities. It is also now becoming more accepted that other agreements that don’t say this could also be applicable.

Many principles and soft law instruments of IEL contain principles directly addressing the environment during armed conflict. However, the frameworks are not legally binding unless they rise to the status of CIL. Although debated, many now argue that the

precautionary principle, the principle of pollution prevention and the right to a healthy environment are, or have become, CIL. Principles from IEL that have become widely accepted may also be relevant to the protection of the environment during armed conflict even where not directly dealing with the subject matter of war. For example, the Trail Smelter case and the duty to prevent harmful transboundary air emissions and liability for any damages from such emissions. The fundamental property right of *sic utere tuo ut alienum non laedas* – that one must use one’s property in such a way as not to cause harm to that of another – may be relevant when looking at environmental damages that have transboundary impacts, or uncertainty over the extent and scope of damages.

The Rio Declaration confirmed and strengthened Principle 21 of the Stockholm Declaration and altered the sovereign right of exploitation from being ‘pursuant to their own environmental policies’ to a right limited by ‘their own environmental and developmental policies’. This applies during armed conflicts also. It has been noted that a direct interpretation of this principle potentially imposes responsibility for environmental damage during armed conflict even when such damage is justified under the law of armed conflict and humanitarian law. Principle 24 also declares that ‘warfare is inherently destructive of sustainable development’ and that states should ‘respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary’. The exact meaning of this provision is not clear but can be interpreted to mean that IEL continues to apply during armed conflict. However, it can also be seen to simply mean that states should abide by the IHL provisions addressing this and contribute to developing this framework further.

4.4. Human Rights Law

The role of Human Rights Law in protecting the environment links to the concept of a human right to a healthy environment and rights to means of subsistence. This could provide a useful avenue to look for provisions that can be enforced where the environmental damage can be linked to a human need and right.

For example, The International Covenant on Economic, Social and Cultural Right (1966) addresses this in Article 1. This article states that ‘in no case may a people be deprived of its own means of subsistence’. This gives a link between human rights law and protection of those environmental resources that are essential to human survival. All humans depend on their environment for survival and a safe, clean, healthy and sustainable environment is needed for the full enjoyment of many human rights.

In recent years, acknowledgment of links between human rights and the environment has increased, with more international and domestic laws being developed and adopted. Many states now incorporate the right to a healthy environment in their constitutions.

4.5. Subject of focus within this thesis

The above sections set out the scope of different legal fields that could be seen to be relevant to the topic of environmental protection during armed conflicts. The focus here is on the legal rules in API as the only provisions expressly protecting the environment, and on the general principles as potentially providing indirect protection. As the *lex specialis* of armed conflict, the rules belonging to IHL can be seen as the most applicable or most relevant to this situation and would take priority over other rules of law.

This thesis aims to examine how these provisions protect the environment during international armed conflicts under the international humanitarian law regime, how effective these provisions are in practice and their limitations. The central research question informing this thesis is ‘is the environment adequately protected by existing IHL rules during international armed conflicts?’

The outline of the existing legal framework above highlights why this area is of particular interest. These are the provisions that have been expressly adopted for the purpose of environmental protection during the specific situation of armed conflicts, and while some other areas are relevant in the discussion of how protection is applied in practice, it is these express protections that can demonstrate some insight into the intentions of the international legal community in enacting protections in this sphere. These provisions have been carefully drafted to be in the format they are now in, and so examination of the text,

how they have been applied, their scope of applicability, and the intention behind their drafting can highlight the international legal approach to this field of law and showcase the gaps that it may hold in practice.

5. Case study: Afghanistan

5.1. Why Afghanistan?

Afghanistan is a state with a wide variety of environmental landscapes, ecosystems, and a great deal of biodiversity. It is also a state that has had a long history of armed conflicts and instability. This thesis will mainly focus on the international armed conflicts since 1978. The main conflicts in this period were the Soviet-Afghan war (1979-1989) and the 20-year War in Afghanistan that began in 2001 and was recently ended in 2021 with many consequences for the state.

This case study was chosen as an example to help examine the constraints and effectiveness of the current regime of international humanitarian law as it relates to environmental damage during armed conflict. Afghanistan as a case study offers a long history of conflicts to look at, and thus gives a lot of opportunity to look into the complexities of applying the existing law in a real-world context where there may be overlapping causes. Although this may be seen as too complex to provide a clean case study, this is a reality of how IHL has to be applied in many real-world cases and thus the complexity here helps to highlight the issues surrounding this field of law. It will be useful to demonstrate how effective the legal regime is in practice, taking into account difficulties surrounding membership of different legal instruments and international legal bodies, how differing status of states on the international stage affects implementation, and how the true extent of damage can be established.

Thus, this study is chosen as a means of exploring why it may be difficult to apply provisions and enforce theoretical protections in practice. For example, background information on the environment was limited and often not up to date. Many records had been destroyed during the conflicts, and in other cases data had never been systematically gathered before the conflict at all. This lack of a comprehensive environmental baseline from before the conflict means it is more difficult to establish what damages have been done during this period. This is an issue that is pervasive across many situations of armed conflict. Some ministries undertook a certain amount of ad hoc data collection, but this has not been consistently collected and shared. There has also been a lack of communication

between the provinces and the central government. During the period of conflicts, Afghanistan has been to some degree isolated from the international community and the international environmental community.

The lack of data is also reflective of the larger problem of institutional capacity in the environmental sector. However, there are data sources that do allow for an analysis of environmental impacts that can be used to determine causation, damages, and compare this to available legal standards.

The Afghanistan conflict highlights the complexities of applying environmental provisions in international humanitarian law to specific real-world contexts; it has suffered extensive damages from the combined pressure of warfare, civil disorder, lack of governance, and drought. This is an international armed conflict that has had recorded impacts on the environment (both natural and urban). This is a conflict that has been subject to a post-conflict environmental assessment by the United Nations Environment Programme (UNEP), and this provides useful data and insights on environmental effects from armed conflict and from other sources.

The study by UNEP was the first post-conflict study of Afghanistan's environment. After this study there have been several others carried out by governments and NGOs and a series of surveys and assessments have been attempted. In 2006, WCS surveyed areas in Badakhshan, Bamyan, Kabul, Nuristan, Darqad, and Takhar provinces using traditional and innovative survey methods to study the wildlife population. Other organisations have also carried out investigations such as the Pastoral Engagement, Adaptation and Capacity Enhancement Project (PEACE) funded by USAID (Kanderian, Lawson & Zahler 2011). Other research is available from the Agency for Rehabilitation and Energy Conservation in Afghanistan (AREA), the Afghan Relief Committee (ARC), Madera, and Save the Environment Afghanistan (SEA). This case study is a well-established conflict and as such, it is possible to find a number of sources on environmental consequences and degradation stemming from war activities.

5.2. Background on Afghanistan

MAP OF AFGHANISTAN



Afghanistan is a land-locked country bordering Pakistan, Iran, Turkmenistan, Uzbekistan, and Tajikistan. It is a country with varied landscapes, from plains, marshes, lagoons and harsh dry lands to mountains and arable valleys. The Helmand River crosses the harsh landscape of the Southwestern plateau to feed the unique marshes and wetlands of the Sistan Basin. Beyond the plains are the Hindu Kush highlands, a central mountainous region.

These ecosystems have provided for the people of Afghanistan through subsistence farming and natural resources. The barren rocky hills and low mountains have provided a landscape that has allowed the people of Afghanistan historically to fight off many

invaders, including the British in the 1800s and the Soviet Union in the 1980s. This terrain has also allowed wildlife to develop and survive in an unforgiving landscape. However, these ecosystems are often very fragile and at risk from sudden changes (Zahler & Graham 2001).

Afghanistan is a culturally diverse country with around 20 distinct ethnic groups. The two principal languages are Pashto and Dari, and it is a Muslim country with the majority Sunni and a large remainder Shi'a. It is historically an agrarian country with 80% of the population living from farming or herding. The farming population was split between a mixed crop and livestock system and the Kuchi pastoral system – a nomadic existence named after those Kuchi communities who seasonally transfer grazing animals between pastures. Only a small percentage of the land area is arable and more than half of all irrigated arable land is north of the main Hindu Kush range and relies on the river systems such as the Amu Darya river. Prior to the Soviet-Afghan war in the 1970s, estimates suggest around as much as 85% of the population lived from farming, horticulture and livestock husbandry (UNEP 2003).

Decades of armed conflict and years of extreme drought have taken their toll on the lands and people, causing widespread humanitarian issues and environmental devastation. Warfare, food insecurity, and lawlessness have led to over 4 million Afghans becoming refugees. Infrastructure has been destroyed during military attacks and many institutions have collapsed or been heavily weakened. The country is now amongst the most heavily mined in the world and the nation's biological resources are being depleted (Zahler & Graham 2001). Despite this, data suggests that the country's population had risen from 8 million in 1950 to almost 22 million in 2011 (UNEP 2003).

The climate of Afghanistan is continental and most of the country is semi-arid or arid with low amounts of precipitation and high variability between years. This means that the country is vulnerable to weather patterns. Most of the country is influenced by Mediterranean weather fronts with low and erratic rainfall. Almost all of the rivers in Afghanistan and the supply of water for irrigation and the wetland ecosystems, with the exception of the Amu Darya, are derived from rainfall or seasonal melting of snow and ice-fields within the country.

The country has a wide range of ecosystems: from glaciers and alpine vegetation in the northeast, to montane coniferous and mixed forest, open dry woodland with juniper, pistachio or almond, sand and stone deserts, semi-desert scrub, rivers, lakes and marshland. Afghanistan also has a huge range of biodiversity. 75 species of animals and plants native to Afghanistan have been placed on the IUCN Red List (IUCN, 2000). Many larger mammals in the country are categorized as globally threatened by the World Conservation Union (IUCN 2000). These include snow leopard, wild goat, markhor, Marco Polo sheep, and Asiatic black bear. The Siberian Crane in particular is classified as critically endangered and faces an extremely high risk of extinction in the wild in the immediate future, along with four reptile species that are believed to belong only to Afghanistan. The total number of threatened species may be even higher than this, as there have not been any extensive studies carried out for several years (UNEP 2003).

Disturbance from military activities and heavy air strikes may pose serious risks for these species. For example, migratory birds travel from northern and central Russia through Afghanistan to their wintering grounds and endangered species like cranes depend on Afghanistan as a staging area to rest and recuperate during migration. Disturbances can drive them away and cause death and starvation (Zahler & Graham 2001).

With the area's history of subsistence farming and crop improvements, there is believed to be major genetic biodiversity in food and agricultural resources, although the extent of these are not fully known. Regional varieties of crops and trees have not been widely studied although experts believe that Afghanistan is home to more native varieties of wheat than anywhere else in the world, although many varieties may have been lost during periods of armed conflict (UNEP 2008). UNEP also argue that among wild plants and animals, many species reach their eastern or western limits in Afghanistan, and because of this, the region could provide a source of 'high intraspecies genetic diversity from outlier populations at the edge of their ranges' (UNEP 2003 p.13).

The government of Afghanistan has two agencies that are responsible for the implementation and enforcement of environmental policy and programs. These are the National Environmental Protection Agency (NEPA) and the Ministry of Agriculture, Irrigation and Livestock (MAIL). Both are coordinated from Kabul with provincial

departments across the country. NEPA creates environmental policy and regulations, and MAIL is responsible for the daily management of rangelands, forests, and protected areas (Kanderian, Lawson & Zahler 2011). Afghanistan is a party to several multilateral environmental agreements including the World Heritage Convention, the Convention of Trade in Endangered Species (CITES), the Convention on Biological Diversity, and the United Nations Framework Convention on Climate Change (UNFCCC). The government has therefore demonstrated a concern with the environment and a willingness to ratify such environmental agreements, although there is no comprehensive data on compliance or enforcement of these agreements in Afghanistan yet.

5.3. Conflicts and environmental consequences

Since 1973, Afghanistan has been in a state of political state of flux. It has had numerous regime changes, has been led by eight different leaders, and has faced wide-spread instability and war causing insecurity, displacement, poverty, and environmental degradation (UNEP 2003). The burdens of warfare, lack of governance, and civil disorder have combined to create a heavy toll on the country's natural and human resources and capacity. These influences have added to the process of land degradation and decline of natural resources (UNEP 2003; Kanderian, Lawson & Zahler 2011).

The Soviet occupation of Afghanistan began in 1979 and ended in 1991 after a long and devastating period. The conflict inflicted social, economic and political damage as well as deliberate and incidental environmental damages (Formoli 1995). The Soviet occupation and conflict had destructive influences on the agricultural infrastructure. Many farms were left uncultivated, and production declined around 70% (Formoli 1995). There was deliberate targeting and destruction of many vineyards, orchards, and other vegetation alongside streets and highways justified under security reasoning. Ancient irrigation systems were also targeted to destroy infrastructure. An estimated 27-36% of irrigation systems were destroyed (UNDP 1993), as well as safe and clean water sources (Formoli 1995). Estimates also suggest that there was a massive impact on animal life and biodiversity during this period. Around 9.5 million sheep and goats (over 50% of the population) are estimated to have been lost at this time. There were also numerous air

attacks during this armed conflict that caused major and long-lasting wildfires in the forests, and in areas not affected by fires and air bombing, much illegal logging was carried out.

A lack of environmental oversight may mean that some of the potentially most dangerous actions carried out during the war went under the radar and were never fully brought to light. The Soviet Union also disposed of many of their stocks of internationally banned pesticides in Afghanistan as 'agricultural aid'. Much of this was stockpiled and improperly stored in various locations in the country during the 1990s and presented a real environmental danger (Formoli 1995).

The kinds of habitats found in Afghanistan can be slow to recover from damage and changes can seriously threaten their continued survival. These components of the environment are interwoven, with each aspect relying on the others to keep balance and order. Damage to any part of them could cause a chain of short or long-term damages to other parts of the ecosystem (Saba 2001).

Saba points to the example of the pistachio that grows in the north and northwestern Hindu Kush. Here the pistachio forests have traditionally provided climatic and environmental stabilization as well as providing food and income to the thousands of families relying upon them. Wild pistachio was a major export of the economy until the beginning of the Soviet-Afghan war in 1978. Since then, the harvest area has been reduced from 4700 ha to 2700 ha in 2000 and may have been damaged further in the evolving conflicts (Saba 2001; Kanderian, Lawson & Zahler 2011). UNEP (2003) satellite figures suggest that pistachio woodlands in the provinces of Badghis and Takhar have been highly degraded.

Saba's research suggests that currently, of the 15% of arable land in Afghanistan, only 6% of this is under cultivation. This lack of land management and use could cause issues if all of the refugees that fled during conflict were to return. There would additionally be potential conflict over land ownership and agency of available land. There has been a wide-spread loss and degradation of natural forests and soil erosion exacerbated by poor reclamation schemes, overgrazing and destruction of vegetation.

The nature of the climate and topography of the land means that some areas of Afghanistan are prone to increasing aridity and erosion. There has been some debate about how much this has been accelerated by human activity, and in particular how much change and degradation can be directly attributed to the armed conflicts in the area and how much was inevitable or natural. While some noticeable changes could be attributed to misuse of land, lack of regulation or climate changes, armed conflict has also played a part. Farmland has been contaminated by landmines, heavy concentrations of air-borne particulates and pollutants have been found and use of chemicals and machinery of war have impacted ecosystems (Saba 2001). Saba argues that while gradual change in natural habitats and ecosystems is ongoing, the ecosystems of Afghanistan have never been damaged to the extent that they have been in the last decades of armed conflict (2001).

One of the main issues with applying international law in these contexts is the difficulty in assessing the true extent of damages caused by armed conflicts in the aftermath. In many cases there is no reliable environmental assessment of what condition areas were in prior to the conflict. In most cases, armed conflict is paired with political instability and lack of effective governmental bodies and regulatory bodies, or documentation is destroyed in the processes of active warfare. In light of this, there is a lack of reliable information on a baseline for the environment prior to conflict and so it is hard to measure true impacts. Equally there is often a lack of ongoing monitoring during armed conflicts or studies carried out after the warfare has ended. Governments in the midst of war are unlikely to prioritize environment, and this kind of monitoring presents obvious security issues where third parties such as NGOs may attempt to carry it out. Often there is a lack of information about the impacts of armed conflict on the environment or it is overshadowed by more immediate humanitarian concerns – many of which may in fact be exacerbated by environmental scarcity and degradation.

5.4. Afghanistan in context: warfare and ecosystems

Modern warfare tactics, techniques, and weapons have a huge potential to affect the ecosystem structure and biodiversity. Armed conflict can impact the environment through direct attacks and targeting, indirect attacks, training, and military produced contaminants

(Lawrence, Stemberger, Zolderdo, Struthers & Cooke 2015). In their study on the effects of modern warfare techniques, Lawrence et al highlight that all of these activities were found to have a negative effect on ecosystem structure and function, including causing dramatic habitat alteration, pollution, and disturbances that contribute to biodiversity loss in both terrestrial and aquatic systems.

They found a tendency for natural ecosystems to be termed as ‘terrain’ in military terminology, taking an anthropogenic view of natural landscapes as a tool or as an element of the conflict (O’May et al 2005; Visone 2005; Hieb et al. 2007 as in Lawrence, Stemberger, Zolderdo, Struthers & Cooke 2015). They argue that as a result of this focus and viewpoint, ecosystem health is often neglected in warfare and little responsibility is taken for environmental damages inflicted.

Aircraft used in military operations and attacks can cause loud bursts of noise that can have a greater impact in the more sensitive auditory systems of animals and can pose a real threat to animal activities and survival (Manci et al. 1988; Larkin et al. 1996). Air-to-ground assaults have also been shown to cause elevations in wildlife mortality and destroy natural habitats which may lead to a population decline. For example, in Afghanistan this has been studied in snow leopard populations and was found to cause damage to localized populations (Zahler and Graham 2001).

Ground warfare can often take place in environmentally sensitive areas and in areas of wide and threatened biodiversity. The weapons used by militaries can pose great hazards to ecosystems and ecosystem structure. For example, militaries use numerous explosive techniques that can destroy and contaminate large areas (Hart et al. 1997, Hanson et al. 2009; Certini et al. 2013), or even the use of heavy vehicles outfitted with armour and weaponry that can cause terrain compaction (Lathrop 1983; Foster et al. 2006).

There can also be a large impact from training bases and operations. There are many potential environmental impacts associated with the upkeep of military infrastructure and training. These preparatory exercises find themselves outside of the scope of public international law which deals with active conflict but can still have serious impacts such as contamination of fuels and compounds from military training facilities and bases (Lawrence, Stemberger, Zolderdo, Struthers & Cooke 2015).

The use of chemical agents in warfare are designed and intended to cause human mortality but can also prove toxic and damaging for other species as well as having long-lasting impacts on the wider ecosystem (Ganesan et al. 2010 xx). Most agents that can harm humans are also highly damaging to other vertebrates and can damage aquatic organisms. They can often be persistent in plant matter and continue into the food chain, causing damage to other herbivores even when not directly exposed (Coppock 2009; Ganesan et al 2010). Even detritus such as bullet casings can be harmful to the ecosystem as they are often composed of harmful materials such as lead that can break down into the environment and enter the food chain (Burger and Gochfeld 2000; Papanikolaou et al. 2005).

5.5. Long-term effects of armed conflict

In 2002, UNEP undertook a month-long mission to gather data on the environmental impacts of the Afghanistan conflicts. This is one of the biggest sources of data on environmental impact carried out by an intergovernmental body in Afghanistan. This involved 20 Afghan and international scientists and experts who visited 38 urban and 35 rural locations. Samples were collected to test air, soil and water conditions and contamination, and satellite analysis was used to study land-cover over a 25-year period to look at wetland degradation, desertification and deforestation. However, due to security issues, the UNEP research was not able to cover all areas – for example, the Ajar Valley and the cedar forests of Kunar and Nuristan were not accessible because of ongoing fighting. This report highlighted the serious issue of long term environment degradation caused by joint factors of warfare and collapse of governance.

UNEP visited several provinces to study pistachio deforestation, including Herat, Badghis, and Takhar. In the majority of areas visited, UNEP observed large areas of bare soil where the pistachio woodlands had previously been documented. They spoke to officials working in these areas and forest offices in Badghis and Takhar indicated the between 50-70% of woodland cover was lost in the previous 30 years. This matched with the satellite image analysis which showed that in 1997 woodlands covered 55% of the land base in Badghis and 37% of the land in Takhar – in 2002 the density of woodlands had decreased in both

provinces to the point they could not be detected on satellite. This suggests that these areas have either been subject to complete deforestation, or a huge reduction in tree density. Much of this loss is reported to have come in the period of the Soviet war from both stockpiling of resources and deliberate military destruction (UNEP 2003). The amount of forest cover was originally estimated by officials to be around 30%, but local officers and residents argued that this is conservative and that the actual figure is closer to 50-70% (Kanderian, Lawson & Zahler 2011). After looking at Landsat images and comparing data for these regions over several decades, UNEP suggests a figure of 52% reduction between 1977 and 2002 is more accurate. With loss of forest and vegetation, the country's soils are exposed to risks of serious erosion.

A major issue still facing Afghanistan is land mines and unexploded ordnance which still cover large areas, including agricultural land and areas of significant biodiversity. Afghanistan was at one point one of the most heavily mined countries in the world (UNEP 2008). A survey by CIET International in 1994 suggested that 12% of all households surveyed were affected by landmines – a number which is estimated to have grown since then (Saba 2001).

Although some areas have been cleared, a significant number of mines and unexploded ordnance remains to be cleared and presents an ever-present danger to both human and animal life and environment. It is thought that around 10 million mines have been set in Afghanistan over the last decades. These have the potential to cause damage to humans and wildlife, as well as destroy irrigation systems and infrastructure. Landmines can not only cause direct environmental damages, but fear of heavily mined areas may drive people from mined areas into more fragile environments and contribute to depletion of resources and biodiversity in other areas (Zahler & Graham 2001).

Landmines can present a danger to many: for example, those nomads who have developed a way of life suitable to the specific terrain in certain areas. Now they face a change in their environment and a danger that may cause them to move away from their traditional livelihoods and culture (Saba 2001). Landmines have also been shown to present a danger to wildlife such as snow leopards in Afghanistan (Troll 2000 as in Lawrence, Stemberger, Zolderdo, Struthers & Cooke 2015). Retrieval of landmines can also have damaging

consequences – for example in the process of clearing mines in Iraq large areas of desert were ploughed up, damaging fragile vegetation and destroying habitats. Landmines pose an environmental risk whether they are set off or not.

Landmines are present in many areas in Afghanistan – including those recognized as national parks. The Band-e-Amir national park area was one of the frontlines for fighting during 2001 and the area has been heavily mined. This is an area of great natural beauty and biodiversity. During the UNEP investigation, the south shore of the lake was deemed too dangerous to access or study so the true extent of the remaining mines is not certain but estimated to be high (UNEP 2003). These leftover remnants of the conflict in the area present a huge danger to human life as well as animal and plant life.

One potential threat that has not been explicitly mentioned in the UNEP report is depleted uranium (DU). This is a weaker radioactive form of an element that has been used in long-range weapons – for example DU munitions have been used to penetrate caves. While the potential health and environmental impact of DU is debated, and the U.S. Department of Defense says that long-term health effects are not likely. The authors of the UNEP report have clarified that they were not able to visit certain regions where DU munitions may have been used such as the Tora Bora Mountains, and so were not able to investigate this, but are open to studying the impact of this when the security situation allows (Taylor 2003).

5.6. Focus and aims of this case study analysis

The consequences of the armed conflict can be seen to go beyond the direct military attacks, but how far can this be considered when taking the damage into account for proportionality assessments? For example, in a traditional Agrarian society such as Afghanistan, the production of agricultural products has decreased since the beginning of international conflict in 1979. As a response to this, rural communities have begun to utilize the free and unregulated natural environmental resources such as wood from natural forests. Is this a consequence of the military attack? If a military attack targets farmland or agricultural resources directly, how far can this chain of causation of damage be followed

before there are too many intervening factors to attribute the damage directly to the military attacks?

This is a question that is reflected in the facts of the wars in Afghanistan. Many forested areas were destroyed during the conflict and farmland was burned, destroyed, and degraded by heavy war machinery and chemical pollution. In 1999, in the province of Parwan, one of the most fertile regions near to Kabul, there was mass burning of crops, mulberry trees, and other 'natural obstacles' to war. Many inhabitants were forcefully evacuated during the autumn harvest period. Along the roads vegetation was levelled to remove cover that may assist the enemy during combat (Saba 2001). These actions still take a toll on the environment today, but how far does international law address these actions, and to what extent?

In many cases with environmental and ecosystem damages, it can be difficult to estimate a timescale for reparation, if reparation is a possibility. Timescales are dependent on the nature of the damage caused and where it is caused. For example, if a centuries-old pistachio forest is damaged by an airstrike, this could take decades to replant and reestablish. Timescales for repairing damages could take from months to years to decades, or, in the case of the use of nuclear weapons, even centuries. These potential differences add more challenges to analysis and determination of appropriate legal standards and suitable legal repercussions for causing damages.

The case study of Afghanistan allows for a contextualized examination and assessment of how existing international legal provisions would apply in real-world situations, such as in situations where there are several causative factors involved, in cases where a country does not benefit from victors' justice or where they do not have a large amount of political power on the world stage. The effectiveness of these provisions can only be assessed in conflicts that took place after they came into force, as international law cannot be applied retrospectively, and in this sense the conflicts in Afghanistan since 1979 offer a good case study as the application of these rules over time can also be analysed.

In a country where a vast majority of the population relies on natural resources directly to meet their needs, and there is such a vast range of unique fauna, flora and ecosystems, environmental degradation poses an immense threat. During the last decades of armed

conflict, Afghanistan's resources have been impacted by military activities, refugee movements, exploitation, and a lack of management and institutional capacity. In many cases, long-term damage may have been caused as those human victims of the armed conflict try to meet immediate humanitarian needs. This may help the situation in the present moment but will potentially hinder the long-term recovery of the country and exacerbate humanitarian needs as degraded resources may take decades to recover (UNEP 2003). The question focused on here is what role international law has in preventing excessive and long-term damage to the environment, and what kinds of action and damages are potentially under the remit of public international law. How could the current regime be applied, and how has it been applied in practice?

Lack of data in a region's baseline ecological condition is a limiting factor in assessing and quantifying changes brought about by armed conflicts. Armed conflict presents huge security and safety risks that make it a difficult research environment. Often many areas are not accessible for researchers and thus there are gaps in the concrete knowledge about certain regions. It is also very likely that there is no pre-conflict data available – as Lawrence et al. highlight, 'because of the stochastic nature of war (e.g., unknown when and where conflict and battles will occur), the battlefield sites may not have pre-conflict information available, thereby complicating before– after impact analysis' (Lawrence, Stemberger, Zolderdo, Struthers & Cooke 2015, p.453). ‘

This fact makes it difficult to apply the legal standards of IHL to conflict situations. As this uncertainty is not likely to change, the legal standards need to work with and around this to provide a realistic and applicable standard that can be applied to provide suitable protections.

6. Application of the legal framework in practice: Afghanistan

Afghanistan is a party to API and thus the two directly applicable environmental protection provisions apply to Afghanistan. Afghanistan has also not been a persistent objector to any of the main CIL principles and so these would also apply. Afghanistan is also a party to other relevant environmental and humanitarian law treaties. Recent events in Afghanistan since the end of the War in Afghanistan in 2021 create questions as to how Afghanistan will continue to interact with other states on an international level. The country's governance has now been taken over by the Taliban. Whether the state will continue to recognise international legal treaties and instruments remains to be seen. The change in governance is a contentious issue globally and seems highly likely to cause application and enforcement of international treaties to be more difficult.

However, the applicability of these rules also depends on the status of other states involved in international armed conflicts in relation to the treaties as well as the dates of ratification or accession. Afghanistan acceded to the additional protocols in 2009 and so any military actions predating this would not be covered under these provisions as it would be against the accepted legal norms on retroactivity.

Additionally, the United States has refused to ratify or accept the provisions of API and so these do not apply between the US and Afghanistan in regard to the war in Afghanistan and US military actions there. However, there is still the discussion of whether the same provisions do apply as CIL and the extent of protection this could provide. Although the provisions may not be retroactively applicable, this case study still provides a useful opportunity to explore theoretically how these provisions could have been relevant in that time period and context, and the issues that would face them.

Here the focus is on the API provisions and the general principles of IHL as these are the *lex specialis* law of wars and should be the framework that provides protection here. Other provisions that provide indirect protection from other bodies of law are also be discussed in so far as they contribute to analysis of IHL's effectiveness and scope. The focus was on international armed conflicts. Although non-international armed conflicts are relevant to environmental damages in Afghanistan, the consideration of rules applying to non-

international armed conflicts is much broader than the scope of this thesis, and also brings in many national law issues alongside public international law. In many cases where there are non-international armed conflicts, public international law provisions are limited in the face of state sovereignty. Many states would not agree to strong provisions that would limit their ability to govern within their own territory – particularly when non-international armed conflicts can include civil unrest or attempts to remove the current government. The co-existence of international and non-international conflicts within the territory of Afghanistan can further highlight the difficulties facing the enforcement of public international law. Where there are several conflicts of differing status that may overlap geographically or chronologically, this brings in issues of causation and also issues regarding the measurement and attribution of damages.

The main grey areas identified in IHL relating to environmental protection surround the tripartite standard of ‘wide-spread, long-term, and severe damage’, the principle of military necessity, the principle of proportionality, the status of the environment as a civilian or military object, the scientific uncertainty of the nature of environmental damage and the need for precaution, and the potential scope and applicability of the Martens Clause. These are examined in the case-specific context of Afghanistan with some examples of how these could theoretically be interpreted or applied in real-world conflict situations.

6.1. The Triple Standard of ‘wide-spread, long-term, and severe’

This cumulative standard has been characterized by many scholars and legal experts as presenting an impossible threshold. The exact standards of what constitutes long-term damage, widespread damage, or severe damage are not clear. As this has not been taken forward in any cases to a judiciary body, there is additionally not any authoritative interpretation to shed light on this. What is clear it that it is a deliberately different standard to that in the ENMOD convention. How could this apply in the case of damage inflicted in Afghanistan?

One of the major measurable environmental degradation issues facing Afghanistan now is the loss of biodiversity in ecosystems. For example, one long-lasting effect is the reduction

in tree cover, for example, in the pistachio forests in Badghis and Takhar which are badly degraded. This area has been reduced since the beginning of the Soviet-Afghan war. Would the destruction of these areas potentially be something that could fall under these provisions?

The application of the provisions faces three main issues: the issue of causation and traceability of damages after the fact; the difficulty in determining if an attack can be; ‘intended or may be expected to cause’ damage; and the lack of clarity of the level of damage that breaches the provisions.

Clearly one major issue here is the fact that during active warfare, how are the individual military attacks being tracked or assessed? For example, the pistachio forests of Afghanistan are in rugged terrain and when there are dangers from active combat there are no third parties keeping track of damages or attacks. If one military commander decides to carry out actions that destroy the tree coverage, in practicality there are no pre-analyses carried out, the baseline ecological setting is not assessed, there is no pre-attack biodiversity survey or study. Where this area has not been previously studied and there is no baseline data, or where an area has been in different conflicts over a period of time, there may be very little known about the true underlying status of that area. This makes it almost impossible to determine the extent of damage caused by an individual military action. For example, the use of depleted uranium weapons in Afghanistan is not concretely recorded for each area or individual attack. If any records are kept, these would be by the military force using the weapons, who do not have any interest in making records available. The long-term effects, the extent of the damage, and the severity of the damage caused by that specific action are usually not clear. Where there have been several ongoing conflicts that are chronologically close, it may be even more difficult to establish the longevity of damages caused by one attack.

If one commander, during combat, decides to use air strikes on a forested area as they believe that there are enemy troops using it as cover, this is just one small action among many others. Unless it is on a huge scale, it is unlikely to be noteworthy or gain much focus.

Equally, it is difficult to determine or establish whether an attack is ‘intended or expected’ to cause that level of damage and how far can the chain of causation go when looking at the potential scope of damage? Where there is scientific uncertainty and a lack of data on the area it becomes even more difficult to establish. If this is a subjective standard, then would one military commander, looking at the pistachio forests, know much information about the ecosystem? Could they know if launching an airstrike or using munitions containing depleted uranium will have long-term effects or severe effects? Or if damaging one specific small area may cause catastrophic damage in the food chain leading to widespread destruction? If it is a subjective standard, then they could simply deny that they foresaw or expected the damage and liability would be avoided. If this is an objective standard applied, what is the standard used? Is it what an average military officer could be reasonably expected to foresee? What a trained environmental impact assessor would foresee? Does it consider recent scientific developments and knowledge?

Looking at the issue of depleted uranium munitions in more detail, this issue of uncertainty can be further understood. The UNEP report did not look into areas where depleted uranium has been recorded to have been used due to security concerns and other studies on the effect of such munitions have not been carried out in Afghanistan so we do not have any certain research on the effects of these weapons in practice there (Apicella 2005; Briner 2010). Depleted uranium was used in armor piercing munitions. The US, and UK, militaries initially denied use of depleted uranium munitions. However, the use of depleted uranium has been recorded in other conflicts in the same time period, the remnants of depleted uranium munitions have been found in Afghanistan, and evidence of increased levels of depleted uranium has been found in humans in the area.

Elevated radiation levels consistent with low level atmospheric depleted uranium contamination were found in air samples taken by the UK Atomic Weapons Establishment at several monitoring sites in Britain – these readings appear to coincide with military operations in Afghanistan (Williams 2008). The vast majority of depleted uranium that is free in the environment comes from depleted uranium munitions (Briner 2010). The Canadian Uranium Medical Research Centre also obtained urine samples from civilians from bombed areas in Jalalabad that showed elevated concentrations (80 to 400 nanograms

per litre) of uranium compared to typical concentrations in other civilian populations (approximately 5 nanograms per litre) (Durakovic 2005). It is now more widely accepted that these types of munitions, that have been often used by the US, were also used during warfare in Afghanistan (Briner 2006, 2010).

While depleted uranium is not as radioactive as natural uranium, it retains a large amount of chemical toxicity associated with uranium. In high doses the element can cause acute kidney damages and tubular necrosis. In chronic low doses the effects of the metal may not produce a defined set of symptoms but has been linked to altered appearance of milestones in developing organisms. Adult animals that have experienced exposure during development display 'persistent aberrations in behaviour and alterations to brain chemistry, even after exposure is stopped' (Briner 2010, p.303).

Wide use of depleted uranium munitions during the Persian Gulf War in 1990-1991 introduced depleted uranium into the field of warfare. After the war, Gulf War Syndrome was reported, with depleted uranium being suggested as a possible causative agent (Briner 2010). Further research into the toxicity of depleted uranium is being carried out. Potential exposure to depleted uranium can come from entry into wounds, inhalation, contact with skin, and depleted uranium entering food and water. Once in the soil, depleted uranium may be re-suspended in the air and inhaled.

With weapons such as this being used, what is the standard of foreseeability? If a military attack involves using depleted uranium munitions on a target, could long term widespread and severe consequences be intended or expected? Even though it is clear that depleted uranium has a damaging effect on human and animal life, we do not know the extent of its lasting effects once free in the environment. In the face of scientific uncertainty, is the standard a precautionary one? If depleted uranium, once in the environment, causes some immediate damaging effects but has more extreme effects in several decades, it seems likely this would not be expected to be foreseeable. If a precautionary approach to means and methods of warfare and their consequences is taken, this may be more likely to be considered to be foreseeable, depending on the scientific knowledge that is widely disseminated. However, even with a precautionary approach, this requirement will only reach so far before it is deemed that it could not be reasonably foreseen.

Even setting aside issues of the damage standards themselves, which are widely considered to be an impossible threshold, the issue of foreseeability is a large one. Depending on how the standard is formulated, the threshold for ‘intended or expected’ damage could be very different. The foreseeability requirements could make this an easy provision to escape from for militaries. The scale of damage and level of foreseeability needed make this an almost impossible standard to meet, especially during the unique circumstances surrounding armed conflicts.

The harvest area in the north and northwestern Hindu Kush are estimated to be reduced from 4700 ha to 2700 ha in 2000 and may have been damaged further in the evolving conflicts (Saba 2001; Kanderian, Lawson & Zahler 2011). However, there are no records of what exact damage was carried out and by whom. There are no comprehensive data sets on the baseline of the ecosystem prior to any armed conflicts reaching that area. There is also the issue that while some damage is caused by direct military attacks, other damages have been caused by civilians using and exploiting the resources during the conflict. This damage cannot be neatly separated in an environmental context to allow for attribution to different parties. The natural environment and all its constituent elements are so bound up and interlinked that it is difficult to determine if one airstrike caused one particular piece of damage that is going to last decades (as the long-term requirement is generally understood to mean). Where a standard is decades, there are too many opportunities to argue for intervening events to break the chain of causation.

From the generally understood threshold, these provisions seem most likely to be unapplicable to any normal or ‘everyday’ type of damage carried out by military actions. These seem most likely to find themselves applicable only in exceptional circumstances, such as use of nuclear weapons, or widespread use of chemical agents that cause extreme damage.

These standards require an extreme form of damage to come into effect and have unclear thresholds of foreseeability. They also face issues common in public international law instruments – namely problems of enforcement, lack of political will, and unwillingness of states to bind themselves and limit their sovereignty where reciprocal benefits are not guaranteed. These issues are magnified by the context in which these laws seek to apply.

States are often unwilling to limit their sovereignty and bind themselves to hard commitments, but this is especially true in armed conflicts where states are vying for territory, defending their interests, or trying to gain an advantage on the international stage.

The concept of warfare is linked back to the idea of fighting for survival and in these situations, states are not willing to handicap themselves unless it brings concrete benefits and is in their wider interests. IHL came about and grew because it was beneficial to all states to have some guidelines and rules on how civilians are treated, limits on means and methods that caused mass destruction, and rules on how combatants are treated during and after the conflict. These humanitarian concerns drew primary interest from states and therefore most IHL deals with these topics. Environmental protection did not draw as much attention in the beginning of IHL, as the focus was on humanitarian needs. More interest grew after the Vietnam War, but then lost momentum. Now more focus is coming to environmental issues alongside recognition of the intrinsic tie between the environment, access to resources, and the link between environmental uncertainty and further causes of conflict. It remains to be seen if this will lead to more international norms regarding the environment and explicit instruments dealing with environmental damages in warfare.

6.2. The principle of distinction: when is it a legitimate military target and not a civilian object?

The principle of distinction is the requirement that combatants distinguish between military and civilian persons and objects. Its aim is to prevent indiscriminate attacks and direct attacks on civilian objects. Military objectives are defined in Article 52(2) of API as those that by ‘nature, location, purpose or use’ make an effective contribution to military action and whose ‘total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage’.

This rule has been established as a norm of customary international law applicable in both international and non-international armed conflicts. The application of this rule to the environment specifically is laid out in the ICRC’s Study on Customary International Humanitarian Law in Rule 43. The protection to the environment given by this rule is

based on the characterization of the environment as a civilian object. Military operations and warfare often take place in the natural environment and its vicinity (and it could be argued that it always takes place in the environment as human built environments are not separate from the natural environment but are intrinsically linked to it). Military forces often conduct hostilities or maneuver in open areas, forests, mountains, and natural terrains. This principle requires that operations are conducted in a way that identifies and upholds the difference between civilians and civilian objects and combatants and military objectives.

An attack cannot be legitimately targeted against the environment unless it is directed against a specific part that has become a military objective. To become a military objective the area must fulfil certain criteria. The ICRC's 2020 Guidelines suggest that the definition of a military objective can only be fulfilled by 'distinct parts' of the environment such as 'a specific cave'. It must also fulfil both prongs of a military objectives: it must 'by its nature, location, purpose or use, make an effective contribution to military action' and its 'total or partial destruction, capture or neutralization, in the circumstances ruling at the time, must offer a definite military advantage' (ICRC 2020). Looking at this definition, it is clear that a distinct part of the environment cannot by its 'nature' alone make an effective contribution to any military action. The idea of the 'nature' of an area or object refers to its intrinsic character and under IHL rules, the intrinsic character of the environment is a civilian one. However, a distinct part of the natural environment could make an effective contribution in terms of its location, purpose, or use. For example, a specific area of land could contribute effectively to military action if it provides a vantage point over opposing forces camps; a mountain pass could contribute to the military action of troops if it allows them to advance more quickly; a specific cave or forested area could contribute if it provides cover and shelter for military maneuvers (ICRC 2020).

In this sense, many areas of the natural environment may become legitimate military objectives depending on their use by belligerents. In Afghanistan, several forested areas were attacked during both Soviet and US attacks under the justification that they had become legitimate military objectives by providing cover to enemy combatants. However, is the occupation of the natural environment enough to make these legitimate areas, or is it

limited to more specific situations when the area of the environment is making a more specific contribution to attacks? For example, if enemy combatants are camping in a forested area, is that enough of a reason for it to become a military objective under the principle of distinction? Is a suspicion of enemy action in that area enough or should there be more definite proof? In some cases in Afghanistan, areas such as forests, mountain passes, and caves were attacked because it was believed that there were combatants in these areas (Action on Armed Violence, 2021).

The ICRC argues that the concept of an area should not be interpreted too broadly. For example, a large expanse of forest should not be deemed to be a military objective just because combatants are located in a small portion of it. Only the part that has been identified as directly contributing should be liable to become a military objective if the second prong of the test is also fulfilled.

There is some debate over the second part of the first prong of the definition. This part requires that the contribution that a distinct part of the natural environment makes to military action must be 'effective' and directed towards the military action of an adversary. The ICRC (2020, p.46) has interpreted this as meaning that the contribution must be directed towards 'actual war-fighting capabilities' and that a contribution just to the war-sustaining capabilities of a party is not enough for this criteria to be met. Under this viewpoint, looking at Afghanistan as an example, an area of the natural environment where resource gathering takes place, such as in the woodlands in the north Hindu Kush where wood is being gathered and sold, may generate revenue for the war effort. However, this does not make a direct contribution to military action. Under this interpretation, cases where action has been taken against areas that are not directly contributing but are generating revenue or otherwise supporting the war effort are not justified under the principle of distinction. These areas would not become military objectives and so attacks would not be legitimate.

The second part of the definition requires that the 'total or partial destruction, capture or neutralization of a distinct part of or specific object' belonging to the natural environment, 'in the circumstances ruling at the time', must offer a 'definite military advantage'. This requires that the advantage gained is a concrete and definable one and that the combatants

planning, ordering, or executing the attack should have concrete information as to the advantage offered by attacking that distinct area of the natural environment. The advantage gained must be military in nature and so cannot be simply social, political, psychological, moral, economic or financial in nature (ICRC 2020, p.47). The ICRC (2020) give the example of a celebrated national part that occupies a cherished place in a state's history. While attacking may undermine morale and political will, this is not a military advantage and the park would not meet the definition.

The inclusion of the phrase 'in the circumstances ruling at the time' means that it has to be understood in the situationally and temporally. If the area does not offer a military advantage at that time, it does not meet the criteria. If it may offer advantage in the future, it is not sufficient.

However, in a real-world conflict situation, is the military advantage and definition of areas analysed attack by attack? While these criteria as explained by the ICRC seem to offer strict and comprehensive rules and guidance on what constitutes a military objective, the practicality of it is that in the midst of an armed conflict situation, these elements are hard to track and records on these are hard to keep. In the midst of warfare, how often are commanders and combatants identifying these elements and applying this analysis of advantage? It can be argued that where this principle applies to more obvious non-military objectives, such as civilian towns, populated areas, and areas with heavy infrastructure, care may be taken to ensure that there is a justifiable military advantage to attacks. However, even in these areas, where there are civilian bystanders, attacks are carried out and are not prosecuted as breaches of this principle on the international stage.

If this principle is not clearly enforced and defined when it comes to civilians and populated areas, it seems unlikely that it would be more effectively implemented and followed when attacks are on unpopulated areas and only impact the natural environment without humanitarian casualties. In Afghanistan, air strikes have been carried out in populated areas leading to a large number of civilian deaths and damage to inhabited areas (Action on Armed Violence, 2021). If these strikes are not considered to be against this principle, or at least are not enforced under this principle, similar attacks that happen in the natural environment are not likely to be considered more seriously. While this principle is a

part of international military practice, and most militaries at least claim to incorporate it into military manuals, armed conflict is a difficult situation and where these analyses are carried out by military personnel, the concept of military advantage or what constitutes a legitimate target is likely to be coloured by the background of the person taking that judgement.

For example, in the middle of a conflict, if combatants are occupying a higher ground in the rugged Afghan mountain terrain and are generating revenue for warfare and resources for themselves, under the ICRC explanations, this may not make that area a military objective where it is not making an effective contribution directed towards ‘actual war-fighting capabilities’. In this case attacks that lead to the partial or total destruction of this area would not be legitimate or justified. However, for an adversary in the field, would they take the same interpretation? If the combatants potentially have a higher ground and the area is contributing to them building resources for further attacks, would military personnel interpret this the same way – as not meeting the temporal requirements or other elements of the definition? There is a lot of room for differences on how this is interpreted versus how it would be applied in a real-world context.

This principle also does not cover all situations that may prove damaging to the natural environment. The principle of distinction and the prohibition of indiscriminate attacks do not prevent: ‘use of mine-clearing line charges to make way for friendly forces through a prairie mined by the adversary; the direction of fire at thick plantation to generate a line of sight that enables the identification of enemy forces using the plant cover to attack; or interdiction fire directed, for example, at a river crossing by which the adversary intends to move troops to mount an attack’ (ICRC 2020, p.48). Clearly this leaves room for activities that present a danger to the natural environment. There are also other practices that may not amount to what would be considered an attack on an adversary and so would not fall under this rule. For example, where militaries calibrate artillery by firing at objects under their control. These would not be covered under this rule and in some cases extensive state practice is understood as allowing exception to the general rule.

The ICRC views these instances as ‘limited exceptions of State practice’ that do not put into any question the general recognition of the environment as being civilian in character

(ICRC 2020, p.49). In this sense, it seems that these issues should be addressed by a more specific kind of protection. The environment is not receiving direct protection from its characterization, but a form of indirect protection that can be overridden by necessity, circumstance, and perception of the situation by the combatants.

Here a more comprehensive instrument with the express purpose of addressing these instances could begin to overcome some of these issues. Although there are difficulties in creating a standard or test to determine when an action is justified, an instrument that is drafted with these complexities in mind could begin to create a body of law built to work more effectively within these grey areas. Any such instrument would require the collaboration of many international actors and a great deal of political will. Additionally, these areas could be clarified by the establishment of a permanent international judicial body to adjudicate this area of international law. A permanent body dedicated to the environment and armed conflicts could clear up a lot of the uncertainties by clarifying rules and looking into the areas where there are uncertainties. Many areas of law are clarified by case law, and this could be a good approach here in the future.

6.3. The principle of proportionality: when is a military attack or collateral damage disproportionate?

The principle of proportionality has been established as a norm of customary international law applicable in international and non-international armed conflicts. The ICRC's Study on Customary International Humanitarian Law lays out the application of the principle to the environment in Rule 43(c). The principle of proportionality is also codified more generally in Article 51(5)(b) of API.

Once it has been determined that an attack is being carried out on a military objective, the consideration then should turn to whether launching an attack on the military objective may be expected to cause incidental damage to the natural environment which would be excessive in relation to the concrete and direct military advantage anticipated.

Any part of the natural environment that is not a military object is protected not only against direct attacks, but also against excessive incidental or collateral damage in relation

to the concrete and direct military advantage anticipated. This principle was also affirmed by the ICJ, which stated in its 1996 Nuclear Weapons Advisory Opinion that: ‘states must take environmental considerations into account when assessing what is ... proportionate in the pursuit of legitimate military objectives’. The ICJ also stated that ‘respect for the environment is one of the elements that go to assessing whether an action is in conformity with ... proportionality’ (ICJ, Nuclear Weapons 1996, para.30; ICRC 2020).

This rule can be seen to have a different scope of application to the API provisions. While those provisions prohibit attacks that are intended or expected to cause ‘long-term, widespread, and severe’ damages, this principle could also apply to attacks which would cause damage on a lesser scale. However, this principle also allows for attacks to be justified where there is a concrete anticipated military advantage, so it could allow attacks to be justified even if there is severe damage if the military advantage is determined to be enough (ICRC 2020). This principle requires that when assessing the military advantage, account is taken of the indirect effects on the civilian population/objects. The standard here put forward by the ICRC is one where harm must be reasonably foreseeable based on an assessment of information from all sources available to the party at the relevant time. This is reflected in state practice.

Whether an indirect effect is reasonably foreseeable will depend on the facts of the case based on an assessment of information from all sources available at the relevant time and informed by past practices and empirical data (ICRC 2020). For example, depending on the type of attack carried out and the means and methods used, it may be foreseeable that an attack that will disrupt electricity supply could cause further issues with water supply, sewage and wastewater treatment and impact water quality, or it could be foreseeable that an attack on industrial facilities may lead to pollution of chemicals into the surrounding area.

Given the standard of taking into account accessible information in this foreseeability assessment, it seems that as information on potential chain effects and ecosystem damages grow, so do the foreseeability of such effects. From this viewpoint, all assessments of potential incidental damage must take into account new information on environmental damages. However, there are many cases where scientific uncertainty may come into play.

For example, how would the potential damages of depleted uranium munitions used in Afghanistan be viewed? If belligerents use depleted uranium munitions to pierce armored tanks, or to destroy specific locations including caves used by enemy combatants, this could be seen as a concrete military advantage. However, although current information and knowledge suggests there are long lasting impacts on human and animal life, and unknown effects in the wider ecosystem, whether or not this is ‘excessive’ is essentially a context-subjective balancing exercise on how value is assigned to each of these. If the exercise is carried out by a military commander, they may assign more weight to the advantages gained by using the munitions to destroy armor. If the assessment is carried out by an environmental expert with knowledge of that ecosystem or area, they may not view the military advantage as being valuable enough compared to the incidental damages to wildlife and the wider environment. Although guidelines are available and there are commentaries on how the two values should be compared, there is little expert guidance on how to make these valuations in practice.

The UN Environment Assembly has listed several potential effects from armed conflict on the natural environment. These relate to the general effects of armed conflict as opposed to attacks, but where attacks can be reasonably foreseen to cause such direct or indirect effects they would need to be taken into account when balancing the anticipated military advantage against anticipated incidental damage. These effects include inter alia: ‘the loss of biodiversity, the loss of crops or livestock, and lack of access to clean water and agricultural land, and the negative and sometimes irreversible impacts on ecosystem services and their impact on sustainable recovery, contributing to further forced displacement related to environmental factors’ (UNEP/EA.3/Res.1).

The concept of ‘concrete and direct military advantage’ follows the same definitions as in the previous section for the principle of distinction. The term ‘military’ is understood as ‘gaining ground and annihilating or weakening the enemy armed forces’ and excludes advantages that would be merely ‘political, social, psychological, moral, economic or financial in nature’ (ICRC 2020, p.55) The term ‘concrete and direct’ has been interpreted by the ICRC to mean that the advantages anticipated should be ‘substantial and relatively

close, and that advantages which are hardly perceptible and those which appear only in the long term should be disregarded' (ICRC 2020, p.55).

There is no precise or defined formula to make this assessment, or to apply when giving relative values to the anticipated military advantage and expected incidental damages to civilian populations or objects. The weight given to types of incidental damages can be expected to vary depending on the context. The application of this principle is highly fact dependent and is open to subjective assessments and weighing of advantages versus perceived excessiveness of damages. Damages to the natural environment that occur in the middle of a deserted mountain area will likely carry less weight than damages done to a water reservoir supplying a civilian population with water. In this sense this principle is highly context-dependent when making balancing assessments, and application of the principle will vary in different situations. In some cases, it may be clear that damage is disproportionate, such as for example, destroying an entire forest in order to target a small camp of enemy combatants that is of minor importance. In other less severe cases, it may be difficult to decisively determine if military advantage was concrete enough to justify potential incidental damages. Overall, this leads to a degree of confusion when applying this principle in practice.

In Afghanistan, one major risk of collateral and incidental damages comes from the use of landmines. Although landmines were not produced within Afghanistan, they have been laid in all phases of the Soviet-Afghan war, and the US has admitted to using one anti-personnel mine in the US conflict, although there has been speculation that more had been used (Human Rights Watch 2001). Landmines and other unexploded ordnance contaminate at least 724 million square meters of land in Afghanistan. It is believed that only two of the 29 provinces in Afghanistan are free from landmines and unexploded ordnance (Human Rights Watch 2001). The most heavily mined provinces are Herat and Kandahar. Use of landmines in Afghanistan has been indiscriminate and minefields have been left unmarked. Mines were also delivered by air and are therefore impossible to track and prevalent even in remote mountain regions.

The military advantage of such weapons are clearly outweighed by their potential to cause devastating collateral and incidental damage to civilians and civilian objects (Human

Rights Watch 1997). Afghanistan has been described as the ‘most dangerous museum of unexploded ordinances in the world’ (Fraser 2003, p.77). The landmines found in Afghanistan are often designed to maim, such as the Soviet trip wire activated fragmentation mines, that shoot metal fragments when detonated and the large blast mines designed to be ‘virtually impossible to neutralize’ (Godrej 1997 in Fraser 2003, p.77). Mines are difficult to clear and present a continuous danger to human life, animal life, and the surrounding environment. Clearing may miss plastic mines, and mechanical mine clearing equipment can destroy topsoil and contribute to compounding the environmental devastation (Fraser 2003).

International law has explicitly addressed the use of landmines in the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Antipersonnel Mines and On Their Destruction (‘Mine Ban Treaty’) (1997). More than half of states have now ratified this, but this still leaves a large number of states outside of the treaty’s obligations. The United States has not signed the treaty. This is significant as the US is one of the world’s biggest producers and exporters of landmines and have used them extensively in past conflicts (Fraser 2003). This treaty was not in force when the majority of the mines in Afghanistan were laid so would not be applicable. The general principle of proportionality was in place and as it is recognized as customary international law, could have been applicable.

However, no actions have been taken on the basis of the use of mines as being disproportionate to any military advantages gained and there have not been any proceedings on the basis of a breach of this principle. While this principle is clearly helping to define international norms and has been considered by the ICRC as relevant to environmental protection, its application as a protective provision in practice has not been applied after an attack. It could be argued that the protections offered by this provision are more preventative – it sets a requirement for militaries to make an assessment when undertaking an attack. This is a useful aspect of the principle, and it is necessary to have principles confirming international norms and best practices, but there also need to be provisions and principles that are capable of addressing instances where these

considerations are not taken into account, or where these balancing exercises fail for whatever reason.

The most effective way to address these gaps would be to create a new legal instrument aimed at filling these legal lacunae. This would require concentrated effort from states willing to commit themselves to stricter rules during warfare. In practice, states have not been very willing to create strict new rules that may threaten their capacity to act during armed conflicts as this may be seen to limit their sovereignty or self-protective powers. With new recognition of the demands on the environment, and increasing scientific understanding of long-lasting consequences of damage, state practice and willingness to bind themselves to new obligations may change and develop. At present, while there have been calls for new measures, they are not being actively brought forward.

Landmines still cause huge amounts of damage in Afghanistan, with many civilian casualties. In 2002, the Band-e-Amir national park drew attention after a passenger bus hit an anti-tank mine and 13 lives were lost. Band-e-Amir is a heavily mined area and has not been cleared. During UNEP investigations, the south shore of the lake was deemed too dangerous for visitors to access (UNEP 2003).

6.4. What is military necessity in practice?

The principle of military necessity is at the core of IHL. This principle allows measures that are necessary to accomplish a legitimate military purpose and not otherwise prohibited by IHL. In an armed conflict, the only legitimate purpose is to weaken the military capacity of the other parties to the conflict. The purpose of IHL is to balance the two competing interests of military necessity and humanitarian needs.

This principle has been recognized as a general customary rule and norm of customary law applicable in both international and non-international armed conflicts. The rule that prohibits the destruction or seizure of property unless required by imperative military necessity is found in Article 23(g) of the Hague Regulations of 1907 and in Article 53 of the Fourth Geneva Convention of 1949. This rule is also restricted by the fact that military necessity cannot be used on the basis of this rule to justify destruction or damage to parts

of the natural environment when that damage would be prohibited by other rules. For example, destruction carried out by military attacks would still be governed by all applicable rules on attacks as well as this rule. Military necessity could not justify an attack on something that did not qualify as a military objective or allow the use of means or methods of warfare that would breach other provision and customary rules.

This rule prohibits the destruction of any property of an adversary that is not required by imperative military necessity (including the natural environment as a part of enemy property). Even damage that may not reach the threshold of long-term, widespread and severe may be a violation of this rule. For example, burning a forest so that the enemy combatants cannot use the resources would be a violation of this rule, or destroying foliage and plant life that may be used as cover for enemy forces. The property of an adversary is broadly defined and can include private property of protected persons (individual or collective), state property, public authority owned property, or property of cooperative organisations. The natural environment could be any of these types of property. This rule also protects natural resources from destruction or seizure, including valuable resources like gold, oil, or timber, but also water and fertile land.

If the property includes resources such as timber, water, and fertile land, it is clear that many of these types of resources have been seized, used, and destroyed in Afghanistan during the history of conflicts there. These resources include the ancient woodlands, pistachio forests, water infrastructure, and agricultural and fertile land in many of the provinces. In many of these cases of destruction, it may be that military necessity could be argued for. For example, the ICRC give an example of sufficient military necessity for the destruction of parts of the natural environment as a case where the ‘only safe locations for a military camp are on top of forested hills, and to set up the camp a section of trees must be cleared’. But what are the exact perimeters of military necessity?

In Afghanistan, before the Soviet war, the town of Qandahar was famous for its fruit orchards that produced a multitude of foods including almonds, figs, grapes, melons, mulberries, peaches, pistachios, and pomegranates (de Beurs & Henebry 2008). These orchards were maintained in a hot and dry desert due to many well-maintained and complex irrigation systems. During the Soviet war both sides heavily mined these orchards

and later the Soviet cut down thousands of trees and completely destroyed large parts of the irrigation system in order to find the Mujahedin who were hiding in the orchards (Rashid 2001; de Beurs & Henebry 2008). Would this complete destruction be an act of military necessity?

In an armed conflict, the only legitimate purpose is to weaken the military capacity of the other parties to the conflict. The standard at which this assessment is taken could conceivably impact the outcome. If it is a subjective standard, then it is likely that the definition of military necessity would be given a broader meaning based on the experiences and perceptions of the military personnel in the field. If it is an objective standard, then it would need to be clarified how much information is to be considered.

In practice, the judgement of a field commander over military necessity and proportionality is rarely challenged in domestic or international law unless the methods or means used were clearly illegal – such as actions amounting to genocide under the statute of the ICC or use of prohibited weapons (Luban 2015)

This division of views comes back to a fundamental difference in approaches to IHL from different sources. It is what Benvenisti has labelled a ‘cleavage between two visions of the law’ (Benvenisti 2006, p.83). On the one side, you have militaries aiming to ‘conciliate the necessities of war with the laws of humanity’ and on the other a ‘manifest of humanitarian fraternity’ (Benvenisti 2006, p.88). Luban (2006, p.316) points out that this distinction can be seen in the used nomenclature: military lawyers tend to refer to the laws of war as ‘LOAC’ or the law of armed conflict, whilst civilians and non-governmental organizations refer to them as ‘IHL’ or international humanitarian law.

It is argued that the LOAC view begins with armed conflict and focuses primarily on military necessity and the imperatives of war-making. Here the regulation of warfare aims to mitigate the horrors of war, and while this is seen as noble and important, it is logically secondary to the force majeure of military necessity. In other words, the law of war ‘dwells in the interstices of warfare’ (Luban 2015, p.316).

The IHL viewpoint on the other hand, begins with prioritizing humanitarianism and gives primary status to human rights and dignity. It views laws as instruments for enhancing

human dignity and regards peace as ‘the normal condition for human life’ (Luban 2015, p.316). This viewpoint sees war as inevitable, but as something that should be reduced, and something that should not trump over the protection of rights and dignity and the value of human life.

This theoretical division in foundational views of IHL, while not strictly black and white, could lead to large differences in its application. Where judgments over military necessity and assessments of proportionality are in the hands of military personnel and field commanders, it seems like a natural consequence that the needs of war would be given greater weight. Where the persons making these calls are embedded in the military culture and naturally prioritize their own purpose to weaken the military capacity of the other parties to the conflict, any assessments may be tipped in that direction and more military advantage and necessity may be seen. This is not always the case, and views on the purpose of IHL are not always divided, but it is an aspect that should be considered and taken into account when looking at how these assessments are actually carried out in practice on the battlefield.

6.5. A precautionary approach

The ICRC 2020 Guidelines on the Protection of the Natural Environment During Armed Conflict identifies the principle of precaution in Rule 8. Here it is stated that the principle of precaution is established as a rule of customary international law applicable in international and non-international armed conflicts with regard to any civilian object. The principle of precaution is also articulated in the second clause of Rule 44 of the ICRC Study on Customary International Humanitarian Law. The principle of precaution can also be found more generally in Article 57 of API. The precautionary principle is also a key tenet of international environmental law and although the exact interpretation and content of the principle may differ between these frameworks the basic idea is the same.

As covered by the previous principles, the areas of natural environment that are not military objectives should be protected from excessive incidental damage. The ICRC Study on Customary International Humanitarian Law notes that lack of scientific certainty

as certain military operations' impact on the environment does not absolve parties from taking proper precautionary measures to prevent undue damages (ICRC 2020, p.105) This links the uncertainty of the full impact of military operations to the precautionary principle from IEL. The precautionary principle has been gaining more recognition and there is practice showing that it applies in armed conflict (ICRC 2020).

The principle lays out a general obligation to ensure that civilian objects, including the natural environment, are spared in the conduct of military operations. The term, 'military operations' is broader than the meaning of 'attack' and can be understood to encompass 'any movements, maneuvers and other activities whatsoever carried out by the armed forces with a view to combat'. This is a wider obligation and imposes a duty to take constant care with the impact of military operations during activities outside of direct attacks, including troop movements and the operation of military bases. These are not covered under principles dealing with attacks, but still potentially pose risk to the environment. It also covers things such as the use of hazardous substances that may impact food sources for animals.

It also sets the obligation to employ means and methods of warfare with due regard for the protection of the natural environment and covers attacks. It sets out a duty to take all feasible precautions when carrying out an attack. All feasible precautions have been interpreted by many states as being limited to precautions that are practicable and practically possible when taking into account the circumstances ruling at the time and including humanitarian and military considerations (ICRC 2020). The phrase is defined in a similar way in the 1996 Amended Protocol II and 1980 Protocol III to the Convention on Certain Conventional Weapons (CCW). Therefore, the precautions that are feasible will be fact-specific and depend on the given circumstances of the situation. According to the ICRC, the factors may vary depending on things such as: 'the military advantage sought by the operation, whether it is time sensitive, the terrain (whether man-made or natural), the situation and capabilities of the parties to the conflict, the resources, methods and means available, and the type, likelihood and severity of the expected incidental civilian harm, including harm to the natural environment' (ICRC 2020, p.49).

Taking just some precautionary measures is not enough to comply with this obligation. It gives an obligation for states to take all precautions that are feasible under the circumstances, not just a selected few. The assessment of feasible precautions should be based on information from all sources available to them at the relevant time – including an obligation to proactively seek reasonably available information.

The ICRC guidelines (2020) offer some specific applications of this principle as it applies to attacks. These can shed some light on the obligations that this principle imposes as well as offering some guidance on how certain aspects of other principles should be interpreted under a precautionary approach.

The principle imposes a duty that each party to the conflict must do ‘everything feasible to verify that targets are military objectives, including that any part of the natural environment has become a military objective before it is attacked’ (ICRC 2020, p.58). This gives a higher standard of duty on parties when it comes to foreseeability and assessment of military necessity, proportionality, and legitimacy of attacks.

In Afghanistan, attacks were made on foliage and on plant life where it was considered that enemy combatants may have been using the area as cover. Applying the principle of precaution, if a specific area has been identified as a potential military objective for these reasons, it would be necessary to make attempts to verify that combatants were in fact located in that area and that attacking the foliage cover would actually offer a definite military advantage in the circumstances of the time. This is still subject to subjective assessment in the field, and military advantage is still an area that is quite broad when it comes to legitimizing justifications, but this additional requirement to make these assessments based on feasible precautions may be an extra step that will prevent some attacks where there are viable alternative actions to be taken that do not endanger the natural environment.

Parties must also take all feasible precautions when it comes to the choice of means and methods of warfare. They should seek to employ means and methods to avoid and minimize incidental loss of civilian life and damage to civilian objects, including those parts of the natural environment that are not military objectives. This could impose a duty

to assess the environmental impact of weaponry used, and assessment of potentially less damaging alternatives.

The principle also sets out a duty on parties to a conflict to take all feasible measures to assess if an attack can be expected to cause incidental loss of civilian life or damage to civilian objects which would be excessive to the concrete and direct military advantage anticipated (the same standard as the principle of proportionality). The ICRC suggests that this can be met by undertaking ‘prior assessments of the potential environmental impact of an attack, including the expected consequences of the weapons and ammunition used’ and that such assessments ‘must be conducted whenever feasible’.

However, in practice these steps may not be realistic to expect parties to comply with for each military attack. The principle sets out the obligation to undertake such assessments when feasible, but how often in an armed conflict situation is it going to be realistic for military personnel to make such an assessment based on the specifics of the area they are moving in? An overarching assessment of potential damages and the impacts of certain types of weapons may be more feasible.

In a real-world active combat situation where security and safety is at stake, military commanders may prioritize other considerations over carrying out a theoretical environmental impact assessment. Where the feasibility of taking preventative measures and assessments is a subjective evaluation and decision that is not likely to come under scrutiny, it is likely that such assessments may simply be overlooked. Although it is a binding principle as customary international law, if there is no oversight beyond the states’ own militaries and no risk of enforcement or risk for violation, compliance with standards that impose a high duty may be extremely low.

Where there is a choice between several military objectives for obtaining a similar military advantage, this principle states that the objective should be chosen that is expected to cause the least danger to civilian life and objects. In terms of the natural environment, this may involve selecting the objective that has the least vulnerability. For example, if the same military advantage could be gained from attacking an area that is home to an extremely endangered species such as snow leopards, or an area that does not house any such habitats, it would be clear which objective poses the least risk. This could become more of

a complicated determination where each objective has different but equally vulnerable elements housed there that would be at risk from attack.

6.6. The Martens Clause and its applicability to environmental protection

The Martens Clause is explicitly mentioned with reference to its application to environmental protection during armed conflicts in the ICRC's 2020 Guidelines. The Martens Clause states that:

Until a more complete code of the laws of war has been issued, the High Contracting Parties deem it expedient to declare that, in cases not included in the Regulations adopted by them, the inhabitants and the belligerents remain under the protection and the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience.

— *Laws and Customs of War on Land (Hague IV), 18 October 1907*

This means that in cases that are not covered by the provisions of international agreements, the natural environment is under the protection and authority of the principles of international law that are derived from established custom, principles of humanity, and the dictates of public conscience. The ICJ have ruled that the Martens Clause is of a customary nature. The exact meaning and scope of the Martens Clause continues to be a subject of discussion in the international legal community.

The mention of established norms, principles of humanity, international law, and public conscience have led to an interpretation of this clause as having an autonomous normative value under international law (ICRC 2020). It has been seen that each of these can be recognized in the motivation and will of states, organisations, and persons that have led to the adoption of new IHL treaties, and the evolution of new norms. Each pose potentially autonomous sources of international law. It has been argued that the clause has no influence on the system of international law but functions with treaties, customary law, and

general principles. This clause should also be seen as preventing the argumentum e contrario that what is not explicitly prohibited by treaty law is necessarily permitted.

The Martens Clause can be seen as an affirmation of the continued application and relevance of customary international law alongside treaty law. The purpose of the clause is to ensure that standards of internationally accepted norms are upheld by states even where there is not a complete codification of them into treaty law.

Norms and values are continually evolving and should be upheld even where treaty law has not yet caught up with this. It highlights the dynamic nature of IHL and also leaves space for the application of generally accepted norms to new areas such as developments in technology. It may be that a new and devastating weapon is not covered in a specific treaty prohibiting its use, but if it is clear from other principles and widely accepted practice and so forth, then it can still be viewed as prohibited according to the Martens Clause and the ‘the rule of the principles of the law of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience’.

This is especially relevant in environmental protection, as our knowledge of the environment, its vulnerability, and the potential chain effects of warfare is continually expanded by advances in science and technology. It is now understood that there is an international recognition of the importance of protecting the environment – this can be seen in the rapid expansion of IEL instruments and multilateral environmental treaties in public international law. The dictates of the public conscience recognise a need for and demand protection of the natural environment, as there is a greater understanding of the link between the survival of humanity and the state of the environment at large.

7. Analysis and conclusions

7.1. Summary analysis of application

While the prohibition of ‘long term, widespread and severe’ damage to the environment contained in API may at first glance appear comprehensive, a closer analysis reveals inconsistencies and uncertainties in what this standard means. The threshold is the same as that presented in ENMOD, but the meaning is deliberately different. Discussion around these phrases suggests that in practice they will present an impossible standard even where damages from military action can be tracked and attributed clearly. In practice, in real-world cases where armed conflict situations are complex, dangerous, and rife with uncertainties, they provide an even less useful tool. These standards suffer from a lack of case law or judicial interpretation to offer guidance or clarification and have not been applied or enforced in practice. Without a concentrated effort from state parties, it seems unlikely that these will be applied or further clarified.

The principle of distinction is seen as one of the general principles of IHL that provides protection for the environment during armed conflicts. An attack cannot be legitimately targeted against the environment unless it is directed against a specific part that has become a military objective. The definition of a military objective can only be fulfilled by ‘distinct parts’ of the environment such as ‘a specific cave’. It must also fulfil both prongs of a military objectives: it must ‘by its nature, location, purpose or use, make an effective contribution to military action’ and its ‘total or partial destruction, capture or neutralization, in the circumstances ruling at the time, must offer a definite military advantage’ (ICRC 2020). Using this test, there are many situations where an element of the environment can become a legitimate military target. There is also uncertainty about what actually constitutes a definite military advantage. While there is some guidance offered by the ICRC on how this should be interpreted, there is little data on how this is interpreted in practice by militaries in the middle of combat. Where this concept is being evaluated by a military commander in the midst of warfare, it seems unlikely that this could ever be an objective assessment of advantage or necessity.

The principle of proportionality has been established as a norm of customary international law applicable in international and non-international armed conflicts. Any part of the natural environment that is not a military object is protected not only against direct attacks, but also against excessive incidental or collateral damage in relation to the concrete and direct military advantage anticipated. However, the accepted standard here, as supported by the ICRC is one where harm must be reasonably foreseeable based on an assessment of information from all sources available to the party at the relevant time. There is no precise or defined formula to make this assessment. This is likely to lead to confusion when trying to apply this balancing exercise in practice.

The principle of military necessity allows measures that are necessary to accomplish a legitimate military purpose and not otherwise prohibited by IHL. In warfare, the only legitimate purpose is to weaken the military capacity of the other parties to the conflict. The standard applied for this assessment will impact the outcome. If it is a subjective standard, then most likely the definition of military necessity would be given a broader meaning based on the perceptions of the military persons in the field. If it is an objective standard, then it would need to be clarified how much information is to be considered. In practice, the principle of military necessity can lead to a very broad range of justifications for actions as the standard is not operationalized and defined.

The principle of precaution can also be applied to the protection of the environment during armed conflicts. In this context, the principle could have a big impact depending on how it is practiced. With environmental damage, in many cases the long-lasting consequences of damage may not be fully known with current scientific knowledge. In this sense, the principle could apply a strict precautionary approach assuming that where outcomes are not fully known attacks should be avoided. This would widen the scope of the kinds of means and methods that would be prohibited. However, this approach is not currently undertaken.

The content of the Martens Clause means that for cases not covered by international agreements, the natural environment is under the protection and authority of the principles of international law that are derived from established custom, principles of humanity, and the dictates of public conscience. Where our understanding of the risks posed to the

environment are constantly growing with scientific knowledge, this provides a means for the law to be flexible and adaptable to keep up with norms and values. Whereas treaty law may take years to be negotiated and not all states may be willing to undertake new obligations, if norms related to the environment emerge, this clause means that standards of the internationally accepted norms are upheld by states even where there is not a complete codification of them into treaty law.

7.2. Conclusions

Although there are legal provisions in force that relate to the protection of the environment during international armed conflicts – both directly and indirectly – there is a clear lack of application or enforcement of these principles in practice. These laws and provisions have not been enforced by international legal bodies and there is little jurisprudence relating to how they should take effect or how they should be interpreted.

The ICRC has clarified these provisions in several documents, and as the ‘guardian’ of IHL, these are very influential. However, they also recognise a lack of application of protections and highlight potential difficulties in their application. The focus of the research for this thesis was on the specific IHL provisions for environmental protection, along with the general principles of IHL and how these could be applied and seen to provide some degree of protection. Several gaps and challenges have been identified and discussed. The main question remaining in this area is how these challenges can be addressed to strengthen the legal framework and better enforce protections in practice.

Despite the existing protections, the environment continues to be a victim of armed conflicts across the world and the damage from previous armed conflicts continues to have impacts. The impacts of direct and indirect environmental damages from armed conflict and military actions can be seen in the case study of Afghanistan discussed in this thesis. The effects of this damage can be long-lasting and can include risks that threaten health, livelihood, and security of people as well as the health of biodiversity and ecosystems. It can also undermine peacebuilding once conflicts end, as there is a demand and fight for natural resources in countries with weakened governance, laws, and institutions.

It is clear that the provisions that do exist and potentially protect the environment have not been effectively enforced and applied in practice. Articles 35 and 55 of API do not provide effective protection in practice as they contain a deliberately strict, yet also unclarified cumulative threshold that is required to demonstrate damage. These articles require that damage is widespread, long-term, and severe. All of these must be proved in order for damage to violate this threshold. As these three standards are not precisely defined, and discussion around the meaning of these is generally in agreement that each provides a high standard, the three-pronged threshold is almost impossible to reach.

The terms widespread, long-term, and severe within these articles should be more clearly defined. These terms are similar to those in ENMOD, but have been distinguished by their cumulative nature. A clarification of the exact meaning of these thresholds would provide a greater understanding of the exact limits of the protection provided in this treaty. For example, in ENMOD, the term widespread is defined to encompass an area on the scale of several hundred square kilometers, and long lasting means a period of months or a season. Formulation of similar standards for Articles 35 and 55 could help them be more relevant in practice and make their application and enforcement more likely.

There is a lack of case law of the protection of the environment as not many cases have been brought before courts. There is a dearth of cases addressing this area as provisions have not been applied or brought before national, regional, or international courts or tribunals. A lack of case law is indicative of a reluctance or difficulty in enforcing applicable legal provisions. Case law could help to clarify, develop, and build this area while setting standards.

The lack of enforcement of these rules may also be exacerbated by the lack of a permanent international mechanism to monitor and address legal infringements. A lack of case law and enforcement could also be seen to show that the international community is not well equipped to monitor and determine liability for damage caused by international armed

conflicts. Having a standing body dedicated to this area could act as a deterrent – but the establishment of a body requires a concerted political will from states.

It may be equally important to have trained international legal practitioners to enforce the existing laws. Training legal professionals in the prosecution of environmental violations during warfare could contribute to enriching the corpus of case law in this area.

Development of case law is important in bringing clarity to the existing provisions and in highlighting and leading the right direction for the development of this area of law.

Indirect protection is provided to the environment by way of its characterization as a civilian object. Restrictions on means and methods of warfare and provisions protecting civilian objects and property can cover the environment, but these have rarely been enforced or implemented in relation to the environment. Focus is almost exclusively on protection of human beings. There are international legal treaties prohibiting the use of certain weapons and methods, but these do not cover all new technologies – for example depleted uranium – that may threaten the environment.

The general principles of IHL and customary international law provide some protection and some guidelines on international norms and values during armed conflicts, but in the current form they may not be enough to address the complexities of modern armed conflicts without further clarification and implementation. The principles do not have internationally agreed standards, and without these, it is easy to slip through the gaps or justify damages on the basis of military necessity. The effectiveness of these rules is therefore limited in practice by the lack of agreed upon standards.

These general principles could be expanded to be clearer on what the thresholds are, and having agreed standards become customary international law would provide a great deal of protection as it would also cover those states not necessarily party to explicit treaties or agreements. However, customary international law follows widely agreed and accepted norms and state practice. It is not an area amenable to quick or specific changes. In this

respect, a new instrument building upon these principles and clarifying the standards may be a more useful way forward to protect the environment in the shorter term.

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