

RESTORING HUMANITY TO HUMANITARIAN LAW: BORROWING  
FROM ENVIRONMENTAL LAW TO PROTECT CIVILIANS AND THE  
ENVIRONMENT

(Thesis format: Monograph)

by

Kirsten Stefanik

Graduate Program in Law

A thesis submitted in partial fulfillment  
of the requirements for the degree of  
Masters of Law

The School of Graduate and Postdoctoral Studies  
The University of Western Ontario  
London, Ontario, Canada

© Kirsten Stefanik 2013

## Abstract

As concerns about the environment increase and civilians continue to become casualties of armed conflict, we must reflect on traditional approaches and applications of International Humanitarian law [IHL]. While the current state of IHL provides protections for civilians and the environment, examples in practice of excessive harms to both suggest a gap exists in these protections. Current academic literature in the field tends to focus on either the protection of civilians or the protection of the environment, on either IHL or International Environmental law [IEL]. This is problematic as the two are inextricably linked: civilians and environment often, if not always, go hand in hand. This thesis seeks to close these gaps. It begins with an examination of existing IHL and a look at two instances which resulted in excessive harms to civilians and the environment. Next, it turns to the role of general principles of international law, in particular the precautionary principle and the principle of intergenerational equity in IEL, which are well-accustomed to dealing with short-term and long-term health and environmental risks, as well as scientific uncertainty. The thesis demonstrates how the use of these principles in military decision-making could fill the existing gaps in IHL.

## Keywords

International Humanitarian Law, International Environmental Law, Intergenerational Equity, Precautionary Principle, General Principles of International Law

## Acknowledgments

I would like to express my profound thanks, appreciation and admiration for my supervisor, Professor Sara Seck. Her support, encouragement, and insights from start to finish have been invaluable. I feel truly fortunate to have had her as my supervisor and have learned so much that I will carry with me as my career progresses.

I would also like to express my sincere gratitude to Professor Valerie Oosterveld. Her insightful comments and suggestions on my drafts have most definitely improved my thesis in ways I could not possibly have achieved on my own.

I would also like to express my gratitude to Western University and, in particular the Faculty of Law, whose financial support made this all possible.

Finally, I would like to thank my parents and my brother. Their unfaltering love, support, and pride in my achievements always motivate me to reach higher.

# Table of Contents

Abstract.....	ii
Acknowledgments.....	iii
Table of Contents.....	iv
Chapter 1.....	1
1The Ever-Increasing Costs of War to Humanity.....	1
1.1 Introduction.....	1
1.2 Objectives and Scope.....	2
1.3 Sources of International Law.....	5
1.4 Organization of Thesis.....	8
Chapter 2.....	12
2 The Current Status of International Humanitarian Law: Existing Protections for Civilians and the Environment in Armed Conflict.....	12
2.1 Introduction.....	12
2.2 Protection of Civilians and Civilian Objects in International Humanitarian Law	13
2.2.1 Limitation on the Means of Warfare.....	13
2.2.2 Prevention of Unnecessary Suffering.....	15
2.2.3 Restriction to Military Targets.....	17
2.2.4 Precaution and Proportionality.....	22
2.2.5 Military Necessity and Humanity.....	23
2.3 Environmental Protection in International Humanitarian Law.....	26
2.4 Civilian and Environmental Protections during Armed Conflicts in Practice: Theory vs. Practice.....	30
2.4.1 NATO bombings in Kosovo.....	30
2.4.2 Depleted Uranium Weapons in the 1991 Gulf War and the 2003 Iraq War .....	32

2.4.3	Conclusion .....	33
2.5	Literature Review: Two Spheres Considered in Isolation .....	34
2.6	Conclusion .....	42
Chapter 3	.....	45
3	The Power of Principles: General Principles of International Law .....	45
3.1	Introduction.....	45
3.2	Defining Principles of International Law .....	46
3.3	Toward a Basic Definition of General Principles .....	47
3.3.1	Derived from National Laws .....	51
3.3.2	Intrinsic to the Idea of Law .....	52
3.3.3	Derived from the International Legal System.....	53
3.4	Comparativist or Categoricist Approaches to Identifying General Principles.....	54
3.5	The Role of General Principles in International Law .....	56
3.5.1	Unification Function .....	57
3.5.2	Gap-Filling Function.....	59
3.5.3	Interpretive Function.....	61
3.5.4	Development Function.....	63
3.6	Custom or Principle?: The Relationship between Custom and General Principles .....	65
3.7	Hierarchy of Sources of International Law.....	66
3.8	General Principles: The Soft Law Argument.....	68
3.9	Conclusion .....	70
Chapter 4	.....	72
4	International Environmental Law: Exploring Sustainable Development and Intergenerational Equity.....	72
4.1	Introduction.....	72
4.2	International Environmental Law & Sustainable Development .....	72

4.2.1	International Environmental Law .....	72
4.2.2	Sustainable Development as Encompassing International Environmental Law .....	77
4.2.3	Conclusion .....	82
4.3	Intergenerational Equity.....	82
4.3.1	Defining Intergenerational Equity .....	83
4.3.2	The History of Evolution of Intergenerational Equity .....	85
4.3.3	The Current Legal Status of Intergenerational Equity .....	90
4.3.4	Intergenerational Equity and Human Rights.....	91
4.4	Conclusion .....	96
Chapter 5	.....	98
5	The Precautionary Principle in International Environmental Law .....	98
5.1	Introduction.....	98
5.2	Emergence and Development of the Precautionary Principle in International Environmental Law.....	99
5.3	Defining the Precautionary Principle.....	104
5.4	Threat of Harm.....	108
5.5	Uncertainty and Risk.....	110
5.6	The Burden of Proof .....	113
5.7	The Legal Status of the Precautionary Principle.....	116
5.8	Health and the Precautionary Principle.....	120
5.9	Precaution and Proportion: The Precautionary Principle versus International Humanitarian Law .....	121
5.10	Conclusion .....	125
Chapter 6	.....	127
6	Application of IEL Principles to Military Decision-Making .....	127
6.1	Introduction.....	127

6.2 The Application of International Environmental Law in Armed Conflicts .....	127
6.3 Assessing Real-Life Scenarios in Light of a Systemic Relationship between IEL and IHL .....	132
6.3.1 NATO bombings in Kosovo .....	133
6.3.2 Depleted Uranium Weapons in the 1991 Gulf War and the 2003 Iraq War .....	139
6.4 Conclusion .....	143
Chapter 7 .....	144
7 Conclusion .....	144
Bibliography .....	149
LEGISLATION.....	149
JURISPRUDENCE .....	154
SECONDARY MATERIALS: MONOGRAPHS .....	156
SECONDARY MATERIALS: ARTICLES .....	161
Curriculum Vitae .....	167

## Chapter 1

### 1The Ever-Increasing Costs of War to Humanity

#### 1.1 Introduction

The protection of civilians and civilian objects has a long history in international humanitarian law (IHL). Unfortunately, as the methods and means of warfare have evolved and developed, the military and civilian spheres have become increasingly intertwined and overlapping. Though IHL long predates World War II, the Battle of Britain and the bombings of Dresden are but two instances during that war where civilians and civilian objects became the targets of military action. Post-World War II, the international community attempted to strengthen the existing laws with the entirety of the fourth Geneva Convention of 1949 devoted to the “Protection of Civilian Persons in Time of War”.<sup>1</sup>

In the post-World War II era, human rights and environmental concerns also began to take on more prominent roles in international discourse and regulation. Nonetheless, despite increased international commitment to the protection of civilians and civilian objects in armed conflict, and amidst growing concern for the protection of human rights and the environment, the Vietnam War saw the massacre of unarmed civilians, such as the My Lai massacre,<sup>2</sup> and large-scale destruction of forests and vegetation through the use of chemical defoliants such as agent orange.<sup>3</sup> Once again, the international community responded with the negotiation and adoption of Additional

---

<sup>1</sup> Geneva Convention Relative to the Protection of Civilian Persons in Time of War (Fourth Geneva Convention), 12 August 1949, 75 UNTS 287, available at: <http://www.icrc.org/ihl.nsf/INTRO/380>.

<sup>2</sup> For a detailed account of the My Lai massacre see, for example, James Olson and Randy Roberts, eds, *My Lai: A Brief History with Documents* (Boston: Bedford Books, 1998).

<sup>3</sup> For a detailed examination of the use of the environmental damage caused by agent orange and means of warfare in Vietnam see, for example, Arthur H Westing, *Ecological Consequences of the Second Indochina War* (Atlantic Highlands, NJ: Almqvist & Wiksell International, 1976).

Protocol I to the Geneva Conventions of 1949 [Additional Protocol I].<sup>4</sup> This convention re-articulated, re-emphasized, and elaborated on the existing protections for civilians and civilian objects in international armed conflicts and included two specific provisions aimed at the protection of the environment in armed conflict.<sup>5</sup> Additionally treaties were later created which prohibited the use of the environment as a weapon<sup>6</sup> and which banned the use of incendiary weapons in conflict.<sup>7</sup>

The trend has been for international responses to harms which exceed the dictates of humanity to be reactionary, addressing the harms of the last conflict in the hopes of preventing their repetition or reoccurrence in future conflicts. As our understanding of the environment and the interdependencies between humanity and nature grows, so do our technologies and capacities to wreak serious and irreversible harm to human and natural environments not only in the short-term, but for generations to come. As the risks rise, the time for wait-and-see and cleaning up after the fact is passing. If the international community continues in this reactionary mode, it is increasingly likely that its reactions will be too late to undo serious damage already inflicted on the environment, communities, and states.

## 1.2 Objectives and Scope

This thesis aims to address this need to be more proactive to the approach to protections for civilians and the environment in armed conflict. It focuses on the rules and customs applicable to international armed conflict. While conflict can be identified as either international (between states) or internal or non-international (within a single state), the rules differ somewhat between the two types of conflict. For example,

---

<sup>4</sup> *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts*, June 8, 1977, 1125 UNTS 3. [hereinafter Additional Protocol I]

<sup>5</sup> Additional Protocol I, *ibid* at Articles 35(3) and 55.

<sup>6</sup> *1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques* (ENMOD), adopted by the UN General Assembly, Res 31/72, 10 December 1976. [hereinafter ENMOD]

<sup>7</sup> *Protocol on Prohibitions or Restrictions on the use of Incendiary Weapons* (Protocol III), 10 October 1980, 1342 UNTS 171, 19 ILM at 1534. [hereinafter CCW Protocol III]

Additional Protocol I, which is relied upon heavily in this thesis, applies to international armed conflicts and not internal conflicts.

This thesis will examine the seeming failure in current applications of IHL to adequately protect civilians, civilian objects, and the environment in armed conflicts. There appears to be a breakdown in military decision-making that results in questionable military action at the cost of civilian lives, livelihoods and environment. For example, the continuing use of weapons with high failure rates and the potential for long-lasting harm to both human and natural environments does not appear to be adequately considered in weapon and target selection. Military decisions on which weapons to use and where and when to attack are required to conform to the principles of IHL which demand precaution, distinction between civilian and military, and a proportional balancing of interests of military necessity and humanity. However, these principles are clearly not enough: what is needed is more clarity in existing international legal provisions and customs protecting civilians and the environment in armed conflict. If military decision-makers were provided with clearer legal guidelines for balancing military necessity and humanitarian concerns, then they would not be able to hide in the gap that currently exists in the ambiguity of the law. Guidelines providing greater structure on considerations of the severity of harm, the longevity of consequences, and how to address scientific uncertainty would provide additional structure by which to guide decision-making. This would also allow individuals, civilians, non-governmental organizations [NGOs], and other states to better understand, evaluate and, if need be, challenge the determinations of state military actors.

These guidelines or markers could inform the application of existing laws for the protection of civilians and the environment in armed conflict. However, these do not need to be new creations: rather, they already exist in international law. International environmental law [IEL] is an existing body of law which prioritizes the protection of the environment and human health. IEL principles can, and should, be used to inform the interpretation and application of existing IHL. This thesis focuses on two such principles: intergenerational equity and the precautionary principle. The former states that, while the present generation benefits from the planet and its resources, it is also under an obligation

to preserve the condition of the planet so as to pass it on to subsequent generations in as good a condition as it was received from preceding ones<sup>8</sup>. The latter requires actors to err on the side of caution where there is evidence of a serious or irreversible risk of damage to the environment or human health, even if scientific uncertainty surrounds that risk.<sup>9</sup> Together these principles incorporate both short-term and long-term considerations, as well as considerations of environmental protection and the protection of human health, and attempt to grapple with scientific uncertainty in an effort to protect the environment from rash and unmeasured action. Technological advancements are occurring at such a pace that sometimes they risk outstripping humans' abilities to know the consequences of their actions before they have been taken. Intergenerational equity and the precautionary principle mandate taking a moment to consider the full extent of the consequences of actions to avoid a realization after the fact that these actions have irrevocably damaged the environment and endangered human health.

These principles also have strong ties to the concept of sustainable development, which is “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>10</sup> This entails the preservation of natural resources for future generations, the sustainable or appropriate exploitation of natural resources, the use of natural resources equitably between states, and the integration of environmental concerns and considerations into economic and developmental planning.<sup>11</sup> Sustainable development also provides a strong link between the environment and armed conflict, as conflict inherently creates an obstacle to

---

<sup>8</sup> See Weiss, Edith Brown. *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (Dobbs Ferry, New York: Transnational Publishers, Inc, 1989). [hereinafter Weiss (1989)]

<sup>9</sup> See e.g. James Cameron, “The precautionary principle: Core meaning, constitutional framework and procedures for implementation” in Ronnie Harding and Elizabeth Fisher, eds, *Perspectives on the Precautionary Principle* (Sydney: The Federation Press, 1999) 29. [hereinafter Cameron (1999)]

<sup>10</sup> World Commission on Environment and Development, *Our Common Future* [Brundtland Report] (Oxford: Oxford University Press; 1987) at 8. [hereinafter Brundtland Report]

<sup>11</sup> Philippe Sands and Jacqueline Peel, with Adriana Fabra and Ruth MacKenzie, eds, *Principles of International Environmental Law*, 3d (Cambridge & New York: Cambridge University Press, 2012) at 207. [hereinafter Sands *et al.*]

development. Development is about production and creation, while conflict is about destruction. Clearly, conflict inhibits, or perhaps undoes, development. The destruction of infrastructure and the natural environment are detrimental to health, education, and the continued development of societies. For example, approximately 40 million school-age children do not attend school in conflict-affected and fragile states.<sup>12</sup> A by-product of the protection of civilians and the environment in armed conflict is that it also serves to promote the long-term protection and enjoyment of sustainable development. Sustainable development is an important component of, and link between, IEL and IHL and will be discussed in greater detail in chapter four. However, the prevailing emphasis in this thesis will remain on IEL.

The objective of this thesis is to advocate for an integrated IEL and IHL approach to military decision-making, and to demonstrate the benefits of this approach through two modern conflict examples. The first example considered is the use of cluster munitions in or near population-dense areas during the 1999 NATO campaign in Kosovo. The second example explores the use of depleted uranium weapons in the 1991 Gulf War and the 2003 Iraq War.

### 1.3 Sources of International Law

This thesis relies upon the sources of international law. Article 38(1) of the Statute of the International Court of Justice (ICJ) lists the most authoritative sources of international law:

- a) international conventions, whether general or particular, establishing rules expressly recognized by the contesting states;
- b) international custom, as evidence of a general practice accepted as law;

---

<sup>12</sup> Women's Refugee Commission, "Ensuring Opportunities for Displaced Youth" available at: <http://womensrefugeecommission.org/programs/youth>.

c) the general principles of law recognized by civilized nations;

d) subject to the provisions of Article 59, judicial decisions and the teachings of the most highly qualified publicists of the various nations, as subsidiary means for the determination of rules of law.<sup>13</sup>

International conventions are binding bilateral or multilateral agreements between states and governed by international law.<sup>14</sup> They are more commonly referred to as treaties, but can equally be labeled conventions, protocols, covenants, and acts.<sup>15</sup> Treaties can create legal obligations as well as legal entitlements.<sup>16</sup> The content of the treaty is usually the result of negotiations among states or their representatives,<sup>17</sup> sometimes with the input of non-state actors such as experts and NGOs.<sup>18</sup> Once the treaty negotiations are complete, the final draft is adopted by the parties and authenticated by signature.<sup>19</sup> States consent to be bound by the treaty once they ratify it in their home state and, once the ratification is deposited (usually with the United Nations), they are referred to as States parties.<sup>20</sup> The formation, application and interpretation of treaties is guided

---

<sup>13</sup> *Statute of the International Court of Justice*, June 26, 1945, 59 Stat 1055, 33 UNTS 993. [hereinafter ICJ Statute]

<sup>14</sup> See e.g. Antonio Cassese, *International Law*, 2d (Oxford, UK: Oxford University Press, 2005) at 170. [hereinafter Cassese]

<sup>15</sup> Cassese, *ibid.*

<sup>16</sup> Cassese, *ibid.*

<sup>17</sup> Gideon Boas, *Public International Law: Contemporary Principles and Practices* (Cheltenham, UK: Edward Elgar Publishing Limited, 2012) at 56. [hereinafter Boas]

<sup>18</sup> An excellent example of a treaty with lots of non-state involvement in the negotiating/drafting process is the 1997 Landmine Ban Convention, *Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction*, 18 September 1997, reprinted in *IRRC*, No 320, September-October 1997, pp. 563-578. [hereinafter Landmine Ban Convention]

<sup>19</sup> Boas, *supra* note 17.

<sup>20</sup> Boas, *ibid.*

by their own content as well as the 1969 *Vienna Convention on the Law of Treaties* (VCLT).<sup>21</sup>

Unlike treaty law, which is binding only on parties that have ratified the treaty in question, rules of international custom are binding on all states.<sup>22</sup> For something to be an international custom two elements are required: state practice and *opinio juris*.<sup>23</sup> General state practice normally requires that the practice among states is “both extensive and virtually uniform”.<sup>24</sup> The practice does not need to be universally employed by states, rather the key is whether the practice of states is “widespread and representative” of the international community.<sup>25</sup> The second required element, *opinio juris*, is a more subjective element. It requires “that states undertake state practice out of a sense of legal obligation”.<sup>26</sup> For a practice to be custom, it must be widely accepted and followed by states and they must be following it because they believe that they are under a legal obligation to do so.

The next source of international law is ‘general principles of law recognised by civilised nations’. Generally, the outdated reference to ‘civilised’ is now ignored in favour of understanding the source as “general principles of law recognised by the community of nations”.<sup>27</sup> These principles can be sourced from many different places. They can be principles general to the domestic law of nations, principles of international law generally, principles that represent “general legal standards overarching the whole

---

<sup>21</sup> *Vienna Convention on the Law of Treaties*, 23 May 1969, United Nations, Treaty Series, vol. 1155, p. 331 available online at <http://www.refworld.org/cgi-bin/texis/vtx/rwmain?docid=3ae6b3a10>. [hereinafter VCLT]

<sup>22</sup> Cassese, *supra* note 14 at 157.

<sup>23</sup> Cassese, *ibid.*

<sup>24</sup> International Court of Justice, *North Sea Continental Shelf cases (Federal Republic of Germany v Denmark; Federal Republic of Germany v Netherlands)*, ICJ Reports 1969, p 3, 20 February 1969, at para 74, available at: <http://www.refworld.org/docid/50645e9d2.html>. [hereinafter *North Sea Continental Shelf case*]

<sup>25</sup> *North Sea Continental Shelf case*, *ibid* at para 73.

<sup>26</sup> Boas, *supra* note 17 at 89.

<sup>27</sup> Cassese, *supra* note 14 at 188.

body of law governing a specific area”, and so on.<sup>28</sup> They can also fulfill many functions, in particular, filling gaps in international law and aiding in the interpretation of other international law.<sup>29</sup>

The final sources of international law – judicial decisions and the writings of publicists – are noted as “subsidiary means for the determination of rules of law”.<sup>30</sup> These are not binding, formal sources of the law, but rather provide informed and influential evidence of what the law might be or as evidence of the development of international law.<sup>31</sup> Even though judicial decisions are not binding in international law, “many decisions of the most authoritative courts (in particular the ICJ) are bound to have crucial importance in establishing the existence of customary rules, or in defining their scope and content, or in promoting the evolution of new concepts”.<sup>32</sup>

Finally, there are many international instruments that have no *prima facie* binding effect in international law, but can usually provide guidance in interpreting international law, or as evidence of state practice or *opinio juris* to indicate the formation of customary law. These instruments include declarations, voluntary guidelines, United Nations General Assembly resolutions, and publications and reports by international organizations.<sup>33</sup>

## 1.4 Organization of Thesis

This thesis consists of seven chapters. This chapter, chapter one, has introduced the context, problem, and aim of the thesis. It also provides a basic understanding of the sources of international law that will be relied upon in this work.

---

<sup>28</sup> See Cassese, *ibid* at 189; Boas, *supra* note 17 at 106-107.

<sup>29</sup> Cassese, *ibid* at 188.

<sup>30</sup> ICJ Statute, *supra* note 13 at Article 38(1)(d).

<sup>31</sup> Boas, *supra* note 14 at 110-115; Ian Brownlie, *Principle of Public International Law*, 7d (Oxford: Oxford University Press, 2008) at 24-25. [hereinafter Brownlie]

<sup>32</sup> Cassese, *supra* note 14 at 195.

<sup>33</sup> See e.g. Cassese, *ibid* at 196-197.

Chapter two examines the existing conventional and customary international humanitarian law which governs international armed conflicts. It focuses first on the protections for civilians and civilian objects under the traditional rules preventing unnecessary suffering, and limiting the means and methods of warfare, requiring combatants to distinguish between civilians and combatants, as well as between civilian objects and military objectives. It also discusses the IHL requirements of proportionality and precaution. It explores the tension between the key values that are sought to be balanced in proportionality assessments: military necessity and humanity. It then turns to the few specific provisions which address the protection of the environment in armed conflict. Next, chapter two outlines two modern examples in which the environment and civilians have suffered serious harms as a result of armed conflict. These examples will again be used in chapter six to apply the approach suggested in this thesis. Finally, this chapter provides a brief literature review demonstrating what appears to be an arbitrary separation of environment and civilians during conflict within academic discourse.

Chapter three turns to the source of international law that plays an integral role in the approach suggested in the thesis: general principles of international law. This chapter examines in great detail the many different understandings and interpretations of this source of law. It focuses on the different and very useful functions they can fulfill in international law, in particular in the interpretation and application of other rules of international law. This is important for the thesis, because the proposed approach relies on the use of general principles of international law to interpret and apply existing rules of IHL.

Chapter four shifts the focus to IEL and examines this body of law and its connection to sustainable development. It then explores the first general principle relied on in the thesis: the principle of intergenerational equity. The definition, history, evolution, and legal status of intergenerational equity are examined. It then examines in greater detail applications of intergenerational equity in the context of human rights to environmental protection and health.

Chapter five focuses on the second general principle of IEL relied on in this thesis: the precautionary principle. The evolution, definition, and legal status of the principle are explored. Particular attention is paid to the key elements of the principle: threat of harm and scientific uncertainty. The differences between precaution and proportionality under the precautionary principle are examined, and compared to the same concepts in IHL.

Chapter six intertwines all of the elements introduced in the four preceding chapters. It examines the application of IEL in armed conflicts and shows that it does not cease to apply once hostilities begin, but remains a consideration for military decision-makers applying IHL. The chapter then returns to the examples initially outlined in chapter two, applying first the specific environmental IHL provisions and, then, the proposed proportionality assessment employing the principles of IEL as guiding markers. Through these examples, this chapter demonstrates that a proportionality assessment carried out using the intergenerational equity and precautionary principles help to interpret and inform the provisions on the protection of civilians and civilian objects, such as the environment, and would provide increased protection for civilians and the environment in armed conflict.

Finally, chapter seven provides the conclusion to the thesis. It restates the research problem and summarizes the findings. It reiterates that there is a gap in existing protections under international humanitarian law for civilians and the environment. It emphasizes that general principles of international law are tools which often function to unify the law, fill gaps and aid in interpretation. The inextricable link between humans and the environment, both in peacetime and wartime, makes principles of international environmental law well-suited to take on a unifying, gap-filling, and interpretive role under international humanitarian law. The ability of intergenerational equity and the precautionary principle to account for serious or irreversible harm, scientific uncertainty, and short and long-term risks and consequences provides the guidelines that are missing in existing international humanitarian protections. These guidelines can serve to aid in military decision-making in order to decrease the instances in which excessive harm to civilians and the environment is the outcome of attack. The application of these principles

in examining examples from the Kosovo conflict and the Iraq war support this conclusion. The final chapter will then outline and acknowledge the limitations of the research, such as the focus only on international conflicts and the consideration of only two principles outside of international humanitarian. Finally, avenues for further research will be proposed, for example, the applicability of other principles of international law in military decision-making and the extension of these strengthening protections for civilians and the environment to internal armed conflicts.

## Chapter 2

# 2 The Current Status of International Humanitarian Law: Existing Protections for Civilians and the Environment in Armed Conflict

## 2.1 Introduction

Over the last two hundred years, there has been an evolution and emergence of a strong and expansive body of law designed to govern situations of armed conflict when, for all intents and purposes, all other order has broken down. Several key themes, or overarching principles, dominate this body of law, which is referred to as international humanitarian law (IHL). Three important threads running through IHL are: the limitation of the means of warfare; the prevention of unnecessary suffering; and the restriction of damage to military targets. All three of these threads are interrelated and have overlapping areas of concern: this serves to emphasize both their mutual and independent importance.

This chapter will explore each of these themes in turn. The first theme, the limitation on the means of warfare, emphasizes that the means of warfare are not unlimited. Rather, restrictions are placed on military actors as to the types of weapons they may and may not use in conflicts. The second theme, the prevention of unnecessary suffering, seeks to limit warfare so as to avoid the infliction of superfluous harm and suffering to both combatants and civilians. It limits military actors to the minimum means necessary to achieve victory and protects humanitarian considerations in the conduct of hostilities. Third, military actors are restricted to targeting and attacking combatants and military objectives. They must at all times distinguish civilians and civilian objects from combatants and military objectives. Next, the principles of precaution and proportionality will be examined. The former demands that all 'feasible precautions' are taken to avoid damage to civilian objects and civilian casualties. The latter demands a balancing assessment which weighs the military advantage, or military necessity, of an operation with the damage that will be inflicted, particularly in terms of incidental, or collateral, damage to civilians. Finally, the two key considerations of IHL – military necessity and

humanity – are examined, along with the inherent tension between the two concepts. The chapter then turns to the specific provisions in IHL for the protection of the environment. While the environment is indirectly protected, as a civilian object, by provisions protecting civilians and civilian objects, there are also provisions which directly protect the environment in armed conflict.

This discussion demonstrates that there are, formally, a great number of protections in IHL for both civilians and the environment. Unfortunately, practice suggests that these protections are not fully or adequately realized in application. This chapter attempts to demonstrate this by outlining two examples from recent conflicts in Kosovo and Iraq in which the harms and threats to civilians and the environment seem to exceed the boundaries of their IHL protections. The chapter then reviews a selection of academic literature that suggests a gap in academic discourse which fails to appreciate the inextricable link between humans and the environment. Ultimately, this chapter aims to provide the necessary foundation of existing IHL and to identify a problem within existing IHL that this thesis will address.

## 2.2 Protection of Civilians and Civilian Objects in International Humanitarian Law

### 2.2.1 Limitation on the Means of Warfare

Enshrined in Article 35(1) of Additional Protocol I 1977 is the rule that “[i]n any armed conflict, the right of the Parties to the conflict to choose methods or means of warfare is not unlimited.”<sup>34</sup> That the methods and means of warfare are not unlimited is also a widely embraced key tenet of customary IHL.<sup>35</sup> In its most simple form, the limitation on means of warfare is seen in the wide array of weapon ban conventions in

---

<sup>34</sup> Additional Protocol I, *supra* note 4 at Article 35(1).

<sup>35</sup> Christopher Greenwood, “The Law of War (International Humanitarian Law)” in Malcolm D Evans, ed, *International Law*, 2d, (Oxford: Oxford University Press, 2006) 783 at 795. [hereinafter Greenwood] This is also stated in Article 22 of the 1907 Hague Regulations on Land Warfare, *Convention (IV) Respecting the Laws and Customs of War on Land and its Annex: Regulation concerning the Laws and Customs of War on Land*, 18 October, 1907, 187 CTS 227; 1 Bevans 631 [hereinafter 1907 Hague Regulations]; and, Article 35(1) of Additional Protocol I, *ibid*.

existence: from a prohibition on expanding bullets in the Hague Convention 1899<sup>36</sup> to the prohibition of asphyxiating, poisonous and other gasses by Convention in 1925,<sup>37</sup> to a ban on blinding lasers in 1995,<sup>38</sup> the Landmine Ban of 1997,<sup>39</sup> and the cluster munitions ban of 2008.<sup>40</sup> These are but a few of the means of warfare subject to specific restriction or outright prohibition.<sup>41</sup>

While the principle that the methods and means of warfare are not unlimited is established law, this does not mean that conventions restricting, limiting or banning weapons are always easily adopted. They are often the product of lengthy negotiations and not all achieve universal support. The case of landmines, and more recently cluster munitions, are prime examples. Both are currently the subject of separate agreements prohibiting their use, but many key States are not party to these agreements, such as the United States, China, and Russia. These are major world powers and all stockpile, produce, and have used cluster munitions in conflict.<sup>42</sup> In the case of the Landmine Ban, the process to create the Convention was well publicized with the support of a great number of states and was an important moment for the rise of non-governmental

---

<sup>36</sup> *Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land*. The Hague, 29 July 1899 reprinted in *The Laws of Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents*, ed D Schindler and J Toman (Boston: Martinus Nijhoff Publishers, 2004) 69-93[hereinafter 1899 Hague Convention].

<sup>37</sup> *Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare*, June 17, 1925, 26 UST 571, 94 LNTS 65.

<sup>38</sup> *United Nations 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*, 13 October 1995, United Nations CCW/CONF.I/7. [hereinafter 1980 CCW]

<sup>39</sup> Landmine Ban Convention, *supra* note 18.

<sup>40</sup> Convention on Cluster Munitions, 30 May 2008, CCM/77, available at: <http://www.clusterconvention.org/files/2011/01/Convention-ENG.pdf>.

<sup>41</sup> Other examples include the *Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction* (Biological Weapons Convention), 10 April 1972, 1015 UNTS 163; 11 ILM 309 (1972); and, the *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* (Chemical Weapons Convention), 3 September 1992, 1974 UNTS 45; 32 ILM 800 (1993).

<sup>42</sup> Human Rights Watch, "Cluster Munitions Information Chart" (2010), available at: [http://www.hrw.org/sites/default/files/related\\_material/2010.4.5%20Arms,%20Cluster,%20Info%20Chart%20Final.pdf](http://www.hrw.org/sites/default/files/related_material/2010.4.5%20Arms,%20Cluster,%20Info%20Chart%20Final.pdf).

organizations [NGOs], which were integral in championing the cause to a successful conclusion.<sup>43</sup> Unfortunately, not all States chose to become parties to the Convention. These non-party states include China, India, Pakistan, Russia, Ukraine, and the United States.<sup>44</sup> This is of concern because it is estimated that these states have more than 157 million stockpiled landmines amongst them.<sup>45</sup> Additionally, their resistance to accept the ban could provide a barrier to a customary prohibition developing. It is often the case, where States hesitate or refrain from participating in weapons bans, they do so on the grounds that the weapon in question has military utility that makes it an essential part of a military's arsenal.<sup>46</sup> This is an eloquent illustration of a key tension in IHL between claims of military necessity and the dictates of humanity. On the one hand, military actors want to use whatever means are available to them to achieve military victory. On the other hand, the dictates of humanity seek to protect those who do not participate in hostilities from the harms of military action, particularly where these military operations are, perhaps, excessive.

### 2.2.2 Prevention of Unnecessary Suffering

The limitation on means of warfare is closely linked to a second thread in IHL: the prevention or avoidance of unnecessary suffering. The International Court of Justice [ICJ] has referred to the prohibition on causing unnecessary suffering to combatants as the second cardinal principle of humanitarian law.<sup>47</sup> The terms 'superfluous injury' or

---

<sup>43</sup> See, for example, Maxwell A Cameron, Brian W Tomlin, and Bob Lawson, eds, *To Walk Without Fear: The Global Movement to Ban Landmines* (Oxford: Oxford University Press, 1998).

<sup>44</sup> ICRC, "Landmine Stockpile Destruction", (December 2006), available at: <http://www.icrc.org/eng/resources/documents/legal-fact-sheet/mines-destruction-factsheet-010906.htm>.

<sup>45</sup> ICRC, "Landmine Stockpile Destruction", *ibid*.

<sup>46</sup> For example, during the Kosovo conflict, the United Kingdom and United States defended the use of cluster munitions by emphasizing the military utility of the weapon, that they possess "exceptional effectiveness against specific types of targets". See Richard Moyes, "Cluster Munitions in Kosovo: Analysis of use, contamination and casualties" (2007) at 25, available at: <http://www.landmineaction.org/resources/Cluster%20Munitions%20in%20Kosovo.pdf>. [hereinafter Moyes]

‘unnecessary suffering’ appear extensively in instruments of IHL<sup>48</sup> and it is firmly established in customary IHL that the use of weapons causing superfluous injury or unnecessary suffering is expressly forbidden.<sup>49</sup> This concept was first codified in Article 16 of the *Lieber Code* of 1863, written during the American Civil War, which states,

Military necessity does not admit of cruelty -- that is, the infliction of suffering for the sake of suffering or for revenge, nor of maiming or wounding except in fight, nor of torture to extort confessions. It does not admit of the use of poison in any way, nor of the wanton devastation of a district.<sup>50</sup>

This tenet was first codified in a treaty in the preamble to the *1868 St. Petersburg Declaration*, which states that “the employment of arms which uselessly aggravate the sufferings of disabled men, or render their death inevitable” goes beyond the legitimate means of warfare.<sup>51</sup> Now, nearly 150 years later, the concept is solidly established by

<sup>47</sup> International Court of Justice, Advisory Opinion, *Legality of the Threat or Use of Nuclear Weapons*, UN document A/51/218 at para 78. [hereinafter *Nuclear Weapons* case]

<sup>48</sup> Additional Protocol I Article 35(2); *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*, Geneva, 10 October 1980, reprinted in *The Laws of Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents*, ed D Schindler and J Toman (Boston: Martinus Nijhoff Publishers, 2004) 179-184 (preamble); *Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices* as amended on 3 May 1996 (*Protocol II to the 1980 Convention* as amended on 3 May 1996) United Nations CCW/CONF.I/ 16 at Article 6(2); *Landmine Ban Convention*, *supra* note 18 (preamble); Rome Statute of the International Criminal Court, UN Doc A/CONF.183/9\* at Article 8(2)(b)(xx) [hereinafter Rome Statute].

<sup>49</sup> Jean-Marie Henckaerts and Louise Doswald-Beck, “Practice Relating to Rule 70. Weapons of a Nature to Cause Superfluous Injury or Unnecessary Suffering” in *Customary Humanitarian Law Vol I: Rules* (Cambridge: ICRC and Cambridge University Press, 2009) online: <<http://www.icrc.org/customary-ihl/eng/docs>> [hereinafter ICRC Study].

<sup>50</sup> US War Department, General Orders 100: Instructions for the Government of Armies of the United States in the Field (1863) [*Lieber Code*], reprinted in *The Laws of Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents*, ed D Schindler and J Toman (Boston: Martinus Nijhoff Publishers, 2004) 3–23[Laws of Armed Conflict].

<sup>51</sup> *Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight*. Saint Petersburg, 29 November / 11 December 1868 reprinted in *The Laws of Armed Conflicts*, eds, D Schindler and J Toman (Boston: Martinus Nijhoff Publisher, 1988) 102. [hereinafter *St. Petersburg Declaration*]

convention and customary law as an inviolable rule of IHL.<sup>52</sup> It exemplifies efforts to protect principles of humanity in armed conflict by limiting the legitimate means of warfare to the minimal necessary to secure victory. Such victory should never be achieved by inflicting unnecessary cruelty and suffering which serves no purpose and provides no additional legitimate benefit to military efforts.

### 2.2.3 Restriction to Military Targets

The most important thread running through IHL, and the cardinal principle of IHL according to the ICJ, is the protection of civilians and civilian objects, with the requirement of distinction between military and civilian, combatant and non-combatant targets.<sup>53</sup> The primacy of the principle of distinction represents the overarching and all-encompassing need in IHL to preserve the principles of humanity from being completely subordinated to interests of military necessity. While war may be a chaotic state in which traditional law and order have broken down, under this principle, civilians and civilian objects are not legitimate targets for belligerents. It is for this reason that IHL bans indiscriminate attacks<sup>54</sup> - this ban will be discussed in greater depth below.

The principle of distinction is first articulated in the preamble to the *1868 St. Petersburg Declaration*, which states that “the only legitimate object which States should endeavour to accomplish during war is to weaken the military forces of the enemy”.<sup>55</sup> It follows that, if the only legitimate target is opposing military forces, then one must be able to distinguish between opposing military forces and other individuals or objects which do not fall under that heading.

---

<sup>52</sup> For example, Article 35(2) of Additional Protocol I states “It is prohibited to employ weapons, projectiles and material and methods of warfare of a nature to cause superfluous injury or unnecessary suffering.” While Article 13 of the fourth Geneva Convention states that the provisions of Part II are “intended to alleviate the sufferings caused by war.”

<sup>53</sup> *Nuclear Weapons* case, *supra* at note 47.

<sup>54</sup> See Additional Protocol I, *supra* note 4 at Articles 51(4) and (5).

<sup>55</sup> *St. Petersburg Declaration*, *supra* note 51 at 102.

The principle of distinction therefore requires that belligerents, or combatants, and their military objects be distinguished from civilians and civilian objects. This basic rule is codified in Article 48 of *Additional Protocol I 1977* and states as follows,

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.<sup>56</sup>

Civilian and civilian population are defined in Article 50 of the same Protocol, which states:

Art 50. Definition of civilians and civilian population

1. A civilian is any person who does not belong to one of the categories of persons referred to in Article 4 (A) (1), (2), (3) and (6) of the Third Convention and in Article 43 of this Protocol. In case of doubt whether a person is a civilian, that person shall be considered to be a civilian.
2. The civilian population comprises all persons who are civilians.
3. The presence within the civilian population of individuals who do not come within the definition of civilians does not deprive the population of its civilian character.<sup>57</sup>

It is important to note that, in Article 50(1), a presumption is created in favour of determining someone to be a civilian where there is doubt as to their status. This is important because it means that a soldier must be certain of the combatant status of an individual before that individual may become a legitimate target of attack.

The principle of distinction applies not only to distinguishing between combatants and non-combatants, or civilians, but also in terms of objects. Belligerents must distinguish between military objectives and civilian objects, with the latter barred from

---

<sup>56</sup> Additional Protocol I, *supra* note 4 at Article 48.

<sup>57</sup> Additional Protocol I, *ibid* at Article 50.

being the subject of attack. Military objectives are defined in Article 52(2) of Additional Protocol I, which states:

Attacks shall be limited strictly to military objectives. In so far as objects are concerned, military objectives are limited to those objects which by their nature, location, purpose or use make an effective contribution to military action and whose total or partial destruction, capture or neutralization, in the circumstances ruling at the time, offers a definite military advantage.<sup>58</sup>

This definition is also a rule of customary IHL, according to Rule 8 of the ICRC Study on customary IHL.<sup>59</sup> Rule 8 does not provide any elaboration on the content of the definition found in Article 52(2), though the commentary on Rule 8 does provide insight into how the definition is addressed in many military manuals of states. For instance, many military manuals “state that the presence of civilians within or near military objectives does not render such objectives immune from attack.”<sup>60</sup> Also, “numerous military manuals and official statements consider that an area of land can constitute a military objective if it fulfils the conditions contained in the definition.”<sup>61</sup> However, it should be noted that there are differing interpretations of the definition of military objectives, centering primarily around the understanding of the phrases “effective contribution” and “military advantage”. For example, the United States interprets both phrases more broadly than other states and entities such as the International Committee of the Red

---

<sup>58</sup> Additional Protocol I, *ibid* at Article 52(2).

<sup>59</sup> ICRC Study, *supra* note 49 at “Rule 8. Definition of Military Objectives”.

<sup>60</sup> See ICRC Study, *ibid* at “Rule 8”. The list of state military manuals includes Australia, Canada, Colombia, Croatia, Ecuador, Germany, Hungary, Madagascar, Netherlands, New Zealand, Spain, Switzerland and the United States.

<sup>61</sup> See ICRC Study, *ibid* “Rule 8”. The list of state military manuals includes Australia, Belgium, Benin, Ecuador, France, Italy, Madagascar, Netherlands, New Zealand, Spain, Sweden, Togo, United Kingdom and the United States. Official statements are noted from the following states Belgium, Canada, Federal Republic of Germany, France, Italy, Netherlands, New Zealand, Pakistan, Spain, United Kingdom and the United States.

Cross [ICRC].<sup>62</sup> Those states adopting a broad interpretation tend to consider the military advantage of an attack as a whole rather than on the basis of individual parts of the attack.<sup>63</sup> This means that the advantage of individual parts of the attack may in fact be uncertain, so long as there is a definite overall advantage to the larger operation as a whole. Furthermore, the ICRC study found that military manuals of states, including the United States, Australia and Canada, do not find the presence of civilians in or near an objective as rendering the objective immune from attack, such as in the case of civilians working in a munitions factory.<sup>64</sup>

The definition of civilian object found in Article 52(1) of Additional Protocol I does add somewhat to our understanding of how to distinguish military from civilian objects. While Article 52(1), defined above, merely provides that civilian objects are all objects which are not military objectives and are prohibited from being the subject of attack or reprisal<sup>65</sup>, article 52(3) provides an important addition:

In case of doubt whether an object which is normally dedicated to civilian purposes, such as a place of worship, a house or other dwelling or a school, is being used to make an effective contribution to military action, it shall be presumed not to be so used.<sup>66</sup>

This paragraph creates an important presumption in favour of determining an object to be civilian. Such objects therefore must be protected from attack where there is doubt as to whether they are being used to make an effective contribution to military action. If a civilian object is used for a military purpose, it can become a legitimate target for military attack, but careful assessment must be made and all feasible precautions taken to avoid attacking a civilian object.

---

<sup>62</sup> For example, see discussion in Virgil Wiebe, “Footprints of Death: Cluster Bombs as Indiscriminate Weapons Under International Humanitarian Law” (2000) 22 Mich J Int’l L 85 (HeinOnline) at 100-103. [hereinafter Wiebe]

<sup>63</sup> ICRC Study, *supra* note 49 at “Rule 8. Definition of Military Objectives”.

<sup>64</sup> ICRC Study, *ibid.*

<sup>65</sup> Additional Protocol I, *supra* note 4 at Article 52(1).

<sup>66</sup> Additional Protocol I, *ibid* at Article 52(3).

The ban on indiscriminate attacks is an established norm of customary IHL<sup>67</sup> and is also codified in Article 51(4) of Additional Protocol I 1977. Article 51(4) of Additional Protocol I defines indiscriminate attacks as follows:

Indiscriminate attacks are:

- (a) those which are not directed at a specific military objective;
- (b) those which employ a method or means of combat which cannot be directed at a specific military objective; or
- (c) those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol.<sup>68</sup>

This means that belligerents must not be indiscriminate either in their target selection or in their choice of weapon.

In the ICRC Study on customary IHL indiscriminate attacks are covered under Rules 11 (prohibition of indiscriminate attacks) and 12 (definition of indiscriminate attacks).<sup>69</sup> One key difference between the definition in Article 51(4) of Additional Protocol I (above) and Rule 12 of the ICRC study is that under 51(4)(c) it states “cannot be limited as required by this Protocol” whereas under customary IHL, it is effects which cannot be limited as required under international humanitarian law. This is an important distinction that increases protections beyond the scope of Additional Protocol I to include all conventional and customary rules of IHL, thereby incorporating not only protections included in Additional Protocol I but also the entire body of protections contained in customary IHL. This is particularly important because customary international law binds every state in the world automatically, whether they are party to a treaty codifying this

---

<sup>67</sup> ICRC study, *supra* note 49 at “Rule 11. Indiscriminate Attacks”.

<sup>68</sup> Additional Protocol I, *supra* note 4 at Article 51(4).

<sup>69</sup> ICRC Study, *supra* note 49 at “Rule 11. Indiscriminate Attacks” and “Rule 12. Definition of Indiscriminate Attacks”.

custom or not.<sup>70</sup> Rule 71 of the ICRC Study on customary IHL expressly prohibits weapons that are by their very nature indiscriminate.<sup>71</sup> This is important because it means that militaries may not employ weapons that cannot distinguish between civilians and combatants or between civilian objects and military objectives, although, deciding whether a particular weapon is prohibited due to indiscriminacy where there is no additional ban on the weapon itself remains uncertain.<sup>72</sup> This risks ambiguity in practice if some states believe a weapon may be prohibited on grounds of indiscriminacy, while others feel a weapon is legal until otherwise prohibited by a specific weapons ban.

#### 2.2.4 Precaution and Proportionality

There remain two further important elements to the assessment of contemplated military actions: precaution and proportionality. Both conventional and customary IHL require military actors to take all feasible precautions to ensure that the objects of attack are military, and that the methods and means of attack are chosen to avoid, or at least minimize, the potential for injury or death to civilians and damage to civilian objects. These requirements for precaution are codified in Articles 57 and 58 of Additional Protocol I<sup>73</sup> and articulated in the ICRC Study Rules 15-24.<sup>74</sup> The requirement to “do everything feasible” and “take all feasible precautions” is a stringent one, but one necessary to ensure that military objectives do not unjustly take primacy over humanitarian concerns.

The principle of proportionality in armed conflict is a very important one, but it is also tricky because it introduces greater complexity and a degree of ambiguity to the

---

<sup>70</sup> See, for example, Cassese, *supra* note 14 at 157.

<sup>71</sup> ICRC Study, *supra* note 49 at “Rule 71 Weapons That Are by Nature Indiscriminate”.

<sup>72</sup> ICRC Study, *ibid* “Rule 71”.

<sup>73</sup> Additional Protocol I, *supra* note 4 at Article 57 and Article 58.

<sup>74</sup> ICRC Study, *supra* note 49 at “Rule 15. Precautions in Attack”; “Rule 16. Target Verification”; “Rule 17. Choice of Means and Methods of Warfare”; “Rule 18. Assessment of the Effects of Attacks”; “Rule 19. Control During the Execution of Attacks”; “Rule 20. Advance Warning”; “Rule 21. Target Selection”; “Rule 22. Principle of Precautions against the Effects of Attacks”; “Rule 23. Location of Military Objectives outside Densely Populated Areas”; and “Rule 24. Removal of Civilians and Civilian Objects from the Vicinity of Military Objectives”.

principle of distinction and the prohibition of attacks on civilians and civilian objects. The principle of proportionality foresees the likelihood of civilian injury and/or death as a result of a legal (by IHL standards) attack. Michael Schmitt defines it as the:

[...] requirement to select the method or means of attack likely to cause the least collateral damage or incidental injury, all other things being equal, relative to the military advantage obtained.<sup>75</sup>

The principle is codified in Articles 51(5)(b) and 57 of *Additional Protocol I* and reiterated as a principle of customary international law in Rule 14 of the ICRC Study. The principle of proportionality means that every time a civilian is killed or injured in armed conflict, or every time a civilian object is destroyed or damaged, this does not automatically mean a violation of IHL has occurred.<sup>76</sup> One must examine each incident individually and evaluate whether the requirements of this principle, and the others already discussed, have been observed. Application of the principle of proportionality can be complicated. As Schmitt notes, “[p]roportionality calculations are heterogeneous, because dissimilar value genres – military and humanitarian – are being weighed against each other.”<sup>77</sup> This complexity is appreciated and ongoing violations of IHL serve to demonstrate that something more is needed to help apply this principle.

### 2.2.5 Military Necessity and Humanity

Military necessity and humanity are the twin pillars of IHL. No military action can be taken in conflicts without performing the delicate, or not so delicate as the case may be, dance of evaluation back and forth between these two values. As noted above, this is often a difficult task, as the two values do not often partner easily.<sup>78</sup> Military

---

<sup>75</sup> Michael N Schmitt, “The Principle of Discrimination in 21<sup>st</sup> Century Warfare” (1999) 2 Yale Hum Rts & Dev LJ 143 (HeinOnline) at 150. [hereinafter Schmitt (1999)]

<sup>76</sup> Amnesty International, ‘Collateral Damage’ or Unlawful Killings? *Violations of the Laws of War by NATO During Operation Allied Force* (2000), online: Amnesty International <<http://www.amnesty.org/en/library/info/EUR70/018/2000>> at 8. [hereinafter Amnesty International, “Collateral Damage”]

<sup>77</sup> Schmitt (1999), *supra* note 75 at 150-151.

<sup>78</sup> Schmitt (1999), *ibid.*

necessity justifies all military action in accordance with IHL, provided the principle of proportionality is respected, in order to defeat one's opponent in an economical and efficient manner.<sup>79</sup> Meanwhile, humanity prevents all military action which is unnecessary to defeating one's opponent if the action is disproportionate to military gains.<sup>80</sup> While it might seem straightforward to some, at least on paper, it is a very complicated determination involving numerous conflicting and seemingly unanswerable issues. "Force preservation is a crucial concern for the military" notes Amnesty International, "[b]ut can this consideration take precedent over legal obligations to protect civilians?"<sup>81</sup> For Amnesty International it would seem the answer is a resounding, "No!",<sup>82</sup> but it is not so simple as that. One must remember that IHL, by incorporating the principles of military necessity, humanity, and proportionality, has necessarily introduced a certain amount of balancing, flexibility, and sometimes ambiguity, into armed conflict.

Bolstering the pillar of humanity in IHL is what is known as the Martens Clause. This Clause originates in the 1899 Hague Convention and reads as follows,

Until a more complete code of the laws of war is issued, the high contracting Parties think it right to declare that in cases not included in the Regulations adopted by them, populations and belligerents remain under the protection and empire of the principles of international law, as they result from the usages established between civilized nations, from the laws of humanity, and the requirements of the public conscience.<sup>83</sup>

---

<sup>79</sup> Waldemar A Solf, "Protection of Civilians Against the Effects of Hostilities under Customary International Law and Under Protocol I" (1986) 1 Am UJ Int'l L & Pol'y 117 (HeinOnline) at 128. [hereinafter Solf]

<sup>80</sup> Solf, *ibid.*

<sup>81</sup> Amnesty International, "Collateral Damage" *supra* note 76 at 15.

<sup>82</sup> Amnesty International criticizes what it sees as an unbalanced prioritization to avoid force casualties at the cost of civilian casualties and damages. See, Amnesty International, "Collateral Damage", *ibid* at 17.

<sup>83</sup> Gary D Solis, *The Law of Armed Conflict: International Humanitarian Law in War* (New York: Cambridge University Press, 2010) at 53 [hereinafter Solis] (referencing James Brown Scott, ed, *The Hague Conventions and Declarations of 1899 and 1907* (New York: Oxford University Press, 1918) at 101-102).

It recognizes the difficulty in addressing all potential situations that might arise in armed conflict in the provisions of a treaty, thereby providing protections in context not necessarily expressly covered by treaty. Since its original articulation in 1899, the Clause has been rearticulated in the Geneva Conventions, its Additional Protocols and many other IHL treaties.<sup>84</sup>

The Martens Clause was recognized as a rule of customary international law by the ICJ in its *Nuclear Weapons* Advisory Opinion.<sup>85</sup> Judge Shahabuddeen, in his dissenting opinion from that case, discussed the Martens clause and concluded that, in the context of armed conflicts, “the Martens Clause provides authority for looking beyond treaty law and custom to consider principles of humanity and the dictates of the public conscience.”<sup>86</sup> This position is supported by the International Law Commission [ILC], which has stated that the clause “provides that[,] even in cases not covered by specific international agreements, civilians and combatants remain under the protection and authority of the principles of international law derived from established custom, from the principles of humanity and from the dictates of public conscience.”<sup>87</sup>

As important a rule as the Martens Clause is, Rupert Ticehurst notes that it is “subject to a variety of interpretations”.<sup>88</sup> These interpretations range from more narrow interpretations which conceive of the Clause as a mere “reminder that customary international law continues to apply after the adoption of a treaty norm”, to the most expansive interpretations which see the Clause as mandating that “conduct in armed conflicts is not only judged according to treaties and custom but also to the principles of

---

<sup>84</sup> See Solis, *ibid* at 53.

<sup>85</sup> *Nuclear Weapons* case, *supra* note 47.

<sup>86</sup> *Nuclear Weapons* case, *ibid* (Judge Shahabuddeen, dissent).

<sup>87</sup> UN Report of the International Law Commission on the Work of its Forty-sixth Session, 2 May -22 July 1994, GAOR A/49/10, p. 317.

<sup>88</sup> Rupert Ticehurst, “The Martens Clause and the Laws of Armed Conflict” (1997) International Review of the Red Cross No 317, available at: <http://www.icrc.org/eng/resources/documents/misc/57jnhy.htm>. [hereinafter Ticehurst]

international law referred to by the Clause.”<sup>89</sup> Despite these varying interpretations, the existence of the Martens Clause provides strong support for the inclusion of the laws, or principles, of humanity in IHL.

## 2.3 Environmental Protection in International Humanitarian Law

The environment is protected, to an extent, within IHL. There are two provisions codified in Additional Protocol I 1977 for its protection. Article 35(3) of that instrument states that “it is prohibited to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment.”<sup>90</sup> Article 55 of the Protocol further states that:

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.<sup>91</sup>

The International Committee of the Red Cross, in its extensive and highly authoritative study of customary IHL, finds there are two rules on the environment established as customary IHL. Rule 44 in the study, on “Due Regard for the Natural Environment in Military Operations”, states:

Methods and means of warfare must be employed with due regard to the protection and preservation of the natural environment. In the conduct of military operations, all feasible precautions must be taken to avoid, and in any event to

---

<sup>89</sup> Ticehurst, *ibid.*

<sup>90</sup> Additional Protocol I, *supra* note 4 at Article 35.

<sup>91</sup> Additional Protocol I, *ibid* at Article 55.

minimize, incidental damage to the environment. 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.<sup>92</sup>

There are three important elements to the Rule articulated by the ICRC. First, the methods and means of warfare are limited for the protection and preservation of the natural environment. Weapons must be chosen with consideration to their potential effects on the environment. Second, all feasible precautions must be taken to avoid or minimize incidental damage to the environment when conducting military operations. This means that not only the selection of the weapon, but the method of the attack, and the actions taken in the attack, must all be considered through a lens which seeks to minimize potential damage to the environment. Finally, the final sentence of the Rule makes it clear that scientific uncertainty does not absolve military actors from the responsibility of taking all feasible precautions to protect the environment. This means that even where the risk of environmental damage is not scientifically certain, precautions to avoid potential environmental damage should be taken.

To support this rule of customary IHL, the ICRC refers, *inter alia*, to United Nations Security Council Resolution 687 in 1991, which addressed Iraq's international legal responsibility for environmental damage caused in its invasion of Kuwait.<sup>93</sup> This is important because it sanctions Iraq's deliberate acts, of igniting oil pumps on fire, which caused serious environmental degradation in the region. Further, the ICRC references environmental law's precautionary principle as an expression of the final element of rule 44. It does this by invoking the key concepts of the precautionary principle: threat of serious damage to the environment, scientific uncertainty, and the need to take precautions despite this uncertainty. However, the reference to the precautionary principle in this context is limited to environmental protection and is not used to extend to

---

<sup>92</sup> ICRC Study, *supra* note 49 at "Rule 44. Due Regard for the Natural Environment in Military Operations".

<sup>93</sup> ICRC Study, *ibid* at "Rule 44. Due Regard for the Natural Environment in Military Operations"; United Nations Security Council Resolution 687, 3 April 1991, S/RES/687.

situations dealing with civilian health and safety.<sup>94</sup> This is limiting because scientific uncertainty surrounding certain weapons often poses a threat to civilian health, and risks to the environment are closely linked to human health. While human health may still be protected indirectly by this reference, the failure to note the important link between health and the environment is part of a larger arbitrary separation of humanity and the natural environment.

The second rule protecting the environment in armed conflict, according to the ICRC's study, is Rule 45 on "Causing Serious Damage to the Natural Environment", which states:

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 is prohibited. Destruction of the natural environment may not be used as a weapon.<sup>95</sup>

The ICRC cites numerous sources to show that significant state practice has emerged to support this rule. The ICRC found this prohibition in the military manuals of no less than 20 states, including the United States, the United Kingdom and Russia.<sup>96</sup> It also found national legislation which creates an offence for causing widespread, long-term and severe damage to the environment in over 20 countries including Australia, Burundi, Canada, and the United Kingdom.<sup>97</sup> Despite strong evidence of state practice, the ICRC also notes the existence of state practice that brings into question the status of this rule. In particular, some states have objected to the phrase "may be expected to cause" found in Article 35(3) of Additional Protocol I, and have claimed it does not reflect customary international law.<sup>98</sup> For example, the United Kingdom and United States have both suggested that Articles 35(3) and 55(1) of Additional Protocol I do not represent

---

<sup>94</sup> ICRC Study, *ibid.*

<sup>95</sup> ICRC Study, *ibid.* at "Rule 45. Causing Serious Damage to the Natural Environment".

<sup>96</sup> ICRC Study, *ibid.*

<sup>97</sup> ICRC Study, *ibid.*

<sup>98</sup> ICRC Study, *ibid.*

customary law.<sup>99</sup> On the other hand, Article 55 of Additional Protocol I “may ... reflect current customary law”, according to the Final Report of the Committee Established to Review the NATO Bombing Campaign Against the Federal Republic of Yugoslavia.<sup>100</sup> Unfortunately, these objections and tentative assessments (the Report did not categorically endorse the customary status of the Article) do create a certain air of uncertainty when it comes to definitively saying whether or not the content of the ICRC’s Rule 45 is customary IHL.

The second part of Rule 45 is, however, more firmly established. That the destruction of the environment may not be used as a weapon is further codified in the 1976 *Convention on the Prohibition of Military or any Hostile use of Environmental Modification Techniques*, more commonly referred to as ENMOD.<sup>101</sup> The key difference between protections afforded in ENMOD and those found in Articles 35 and 55 of Additional Protocol I is that the former prohibits the deliberate use of technology to modify the environment, whereas the latter address effects of a method or means of attack.<sup>102</sup> Nonetheless, it is not entirely clear whether and to what extent the provisions of ENMOD represent customary IHL.<sup>103</sup>

Apart from the treaty provisions and customary laws specifically targeting the protection of the environment in armed conflict based on an appreciation, for the most part, of its intrinsic value, a case can also be made that protections can be found on an anthropocentric level within the laws protecting civilian objects. As a civilian object, the protection of the environment will also be a consideration under the provisions protecting civilian objects, such as Article 48, requiring distinction between civilian objects and

---

<sup>99</sup> ICRC Study, *ibid*. This notes that both the United Kingdom and the United States expressed this opinion in their submissions to the ICJ in the *Nuclear Weapons* case.

<sup>100</sup> Office of the Prosecutor, “Final Report by the Committee established to Review the NATO Bombing Campaign against the Federal Republic of Yugoslavia”, PR/PIS/510-E, (June 13, 2000), online: UN ICTY website <<http://www.icty.org/sid/10052>>. [hereinafter ICTY Final Report NATO Bombing]

<sup>101</sup> ENMOD, *supra* note 6.

<sup>102</sup> ICRC Study, *supra* note 49 at “Rule 45. Causing Serious Damage to the Natural Environment”.

<sup>103</sup> ICRC Study, *ibid*.

military objectives, Article 51(4) which prohibits indiscriminate attacks, Article 57 which requires all feasible precautions be taken, and under Article 58 which requires proportionality in order to balance military necessity and the dictates of humanity. This means that threats to the environment can and should be considered in proportionality assessments of military operations. It is beneficial to the interests of environmental protection to embrace both the more ecocentric protections as well as this anthropocentric avenue as a civilian object. The more tools available for the protection of the environment, the greater the strength not simply of IHL or IEL, but public international law as a whole. The more weight behind demands that these laws be respected, and the more force behind condemnations when belligerents fail to adequately respect these laws, the greater the steps that are taken to better protect civilians and the environment.

## 2.4 Civilian and Environmental Protections during Armed Conflicts in Practice: Theory vs. Practice

As can be seen in the discussion in the first part of this chapter, there are many protections for civilians and civilian objects in IHL. The second part of the chapter demonstrates that there are also some protections for the environment. Many, if not all, of, these key protections are enshrined in customary IHL and therefore apply to all actors in conflicts. Therefore, no state is immune to the obligations they create and the protections they provide for civilians and the environment. That said, the flexibility and ambiguity of IHL still allows attacks which cause a great deal of harm to civilians and the environment to occur. Let us turn briefly to two specific examples of more recent conflicts in which civilians and the environment appear to have suffered excessively.

### 2.4.1 NATO bombings in Kosovo

In 2000, NATO faced allegations of violations of IHL for its military campaign in Kosovo. It drew criticism both for target selection and weapon choice, specifically the use of cluster munitions in proximity to civilian populations.<sup>104</sup> One particular attack occurred in May 1999 on the village of Niš in Serbia. The NATO bombing occurred on a

---

<sup>104</sup> Wiebe, *supra* note 62 at 100-103.

Sunday, market day. The air convoy deployed cluster munitions, which landed on the village market and hospital. According to NATO officials, the real target was a nearby airport, but (speculated) technical malfunctions led to the release of the cluster munitions at the wrong time and therefore to civilian losses.<sup>105</sup> As Virgil Wiebe points out, this choice of weapon was questionable, since there were civilian suburbs very near the airport.<sup>106</sup> While there was no evidence that NATO deliberately targeted civilians, according to officials with the International Criminal Tribunal for the Former Yugoslavia [ICTY], who investigated this and other bombings carried out by NATO during the Kosovo campaign,<sup>107</sup> the attack was nonetheless problematic with regard to a number of established rules of IHL, including the rule prohibiting indiscriminate attacks since the nature of cluster munitions is such that the dispersal of submunitions cannot be controlled and cannot distinguish between military and civilian objects or individuals..

Cluster bombs are bombs which contain a number of smaller explosive bomblets. When the larger bomb explodes, it disperses the smaller bomblets over a larger area than a single bomb could cover. As such, cluster bombs strike multiple points, as opposed to a traditional bomb or warhead, which strikes only one location. The dispersal of the bomblets is not, and cannot, be controlled. Typically, bomblet dispersal can cover a range of 350 to 500 meters.<sup>108</sup> Upon impact, the bomblets are intended to explode, resulting in shrapnel dispersal which can cover an additional 150 meters.<sup>109</sup> Even when they function as intended, cluster bombs pose a risk to civilians and civilian objects if used in their proximity because the dispersal of bomblets and of shrapnel is uncontrolled and does not distinguish between civilian and military targets. A further risk is posed by the number of

---

<sup>105</sup> Amnesty International, "Collateral Damage", *supra* note 76 at 18, 22. Military personnel as well as a US Department of Defense spokesmen indicated that a weapon malfunction was believed to have been the cause.

<sup>106</sup> Wiebe, *supra* note 62 at 141-142.

<sup>107</sup> ICTY Final Report NATO Bombing, *supra* note 100.

<sup>108</sup> For example, see Virgil Wiebe & Titus Peachey, *Clusters of Death: The Mennonite Central Committee Global Report on Cluster Bomb Production and Use*, (July 2000) [hereinafter Wiebe & Peachey], available at: <http://www.mcc.org/clusterbomb/report/index.htm>.

<sup>109</sup> Wiebe & Peachey, *ibid.*

bomblets which fail to explode on initial impact and therefore become *de facto* landmines, posing ongoing risk to civilians and polluting the environment in which they lay. The predicted failure rate ranges from 2-6%; however, the actual failure rate in Kosovo was clearly higher, according to some reports, with estimates ranging from 8-12% or even 20%.<sup>110</sup>

With these facts and figures about cluster munitions, it is difficult to see how any use of these munitions could meet the requirements in IHL for a legitimate attack. The use of cluster munitions near civilian populations fails to appreciate the short-term and long-term risks to civilians, civilian objects and the environment.

#### 2.4.2 Depleted Uranium Weapons in the 1991 Gulf War and the 2003 Iraq War

Both the 1991 Gulf War and the 2003 Iraq War saw the use of depleted uranium weapons by Coalition forces. Since uranium is a toxic metal,<sup>111</sup> it inherently raises concerns with respect to the health risks it poses to civilians and combatants, as well as to potential short-term and long-term environmental risks. The impact and combustion of depleted uranium weapons can also create an aerosolized powder which can disperse and contaminate large areas, as well as be inhaled by people.<sup>112</sup> One significant issue when dealing with depleted uranium weapons is the significant scientific uncertainty associated

---

<sup>110</sup> Wiebe, *supra* note 62 at 111.

<sup>111</sup> Toxicity refers the extent to which a substance can harm or damage an organism. As a toxic metal uranium has both chemical and radiological toxicity. Chemical toxicity stems from the damaging effects of inorganic elements, while radiological toxicity refers to the radiation emitted by uranium. The higher the degree of toxicity, the more dangerous the substance is to humans and the environment. See, for example, World Health Organization, “Depleted uranium: sources, exposure and health effects” (2001) available at: [http://www.who.int/ionizing\\_radiation/pub\\_meet/en/DU\\_Eng.pdf](http://www.who.int/ionizing_radiation/pub_meet/en/DU_Eng.pdf) [hereinafter WHO, “Depleted uranium”]; World Health Organization, “The chemical toxicity of uranium”, available at: [http://www.who.int/ionizing\\_radiation/pub\\_meet/en/Depluranium4.pdf](http://www.who.int/ionizing_radiation/pub_meet/en/Depluranium4.pdf).

<sup>112</sup> For an in-depth discussion see Mitsakou C, Eleftheriadis K, Housiadas C, Lazaridis M “Modeling of the dispersion of depleted uranium dispersal”(Apr 2003) *Health Phys* 84(4) 538.

with their long-term effects.<sup>113</sup> This is exacerbated by the fact that it takes time to conduct the research to determine the effects over time. Among potential concerns from the use of depleted uranium weapons are kidney and lung damage, birth defects, and cancer.<sup>114</sup> While the risks of depleted uranium weapons are not definitive, they are potentially severe and long-term. Arguably the health risks posed by these weapons are indiscriminate as they cannot be targeted solely at military targets and, even if they could be specifically targeted, a weapon which can cause cancer, birth defects and kidney and lung disease would seem to qualify as a weapon causing unnecessary suffering, particularly if the effects could arise and last long after a conflict has been decided.<sup>115</sup>

Decisions to use these weapons of unknown risk suggests a failure to adequately consider scientific uncertainty in the military decision-making process. Since so much uncertainty exists, it merits consideration that an alternative weapon or method perhaps be used while greater research is conducted to better understand the risks to civilians and environment from depleted uranium.

### 2.4.3 Conclusion

There appears to be a disconnect between IHL protections for civilians, civilian objects, and the environment in theory and in practice. The codified protections seem extensive, while, in practice we see instant and lasting civilian casualties, damage and destruction to civilian objects, and short-term and long-term environmental damage. The two examples explored above suggest that existing IHL protections for civilians and the environment are not receiving their due regard in military decision-making or that there

---

<sup>113</sup> See, for example, A Bleise, PR Danesi, and W Burkart, “Properties, use and health effects of depleted uranium (DU): a general overview” (2003) 64 J Env’tl Radioactivity 93; Ian Fairlie, “Depleted uranium: properties, military use and health risks” (2009) 25:1 Medicine, Conflict and Survival 41 available at: <http://laka.org/docu/boeken/pdf/6-05-1-00-21.pdf> [hereinafter Fairlie]

<sup>114</sup> For a more detailed discussion see Chris Busby, “The Health Effects of Exposure to Uranium and Uranium Weapons Fallout” (2010) European Committee on Radiation Risk, Documents of the ECRR 2010 No 2, Brussels, 2010 online: <<http://www.euradcom.org/publications/ecrruraniumrept.pdf>>.

<sup>115</sup> See, for example, Avril McDonald, “Depleted uranium weapons: the next target for disarmament?” in *Disarmament Forum*, vol 3, United Nations Institute for Disarmament Research, 17. [hereinafter McDonald]

are gaps in existing IHL which provide insufficient guidance on how it should be applied in practice. The cases discussed above have received some challenge from actors in the international community but these challenges have come to nothing and the voices have slowly died for the most part.<sup>116</sup> These voices are important and should be listened to. The challenges to these weapons represent an increasing awareness of the need to better enforce protections for civilians and the environment in armed conflict. Meanwhile the actors behind these questionable attacks continue on under the banner of military necessity. States, such as the United States and the United Kingdom continue to support the use of depleted uranium weapons. Though the United Kingdom has ratified the 2008 Cluster Munitions Convention, the United States, as mentioned above, is not party to this treaty and maintains the right to employ these weapons. The gap which provides leeway in favour of military actors allows states to continue using these weapons despite growing concern over the excessive risks they pose to civilians and the environment. The existence of this gap means that it is currently difficult to articulate a case against these actors as having violated IHL. This fact does not seem congruent with the objective of protections in place within conventional and customary IHL for civilians and the environment. What emerges from this analysis is an overlooked problem in IHL: the laws and protections for civilians and the environment, as formally articulated, do not seem to be fully realized in practice.

## 2.5 Literature Review: Two Spheres Considered in Isolation

There has been much academic discussion and debate on the protection of civilians and the environmental in armed conflict.<sup>117</sup> However, for the most part, this

---

<sup>116</sup> These challenges, in the context of cluster munitions use in Kosovo, were raised by NGOs, including Amnesty International and Human Rights Watch, scholars, and the Russian Parliament. Their attempts were unsuccessful in trying to get the ICTY to investigate NATO bombings in Kosovo. See e.g. Wiebe, *supra* note 62 at 134. In the context of depleted uranium weapons concerns have been raised by numerous NGOs, including Human Rights Watch, the Campaign to Ban Depleted Uranium, scholars and states, such as Belgium and Costa Rica who have domestic bans on the weapons. See e.g. International Coalition to Ban Uranium Weapons, “CADU challenges flawed UK legal review of depleted uranium munitions” (13 July 2012) available at: <http://www.bandedpleteduranium.org/en/cadu-challenges-flawed-uk-legal-review-of-du-munit>.

<sup>117</sup> E.g., Karen Hulme, “Environmental protection in armed conflict” in Fitzmaurice, Malgosia, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham,

academic critique has remained within the scope of either IHL or environmental law and rarely are the two bodies of law examined in tandem. Further, the focus often tends to be on either the protection of civilians in armed conflict or the protection of the environment, which fails to appreciate the inextricable link between people and the environment.

There is ample material exploring the issue of civilian protection in armed conflict. For example, Gary Solis, a retired Lieutenant Colonel of the U.S. Marines, retired Professor of Law at the U.S. Military Academy and former Director of West Point's Law of War Program, is well situated to provide a thorough and detailed examination of the IHL. In his book, *The Law of Armed Conflict*,<sup>118</sup> he examines the difficulties of defining a legal objective, interprets legal definitions of 'military objective', evaluates the legitimacy of potential targets based on use, examines the process of making targeting decisions, and looks at the law surrounding indiscriminate attacks.<sup>119</sup> These are important areas to examine as they are often points of ambiguity or disagreement within the field. For example, given the differing interpretations of military objective noted above, this can affect whether something is seen as legitimate or illegitimate target for military action. Other scholars, such as Jose-Thota Betsy, also

---

UK: Edward Elgar Publishing, 2010) 586 [hereinafter Hulme, "Environmental protection"]; Solis, *supra* note 83; Hans-Peter Gasser, "For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action" (1995) 89 AJIL 637 [hereinafter Gassser]; Laurent R Hourcle, "Environmental Law of War" (2000-2001) 25 Vt L Rev 653 [hereinafter Hourcle]; Amnesty International. "Collateral Damage", *supra* note 76; Michael N Schmitt, "Green War: An Assessment of the Environmental Law of International Armed Conflict" (1997) 22 Yale J Int'l L 1 [hereinafter Schmitt (1997)]; Betsy, Jose-Thota. "The fog of protection: Contested meanings and deliberate civilian deaths during armed conflict" (PhD Dissertation; University of Pittsburgh, 2011) [Accessible on ProQuest] [hereinafter Betsy]; Bothe, Michael Carl Bruch, Jordan Diamond, and David Jensen. "International law protecting the environment during armed conflict: gaps and opportunities" (2010) 92: 879 Intl R Red Cross 569 [hereinafter Bothe *et al.*]; Lesley Wexler, "Limiting the Precautionary Principle: Weapons Regulation in the Face of Scientific Uncertainty" (2005) UC Davis L Rev 459 (Hein Online)[hereinafter Wexler].

<sup>118</sup> Note: the term Law of Armed Conflict [LOAC] used by the military and given the military perspective from which Solis book is written it uses this term as opposed to IHL. This thesis will stick with the term IHL.

<sup>119</sup> Solis, *supra* note 83 at 519-555.

examine the ambiguities in the definition of ‘military objective’.<sup>120</sup> Betsy examines violations of the civilian immunity norm and seeks to understand their occurrence. Whereas Solis identifies potential issues in the law, Betsy seeks to identify the source of violations in practice, though his focus remains staunchly on civilians and armed conflict.<sup>121</sup> Betsy conducted interviews with experts in IHL and with belligerents in African conflicts to conclude that the continuing occurrence of violations of civilian immunity are the result of a disconnect between the interpretation of legal protections for civilians in the minds of IHL experts and the interpretation of the same in the minds of belligerents.<sup>122</sup> While Betsy identifies this as a potential explanation for continuing violations, he unfortunately does not propose any solutions to resolve the discrepancy in interpretation.

Michael Schmitt, in his article, “The Principle of Discrimination in 21<sup>st</sup> Century Warfare,”<sup>123</sup> also gives an in-depth examination of the requirement to distinguish between civilian and military. Beginning with an analysis of the current state of the principle, Schmitt then proceeds to examine the effects growing economic and technological disparity, religious and ethnic discord, the increasingly blurred lines between military and civilian, and the development of information acquisition and dissemination.<sup>124</sup> On the whole, Schmitt determines these trends pose a threat to the principle of discrimination as they tend to increase the desire, and ability perhaps, to broaden the definition of valid targets and decrease the incentive to protect the

---

<sup>120</sup> Betsy, *supra* note 117.

<sup>121</sup> Solis, *supra* note 83 at 253-54 (on the complications of civilian workers in a military objective, such as a factory) or 263-265 (on whether and/or how the protection of the lives of troops can be invoked to justify killing prisoners). Betsy, *ibid* at 113-145 (as he examines the results of interviews with belligerents from conflicts in Africa and IHL experts on their understandings of permissible civilian targets in conflicts).

<sup>122</sup> Betsy, *ibid* at 146.

<sup>123</sup> Schmitt (1999), *supra* note 75.

<sup>124</sup> Schmitt, *ibid* at 153-158 (economic and technological disparity), 158 (religious and ethnic discord), 158-161 (blurred lines between military and civilian), and 162-170 (development of information acquisition and dissemination).

humanitarian aspects of the law.<sup>125</sup> In an effort to avoid or limit the negative direction in which Schmitt predicts these trends are leading, Schmitt advocates in favour of strengthening the role of international organizations and coalitions of States in enforcing humanitarian standards, arms control and an overall limiting of the universe of legal targets.<sup>126</sup> Schmitt's conclusion that limiting the universe of legal targets would help protect the principle and the humanitarian aspects of the law of armed conflict is very persuasive. Unfortunately, he does not propose any specific means by which to limit the universe of legal targets.

The trend in these articles is an examination of IHL from a very positivist perspective. This is also the case in an article by Nobuo Hayashi, "Requirements of Military Necessity in International Humanitarian Law and International Criminal Law".<sup>127</sup> This article provides a thoroughly positivist examination of military necessity in IHL and international criminal law. It isolates the role of military necessity as an exception to certain specific rules of IHL prohibiting certain actions when those actions are required to attain a military objective. While the work of Betsy and Schmitt tends to focus on the civilian costs of violations of the discrimination principle, Hayashi focuses on the destruction of civilian property. While there is potential to consider the environment as a civilian object, as discussed by Jean-Marie Henckaerts and Louise Doswald-Beck in the ICRC's study on customary IHL,<sup>128</sup> Hayashi does not address the potential consideration of the environment, instead focusing on tangible property such as buildings, vehicles, etc.

While the above articles provide a traditional and very useful analysis of law, they fail to appreciate the many other powerful sources and tools of law. There is a tendency towards overemphasizing conventional laws while underappreciating customary law,

---

<sup>125</sup> Schmitt, *ibid* at 171-177.

<sup>126</sup> Schmitt, *ibid* at 177-181.

<sup>127</sup> Nobuo Hayashi, "Requirements of Military Necessity in International Humanitarian Law and International Criminal Law" (2010) 28 Boston U Intl'l L J 39. [hereinafter Hayashi]

<sup>128</sup> ICRC Study, *supra* note 49 at Rule 45.

norms, and principles. This is why Jean-Marie Henckaerts and Louise Doswald-Beck's *Customary Humanitarian Law Vol I: Rules*, done for the ICRC, is such an important resource when examining IHL. Customary IHL is a valid source of international law just as conventions are, as demonstrated by Article 38(1) of the ICJ Statute, which lists the most authoritative sources of public international law.<sup>129</sup> The ICRC's study is the most thorough and extensive study of state practice and *opinio juris* conducted by a well-established and well-respected body, and only the holding of the ICJ that something is a customary law of war would be more authoritative and conclusive.

As can be seen, there is a strong body of academic literature addressing the protection of civilians in armed conflict, though quite often suggestions on how to improve these protections are weak or lacking. Meanwhile, there is also a body of literature which addresses the protection of the environment in armed conflict. In his PhD dissertation, "Legal perspectives for the protection of the environment against the effects of military activities during international armed conflict," Mansour Jabbari-Gharabagh examines the protection of the environment in armed conflict.<sup>130</sup> He explores criticisms of existing IHL laws for the protection of the environment and proposes ways to modify them in order to provide more effective environmental protection during conflicts.<sup>131</sup> While he examines both IHL and environmental law, his analysis of these bodies of law is separate and does not really attempt to join them as a means of improving environmental protection in armed conflict. Meanwhile, his analysis of environmental law is limited and relies primarily on conventions,<sup>132</sup> failing to examine

---

<sup>129</sup> ICJ Statute, *supra* note 13.

<sup>130</sup> Mansour Jabbari-Gharabagh, "Legal perspectives for the protection of the environment against the effects of military activities during international armed conflict" (PhD Dissertation; Université Laval, 1998) [Accessible on ProQuest] [hereinafter Jabbari-Gharabagh].

<sup>131</sup> Jabbari-Gharabagh, *ibid* at 344, 346 (importance of protecting the intrinsic value of the environment); 348-349 (advocates for a 'single, low, and precisely defined threshold' to trigger environmental protection in conflict); 351-352 (should approach environmental protection in war as in peacetime, and emphasize enforcement of protections); 353-354 (should create a specific international crime addressing damage to the environment).

<sup>132</sup> Jabbari-Gharabagh, *ibid* at 42-46 (1972 Stockholm Declaration); 57-61 (Rio Conference and Rio Declaration); 67-76 (environmental protections in the 1970 Hague Convention and fourth Geneva

the many important principles such as the precautionary principle, which could help create a legal understanding of environmental protection in armed conflicts. Importantly, Jabbari-Gharabagh looks at the environment from an ecocentric perspective, evaluating the importance of protection based on the intrinsic value of the environment as opposed to a more anthropocentric valuation.<sup>133</sup> Ultimately, Jabbari-Gharabagh advocates creating an international war crime for “crimes against nature”.<sup>134</sup> While this is a novel and interesting approach to improving protections, he fails to analyze the feasibility of using this approach, which would require state consensus to create a new international crime.

Karen Hulme, in her piece, “A Darker Shade of Green: Is it Time to Ecocentrise the Laws of War?,” also focus on the importance of a more ecocentric approach to environmental protections in armed conflicts.<sup>135</sup> While explaining ecocentrism and ecosystems, she relies on environmental law, but when she shifts to discussing environmental protection in conflicts she abandons environmental law and relies almost entirely on existing IHL.<sup>136</sup> While her suggestion of increasing protections for the environment for its intrinsic value is an important one with much potential,<sup>137</sup> she makes the same error many other scholars do by failing to draw upon environmental law as a solution or aid to improving these protections in IHL.

---

Convention 1949); 77-87 (environmental protections in Additional Protocol I); 94-123 (ENMOD convention); 125-128 (the 1980 Convention on Certain Weapons and additional Protocols).

<sup>133</sup> Jabbari-Gharabagh, *ibid* at 344, 346.

<sup>134</sup> Jabbari-Gharabagh, *ibid* at 353-354.

<sup>135</sup> Karen Hulme, “A Darker Shade of Green: Is it Time to Ecocentrise the Laws of War?” in *International Law and Armed Conflict Challenges in the 21<sup>st</sup> Century*, eds Noëlle Quénivet and Shilan Shah-Davis (The Hague: TMC Asser Press, 2010) 142. [hereinafter Hulme, “A Darker Shade of Green”]

<sup>136</sup> Hulme, “A Darker Shade of Green”, *ibid* at 148-160.

<sup>137</sup> Hulme, “A Darker Shade of Green”, *ibid* at 152-153.

The environmental problems posed by armed conflict are examined by Onitas Das in her article, “The Impact of Armed Conflict on Sustainable Development,”<sup>138</sup> which provides a good discussion of the environmental impacts of war before, during, and after conflicts.<sup>139</sup> While her suggestion of the need for more ‘sustainable development friendly’ war<sup>140</sup> is of great merit, she does not go into great detail on how to achieve this, but it certainly an idea worth exploring further. This suggestion is worthy of further exploration since sustainable development provides an important link between the environment and conflict (one that will be discussed later in this thesis) as well as helping to encompass the importance of ensuring long-term interests, both human and environmental, are considered in conflict.

With Das’ piece we do see efforts to bridge the gap between the bodies of IHL and environmental law. This bridging of these two fields of law is also seen in “International law protecting the environment during armed conflict: gaps and opportunities,” an article for the ICRC by Michael Bothe, Carl Bruch, Jordan Diamond, and David Jensen.<sup>141</sup> Bothe *et al.* identify three key deficiencies with regards to existing environmental protections in IHL: the definition of damage to the environment is both too restrictive and too unclear; the protection of elements of the environment as civilian objects is rife with legal uncertainties; and, the application of the principle of proportionality is problematic in cases where harm to the environment constitutes ‘collateral damage’.<sup>142</sup> Having identified these deficiencies, the authors go on to discuss the possibilities of applying international environmental law in armed conflicts with a specific look at customary law and soft law.<sup>143</sup> Their focus, however, is the potential

---

<sup>138</sup> Onita Das, “The Impact of Armed Conflict on Sustainable Development: A Holistic Approach” in Quénivet, Noëlle & Shilan Shah-Davis, eds, *International Law and Armed Conflict: Challenges in the 21<sup>st</sup> Century* (The Hague: TMC Asser Press, 2010) 123. [hereinafter Das]

<sup>139</sup> Das, *ibid* at 128-133 (pre-armed conflict); 133-138 (in-conflict); 138-140 (post-conflict).

<sup>140</sup> Das, *ibid* at 141.

<sup>141</sup> Bothe *et al.*, *supra* note 117.

<sup>142</sup> Bothe *et al.*, *ibid* at 570-571, 577-579.

<sup>143</sup> Bothe *et al.*, *ibid* at 584-589.

incorporation of principles of environmental law to improve the protection of the environment, once again failing to appreciate the connection between the environment and civilian protection. While they are insightful in their approach, which seeks to bridge the gap between IHL and environmental law in armed conflicts, their conception is incomplete for its failure to include the risks to civilians that could also benefit from closing the gap between these bodies of law.

An approach to IHL and environmental law which more closely links to two bodies of law can be seen in Lesley Wexler's article, "Limiting the Precautionary Principle: Weapons Regulation in the Face of Scientific Uncertainty," in which she examines the potential use of the environmental law precautionary principle in a military context, referring to it as the military precautionary principle.<sup>144</sup> While she provides an example of applying a principle of environmental law in the military context, she restricts her scope to focus on employing it solely on weapons as a weapon-by-weapon evaluation to determine away from the battlefield at the weapon production stage whether a weapon is or should be legal.<sup>145</sup> Ultimately, Wexler concludes that the use of the military precautionary principle may lead to perverse environmental prioritization in the military context. For example, she suggests it will disadvantage new technologies and fail to consider that alternatives may in fact pose greater risks than the weapon under consideration.<sup>146</sup> In particular she compares tungsten rounds as an alternative to depleted uranium weapons and suggests they pose many of the same risks.<sup>147</sup> She is concerned that rejecting a particular weapon based on the precautionary principle fails to consider that the alternatives may in fact be worse,<sup>148</sup> but she fails to explain why these alternatives themselves would not be subject to the same principled evaluations. Wexler does not delve into detail about the specific environmental or health problems involved.

---

<sup>144</sup> Wexler, *supra* note 117.

<sup>145</sup> Wexler, *ibid* at 461, 475-477, 503-504.

<sup>146</sup> Wexler, *ibid* at 499-500, 510-511.

<sup>147</sup> Wexler, *ibid* at 499-500.

<sup>148</sup> Wexler, *ibid*.

While her approach to considering principles of environmental law in the context of military operations is particularly interesting because it is an approach that many other scholars have not yet embraced, her limited approach seems too narrow and fails to appreciate the fact that often a weapon system may be problematic in certain contexts and not in other and, therefore, to evaluate a weapon outside of a particular context is unrealistic.

## 2.6 Conclusion

This chapter has examined the current status of protections for civilians and the environment in armed conflicts. It has outlined the well-established principles of distinction between civilian and military, the avoidance of unnecessary suffering, the limitation on the permissible means of warfare, precaution and proportionality. While these provisions and customs protect civilians, they also protect the environment indirectly as a civilian object. The environment is also protected directly under international humanitarian law. Despite extensive protections which require that the dictates of humanity receive proper consideration alongside military necessity, there appears to be a gap in international humanitarian law which allows states to carry out attacks which appear to be excessively damaging to civilians and the environment. Two such examples were outlined in this chapter: the use of cluster munitions in NATO bombings in Kosovo and the use of depleted uranium weapons by Coalition forces in Iraq.

This chapter also provided a literature review which demonstrates that there is strong research on the plight of civilians in armed conflict as well as the risks to the environment, but they are rarely considered in tandem. This is a curious gap in the academic literature. The environment is a constant through all times, space, geographic and conflict contexts. Whether there is human life in the vicinity or not, the environment is nonetheless present. Therefore, when civilians are present, inevitably and inextricably both human and natural environments come together. People depend on a healthy environment to ensure their own health, to provide space to live, conduct business, grow food, provide water and other essentials of life. Given the interdependence of humans and the environment, a risk posed to one will pose a risk to the other. While the potential to

improve the application of existing IHL by bridging the gap between IHL and environmental law is hinted at in some of the works discussed above, there is greater scope for this potential than has been addressed in existing academic literature. As Bothe *et al.* note,

the detailed norms, standards, approaches, and mechanisms found in international environmental law might also help to clarify and extend basic principles of IHL to prevent, address, or assess liability for environmental damage incurred during armed conflict.<sup>149</sup>

This should be extended to include preventing and addressing violations of civilian immunity, drawing on environmental law to address violations of the protections provided for civilians and the environment in armed conflicts because the issues are so interconnected. Environmental law is also an area of law that considers not only harms to the natural environment, but also harms to the human environment. It is an area of law that, due to the natural evolution of scientific knowledge, is familiar with considering scientific uncertainty in decision-making processes. Environmental law is also an appropriate area of law from which to draw as it is accustomed to addressing not only immediate harms but also long-term harms. It therefore provides a means of considering a broader and more accurate temporal span for the harms that must be considered, such as civilian health and environmental and ecological consequences.

This thesis attempts to close the gap between IHL and environmental law through the use of principles of environmental law as a means to narrow the opportunity in military assessment of justifying actions which threaten civilian immunity and environmental protections under the banner of military necessity or by excusing them based on scientific uncertainty. The use of indiscriminate weapons with high failure rates, or associated with great scientific uncertainty, and significant potential for long-term lasting harm to both human and natural environments is not being adequately considered in weapon and target selection. If current IHL provides inadequate protections, perhaps what is required is a new approach which better addresses risks to health and the

---

<sup>149</sup> Bothe *et al.*, *supra* note 117.

environment, which encompasses approaches to scientific uncertainty, and includes both short-term and long-term appraisals of risks and consequences. This thesis suggests that principles of environmental law are the tool that will aid the application of existing IHL by clarifying decision-making and limiting the space in which military necessity and/or scientific uncertainty can be relied on to justify actions which violate protections for civilians and the environment.

The next chapter will now turn to the sources of international law. In particular, it will provide an in-depth examination of general principles of international law: their identification, functions, and importance in international law. It will demonstrate the important role general principles can play and establish how principles of environment law can be of use in other areas of law, not simply international environmental law.

## Chapter 3

### 3 The Power of Principles: General Principles of International Law

#### 3.1 Introduction

While Article 38(1) of the Statute of the International Court of Justice [ICJ]<sup>150</sup> provides the sources of international law upon which the ICJ can rely to resolve cases before it, the sources listed in this Article are also relied upon much more broadly as demonstrative of international law. Article 38(1)(a) list conventions, or treaties, as sources of international law, while Article 38(1)(b) refers to customary law, arising out of general practice and *opinio juris*. Article 38(1)(c) cites the general principles of law as recognized by civilized nations as sources of international law. Meanwhile, Article 38(1)(d) refers to subsidiary sources which can be relied upon, specifically “judicial decisions and the teachings of the most highly qualified publicists of the various nations”.<sup>151</sup> The focus of this chapter is not the first two oft-discussed and widely understood sources of convention and custom, nor the subsidiary sources of judicial decisions and academic writing. Rather, the focus of this chapter is on general principles of law.

Article 38(1)(c) lists “the general principles of law recognized by civilized nations” as a source of international law. The inclusion of general principles here is not only distinct from conventional and customary law but it is also, importantly, distinct from the subsidiary sources referred to in 38(1)(d). However, as will be discussed later in this chapter, this separation from the specifically referenced “subsidiary” sources has not necessarily resolved the question of where general principles fall in the hierarchy of sources of international law, assuming there is a hierarchy at all.

---

<sup>150</sup> ICJ Statute, *supra* note 13 at Article 38(1).

<sup>151</sup> ICJ Statute, *ibid* at Article 38(1)(d).

This chapter will take a closer look at this source of international law, beginning first with an attempt to define “principles” or at least examine the different ways in which the term has been used and defined. Three sources of general principles are discussed: national legal systems, the law itself, and the international legal system. Christopher Ford’s comparativist and categoricist approaches to identifying general principles are also examined. Next, I will examine the different functions general principles have been put to in international law both in judicial decisions and in academic work. I categorize these functions into four categories: (1) a unification function; (2) a gap-filling function; (3) an interpretive function; and, (4) a development function. Each of these functions is examined in turn. The relationship between custom and general principles will be explored as well as the question of hierarchy of sources of international law. Finally, the argument that principles are soft law, or non-binding, is explored.

It must be noted at the outset that the term ‘principle’ is used in a multitude of contexts by international legal commentators. At times they are indeed referring to general principles of international law, the source recognized by Article 38(1)(c) of the ICJ Statute. Other times, they may be referring to principles which are either not general or not law. This chapter focuses on the former, general principles of international law as a source of international law emanating from Article 38(1)(c) of the ICJ Statute.

### 3.2 Defining Principles of International Law

There is no one source which clearly and completely defines what is meant by the phrase “general principles of law”.<sup>152</sup> In fact, how to define and identify such principles has long been a matter of practical and academic disagreement and debate.<sup>153</sup> For example, the International Criminal Tribunal for the Former Yugoslavia’s [ICTY’s]

---

<sup>152</sup> See Sean D Murphy, *Principles of International Law*, 2d (St Paul MN: Thomson Reuters, 2012) at 101[hereinafter Murphy]; M Cherif Bassiouni, “A Functional Approach to “General Principles of International Law” (1989-1990) 11 Mich J Int’l L 768 at 769-817[hereinafter Bassiouni]; Boas, *supra* note 17 at 108-109; Christopher A Ford, “Judicial Discretion in International Jurisprudence: Article 38(1)(c) and ‘General Principles of Law’” (1994-1995) 5 Duke Comp & Int’l L 35 at 65 [hereinafter Ford].

<sup>153</sup> See Bassiouni, *ibid* at 770 -796; Ford, *ibid* at 65.

decision in *Kupreskic*,<sup>154</sup> refers to general principles in three different ways within one paragraph: “general principles of international criminal law”, “general principles of criminal law common to the major legal systems of the world”, and “general principles of law consonant with the basic requirements of international justice.”<sup>155</sup> As Gideon Boas notes, “the reference to the three forms of general principles does not facilitate any comprehension of their meaning or relationship with the ‘general principles of law’ as it is enshrined as a source of international law in Article 38 of the ICJ Statute.”<sup>156</sup> The International Court of Justice [ICJ] has also been vague, or avoided altogether, defining “principles” or providing insight in how to identify them.<sup>157</sup> Even where scholars attempt to define “general principles”, their definitions are, as Cherif Bassiouni notes, “so general and self-evident that they add little to the plain meaning of the very words they intend to define.”<sup>158</sup> These include expressions such as “cardinal principles of the legal system”, “core of legal ideas which are common to all civilized legal systems”, and “manifestation of the universal legal conscience certified by the law of civilized States.”<sup>159</sup> Despite this lack of agreement and clarity on general principles, there are, nonetheless, key elements and important concepts that can be drawn from the abundance of discourse in existence on the subject.

### 3.3 Toward a Basic Definition of General Principles

Article 38(1)(c) of the ICJ Statute refers to “the general principles of law recognized by civilized nations”.<sup>160</sup> The term “civilized” is more or less ignored in modern considerations of the source, a no longer acceptable relic of past colonial

---

<sup>154</sup> *Prosecutor v Kupreskic et al (Trial Judgement)*, IT-95-16-T, International Criminal Tribunal for the former Yugoslavia (ICTY), 14 January 2000, available at: <http://www.refworld.org/docid/40276c634.html> at para 591. [hereinafter *Kupreskic*]

<sup>155</sup> *Kupreskic*, *ibid*.

<sup>156</sup> Boas, *supra* note 17 at 108-109.

<sup>157</sup> Bassiouni, *supra* note 152 at 791-800.

<sup>158</sup> Bassiouni, *ibid* at 770.

<sup>159</sup> Bassiouni, *ibid* at 770-771.

<sup>160</sup> ICJ Statute, *supra* note 13.

mindsets.<sup>161</sup> Instead, it is more often thought of as “general principles of law recognized by the community of nations”.<sup>162</sup> Still, the language gives little indication as to where or how these principles should be defined or identified. Scholars, such as the late Oscar Schachter, provide some basic characteristics of general principles.<sup>163</sup> Rather than provide a single definition of general principles, he contrasts the “generality and abstractness” of principles to the “definiteness” of legal rules.<sup>164</sup> He states that principles “have a wide range of application” and that they naturally give way, when more than one principle applies to a situation, to a weighing and balancing to find the specific solution.<sup>165</sup> According to Raz, “[p]rinciples, because they prescribe highly unspecified acts, tend to be more vague and less certain than rules.”<sup>166</sup> This is, in fact, a benefit of principles because it allows for a broader range of application and to “leave room for varying interpretation”.<sup>167</sup> This generality of principles of international law allows room to be adapted for more specific contexts in different situations and different areas of law, as well as to develop more specific content in domestic legal systems.

Next, is how to recognize a general principle and how much recognition from states is required for their existence. Once again, we encounter a certain amount of ambiguity because, as Bassiouni notes, “no quantitative or numerical test for States having such a ‘principle’ has ever been established.”<sup>168</sup> What is clear is that, while it must exist in multiple states, it “does not have to meet the test of ‘universal

---

<sup>161</sup> For a discussion of the civilized/uncivilized in international see, for example, Antony Anghie, *Imperialism, Sovereignty and the Making of International Law* (Cambridge: Cambridge University Press, 2004). Also, Boas, *supra* note 17 at 105.

<sup>162</sup> Cassese, *supra* note 14 at 188.

<sup>163</sup> Oscar Schachter, *International Law in Theory and Practice* (Dordrecht, Netherlands: Martinus Nijhoff Publishers, 1991). [hereinafter Schachter]

<sup>164</sup> Schachter, *ibid* at 20.

<sup>165</sup> Schachter, *ibid*.

<sup>166</sup> Joseph Raz, “Legal Principles and the Limits of Law” (1971-1972) 81 Yale L J 823 at 841. [hereinafter Raz]

<sup>167</sup> Schachter, *supra* note 163 at 20.

<sup>168</sup> Bassiouni, *supra* note 152 at 788.

acceptance”.<sup>169</sup> The “universal acceptance” requirement or test has been rejected by the ICJ in both the *South West Africa Cases*<sup>170</sup> and the *North Sea Continental Shelf* case.<sup>171</sup> This rejection was articulated most clearly in the dissenting opinion of Judge Tanaka in the *South West Africa Cases* when he states, “[t]he recognition of a principle by civilized nations ... does not mean recognition by *all* civilized nations”.<sup>172</sup>

For Schachter, these principles are ones “intrinsic to the idea of law”, required by “the nature of human beings”, or necessitated by the structure of international society.”<sup>173</sup> Bassiouni suggests that general principles are “expressions of other unperfected sources of international law enumerated in the statutes of the PCIJ [Permanent Court of International Justice, the predecessor to the ICJ] and ICJ; namely, conventions, customs, writings of scholars, and decisions of the PCIJ and ICJ.”<sup>174</sup> For Bassiouni, these unperfected sources, for instance, “when a custom is not evidenced by sufficient or consistent practice, or when States express *opinio juris* without any supportive practice” can “singularly or cumulatively with others, may possibly be considered to be expressions of a given principle.”<sup>175</sup>

This close link between general principles and other sources of international law, such as treaty and custom, can also be seen in the treatment of general principles by the ICJ. At times, the ICJ has dealt with general principles in a manner in which the line

---

<sup>169</sup> Bassiouni, *ibid.*

<sup>170</sup> *South-West Africa Cases (Ethiopia v South Africa; Liberia v South Africa)*; Second Phase, International Court of Justice (ICJ), 18 July 1966, available at: <http://www.refworld.org/docid/4023a9414.html>. The case considered numerous principles including principles of interpretation, the potential existence of a principle or norm against racial discrimination, and the principle of sacred trust in the context of the League of Nations/United Nations Mandate system. [hereinafter *South-West Africa Cases*]

<sup>171</sup> *North Sea Continental Shelf* case, *supra* note 24. In his dissenting opinion, Judge Lachs stated that “to become binding, a rule or principle of international law need not pass the test of universal acceptance.” This case saw the Court discussing principles of equity and good faith.

<sup>172</sup> *South West Africa Cases*, *supra*, note 170 (Judge Tanaka dissenting).

<sup>173</sup> Schachter, *supra* note 163 at 49.

<sup>174</sup> Bassiouni, *supra* note 152 at 768.

<sup>175</sup> Bassiouni, *ibid.*

between principle and custom is not easily distinguished.<sup>176</sup> For example, in the ICJ's judgment in the *North Sea Continental Shelf* case, the court stated "certain basic legal notions which [...] have from the beginning reflected the *opinio juris* in the matter of delimitation; those principles being that delimitation must be the object of agreement between the States concerned, and that such agreement must be arrived at in accordance with equitable principles."<sup>177</sup> Here, the ICJ both links equity to *opinio juris*, suggesting it has the nature of custom, while also referring to 'equitable *principles*'. Meanwhile, in other cases, the ICJ more clearly separates custom from principles. This can be seen in *Continental Shelf (Tunisia/Libya)* case, where this time on the subject of equity the ICJ explicitly stated that "legal concept of equity is a general principle directly applicable as law".<sup>178</sup> Bassiouni notes that "some principles that are not encompassed in customary law may be implicated by the term "General Principles."<sup>179</sup> This suggests that while sometimes a general principle will also be customary law, at other times a general principle will merely be a general principle and not also customary. Boas suggests two possible solutions to this quandary: that such principles are located or recognized by the national legal systems of states; or, that, quite separate from domestic legal systems, they are "derived directly from international legal relations and legal relations generally."<sup>180</sup> In fact there are several different proposed ways of identifying general principles and these are examined more closely below.

---

<sup>176</sup> Bassiouni, *supra* note 152 at 791 (referencing: *Asylum Case (Colom. v. Peru)*, 1950 ICJ 266, 369 (March 3) (Castilla, J., dissenting), M. Castilla indicated, "These principles of international law cannot be other than those which have been stated in the various treaties on asylum .... Acceptance of the application of the principles of international law entails recognition of principles which may be derived from international custom.") This case saw the court discussing principles regarding both asylum and extradition as well as more specifically whether a regional principle of diplomatic asylum existed in Latin America.

<sup>177</sup> *North Sea Continental Shelf* case, *supra* note 24 at para 85.

<sup>178</sup> *Continental Shelf (Tunisia/ Libyan Arab Jamahiriya)* Judgment, ICJ Reports 1982, 18 at para 71, available at: <http://www.icj-cij.org/docket/files/63/6267.pdf>.

<sup>179</sup> Bassiouni, *supra* note 152 at 791.

<sup>180</sup> Boas, *supra* note 17 at 106-107.

### 3.3.1 Derived from National Laws

One of the most commonly discussed interpretations of general principles posits that they originate from the domestic law of states. Sean Murphy states that it “can mean principles that *exist in the national laws* of states worldwide.”<sup>181</sup> However, he goes on to note that the language found in Article 38(1)(c) – general principles of law recognized by civilized nations – “does not actually refer to national law.”<sup>182</sup> Boas claims there are two sources for general principles, only one of which is principles “recognized by the domestic legal systems of the world.”<sup>183</sup> The other is that “[g]eneral principles may be derived from international legal relations and legal relations generally.”<sup>184</sup> Bassiouni also sees two avenues for identifying general principles, only the first of which is “expressions of national legal systems”.<sup>185</sup> The other is that they are “expressions of other unperfected sources of international law enumerated in the statutes of the PCIJ and ICJ; namely, conventions, customs, writings of scholars, and decisions of the PCIJ and ICJ.”<sup>186</sup>

These scholars are not alone in their belief that national legal systems are a source of general principles. Bassiouni cites to many other scholars who identify general principles as coming from domestic legal systems. General principles are, according to Verzijl, “fundamental to every well-ordered society”<sup>187</sup>, while Favre, as cited by Lammers, defines them as “norms underlying national legal orders”<sup>188</sup>. Ultimately, Bassiouni asserts that there seems to be at least some consensus among scholars that principles “are found in the underlying or posited principles or postulates of national

---

<sup>181</sup> Murphy, *supra* note 152 at 101.

<sup>182</sup> Murphy, *ibid*.

<sup>183</sup> Boas, *supra* note 17 at 106.

<sup>184</sup> Boas, *ibid* at 107.

<sup>185</sup> Bassiouni, *supra* note 152 at 768.

<sup>186</sup> Bassiouni, *ibid*.

<sup>187</sup> Bassiouni, *ibid* at 771 (citing JHW Verzijl, *International Law in Historical Perspective* 59 (1968)).

<sup>188</sup> Bassiouni, *ibid* at 771 (referencing Lammers, *General Principles of Law Recognized by Civilized Nations*, in *Essays in the Development of the International Legal Order* 53, 57 (F Kalshoven, PJ Kuyper & JG Lammers, eds, 1980) (citing A Favre, *Principes du Droit des Gens* 273-290 (1974)).

legal systems”, but, critically, this sentence does not end there. It is followed by the words “*or of international law.*”<sup>189</sup>

This addition by Bassiouni recognizes the problem of solely identifying general principles from national legal systems, also recognized by Murphy and Ford. Ford raises the problem of unsuitability. It is not always suitable to adopt principles from a particular legal context into another, let alone from domestic law to international law and vice-versa.<sup>190</sup> In fact, Ford suggests that “[d]irect translation between domestic and international jurisprudence may well do violence to the real values and policies served by principles ostensibly accepted at both levels.”<sup>191</sup> It is not so much that general principles can never, or should never, be found in domestic legal systems, but rather that “they should not reflexively be borrowed ‘after a census of domestic systems.’”<sup>192</sup> Ultimately, the key is, as Murphy notes, the language of Article 38(1)(c), which requires recognition of the principles by nations, not that the source of the principles be the domestic laws of the nations themselves.<sup>193</sup>

### 3.3.2 Intrinsic to the Idea of Law

Another potential interpretation of general principles sees them as “principles *intrinsic to the idea of law.*”<sup>194</sup> That is, these principles are inherent to the very conceptions of justice or fairness.<sup>195</sup> An example of this can be seen in the PCIJ’s judgment in the *River Meuse* case, wherein the court justified its application of the principles of equity under general principles of law.<sup>196</sup> Such a use of the term ‘general

---

<sup>189</sup> Bassiouni, *supra* note 152 at 771 [emphasis added].

<sup>190</sup> Ford, *supra* note 152 at 77.

<sup>191</sup> Ford, *ibid.*

<sup>192</sup> Ford, *ibid.*

<sup>193</sup> Murphy, *supra* note 152 at 101.

<sup>194</sup> Murphy, *ibid* at 102.

<sup>195</sup> Murphy, *ibid.*

<sup>196</sup> *Diversion of Water from Meuse (Neth v Belg)*, 1937 PCIJ (ser A/B) No 70 (June 28) available online at [http://www.worldcourts.com/pcij/eng/decisions/1937.06.28\\_meuse.htm](http://www.worldcourts.com/pcij/eng/decisions/1937.06.28_meuse.htm). [hereinafter *River Meuse* case]

principles’ can also be seen in the ICTY’s judgment of the *Kupreskic* case, in which the Tribunal refers to “general principles of law consonant with the basic requirements of international justice.”<sup>197</sup> As noted earlier, the tribunal used the term ‘general principles’ in two additional ways, which indicates that, while principles may be found in the very idea of law itself, they may also be drawn from other sources.

Nonetheless, there is further support for sourcing (at least some) general principles in the basic nature of law itself. Frances Jalet’s definition of general principles sees them as “principles that constitute that unformulated reservoir of basic legal concepts universal in application, which exist independently of the institutions of any particular country and form the irreducible essence of all legal systems.”<sup>198</sup> Her definition is interesting in that, while it embraces general principles as being intrinsic to law by reference to the “irreducible essence of all legal systems”, it also seems to reject the proposition discussed above, which states that general principles are to be found inside domestic law.

### 3.3.3 Derived from the International Legal System

Finally, an interpretation of general principles suggests that they are derived from international law itself. As Boas states, they “may be derived directly from international legal relations and legal relations generally.”<sup>199</sup> By this, Boas is referring to the many interpretive principles employed by international courts, such as *lex specialis derogate legi generali* (special laws prevail over general laws). He is also referring to “[f]oundational principles of the international community – such as the sovereign equality of states”.<sup>200</sup> This understanding of general principles can also be seen in the *Kupreskic* case as the ICTY refers to “general principles of international criminal

---

<sup>197</sup> *Kupreskic*, *supra* note 154 at para 591.

<sup>198</sup> Bassiouni, *supra* note 152 at 771 (citing Jalet, The Quest for the General Principles of Law Recognized by Civilized Nations, 10 UCLA L Rev 1041 (1963) at 1044).

<sup>199</sup> Boas, *supra* note 17 at 107.

<sup>200</sup> Boas, *ibid.*

law”.<sup>201</sup> It is also inherent in Bassiouni’s definition of general principles as “expressions of other unperfected sources of international law”.<sup>202</sup> This approach is also evidenced by the fact that international courts have drawn upon “State conduct, policies, practices, and pronouncements at the international level, which may be different from domestic legal principles” to identify general principles of law.<sup>203</sup> This understanding of general principles also emphasizes the usefulness of principles in the articulation of norms by courts and the “values of the ‘legal community’”.<sup>204</sup> As Ford elaborates, it is general principles that allow courts to “[articulate] hitherto unexpressed international legal norms”.<sup>205</sup>

### 3.4 Comparativist or Categoricalist Approaches to Identifying General Principles

Christopher Ford describes two different approaches for the identification of general principles: the comparativist approach and the categoricalist approach. He describes the comparativist approach as being essentially “an international jurist’s invitation to undertake a colossal comparative-law project.”<sup>206</sup> Under this approach, for something to be a general principle, it would need to be “recognized in substance by all the main systems of law”.<sup>207</sup> This approach is very much in line with the approach which sees principles as being derived from national legal systems. This approach sees general principles identified after a thorough survey of the domestic legal systems and finding the same principle expressed in many different legal systems.<sup>208</sup>

---

<sup>201</sup> *Kupreskic*, *supra* note 154 at para 591.

<sup>202</sup> Bassiouni, *supra* note 152 at 768.

<sup>203</sup> Bassiouni, *ibid* at 788.

<sup>204</sup> Ford, *supra* note 152 at 37.

<sup>205</sup> Ford, *ibid* at 43-44.

<sup>206</sup> Ford, *ibid* at 66.

<sup>207</sup> Ford, *ibid* at 67 (citing HC Gutteridge, *Comparative Law* 65 (2d, 1949) *quoted in* Wolfgang Friedmann, *The Uses of "General Principles" in the Development of International Law*, 57 *AM J INT'L L* 279 (1963) at 285).

<sup>208</sup> Ford, *ibid* at 67.

On the other hand, under the categoricist approach, principles are “seen to be ‘general’ by virtue of being inherent to the very idea of law.”<sup>209</sup> The “real test [is] not universal domestic consensus but a sort of transcendental propriety.”<sup>210</sup> What general principles truly are, by categoricist standards, are “general propositions underlying the various rules of law which express the essential qualities of juridical truth itself.”<sup>211</sup>

It is plain to see that the comparativist and categoricist approaches differ considerably in their understanding of general principles and neither approach is ideal. As Ford observes, the comparativist approach is very cumbersome with its requirement of an extensive examination of all domestic legal systems.<sup>212</sup> At the same time, the categoricist approach can be criticized for “[placing] itself solely at the mercy of the decision maker.”<sup>213</sup> Ford advocates instead for a balancing of the two approaches. This comparative-categorical approach would still allow for “judicial discretion in interpreting values and applying norms”,<sup>214</sup> but might also employ “comparative methods to evaluate the genuine character of candidate principles and to act as something of a ‘reality check’ on the exercise of judicial discretion.”<sup>215</sup> Nonetheless, Ford warns against strict adoption of domestic principles directly into international legal contexts.<sup>216</sup> Ultimately, Ford concludes that “[w]hile general principles doctrine forswears rigid reliance upon comparative study for the derivation of general principles, its retention of comparativist guideposts may be an important tool”.<sup>217</sup>

---

<sup>209</sup> Ford, *ibid* at 74.

<sup>210</sup> Ford, *ibid*.

<sup>211</sup> Ford, *ibid* at 73 (citing Bin Cheng, *General Principles of Law as Applied by International Courts and Tribunals* (1987) at 24).

<sup>212</sup> Ford, *ibid* at 74.

<sup>213</sup> Ford, *ibid*.

<sup>214</sup> Ford, *ibid* at 76.

<sup>215</sup> Ford, *ibid* at 75.

<sup>216</sup> Ford, *ibid* at 77-78.

<sup>217</sup> Ford, *ibid* at 80.

Article 38(1)(c) definitively indicates that general principles are indeed a source of international law. Unfortunately, it does not provide a clear answer as to how to define or identify these principles. Perhaps this is not so problematic when the inherent general and abstract nature of these principles is considered, along with their functions in international law. The fact is, international courts draw principles from all three of the above discussed areas: national law, the idea of law itself, and international law. Oftentimes, a principle can be found in more than one or even all of these different areas. This flexibility is reflective of the inherent flexibility of the principles themselves.

### 3.5 The Role of General Principles in International Law

Just as there are many means of identifying general principles, there are also many methods of categorizing the functions that they serve in international law. For the purpose of this thesis, it will be proposed that general principles perform four key functions:

- (1) A **unification function**: general principles act as a counterforce against the fragmentation of international law;
- (2) A **gap-filling function**: where lacunae arise in international law, general principles can act to fill the gap;
- (3) An **interpretive function**: general principles aid in the interpretation of international law; and
- (4) A **development function**: general principles aid in the development of international law.<sup>218</sup>

Like the different origins of general principles, often a principle can perform a different function depending on the context, or can perform multiple functions at the same time. These four functions are examined in greater detail below.

---

<sup>218</sup> Note other scholars have grouped the functions of general principles into different categories. For example, Bassiouni, *supra* note 152 at 775-776, identifies four functions which overlap and diverge from those I have chosen to use as identifiers. Bassiouni also has an interpretive category and a growth, or development, category. His other two categories are that of supplemental source of international law and modifier of convention and custom.

### 3.5.1 Unification Function

While critics of international law often lament its decentralized nature with no one central authority to control all, this is not quite the same issue that is meant when discussing the increasing fragmentation of the international legal system. Fragmentation, in this context, as defined by the International Law Commission [ILC] in its study on the matter, is “the splitting up of the law into highly specialized ‘boxes’ that claim relative autonomy from each other and from the general law.”<sup>219</sup> Fragmentation is the result of the creation of “such specialist systems as ‘trade law’, ‘human rights law’, ‘environmental law’ [...] – each possessing their own principles and institutions.”<sup>220</sup> Prost describes it as a process of expansion, densification and diversification to a point at which “frames and margins are blurred, where legal spaces overlap and conflict with each other, [and] a network with a plurality of voices, lacking a master plan or blueprint” is created.<sup>221</sup>

Splitting up areas of specialization is common practice in domestic systems. In Canada, the United States, Great Britain and many other countries, there exist individual ministries dealing with trade, the environment, justice, and so on with a central government or governments to oversee the overall process. However, in the international legal system, “the conceptual-doctrinal consistency, the clear hierarchy of norms and the effective judicial hierarchy that was developed within the nation-states, is lacking.”<sup>222</sup> The big concern fragmentation presents is the “danger of conflicting and incompatible rules, principles, rule-systems and institutional practices.”<sup>223</sup> And the critical question it

---

<sup>219</sup> ILC Study Group, “Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law”, Report of the Study Group of the International Law Commission finalized by Martti Koskenniemi (A/CN.4/L.682 and Corr.1) (13 April 2006) at 13. [hereinafter ILC Study]

<sup>220</sup> ILC Study, *ibid* at 11.

<sup>221</sup> Mario Prost, *The Concept of Unity in Public International Law* (Portland, OR: Hart Publishing, 2012) at 4-7. [hereinafter Prost]

<sup>222</sup> Andreas Fischer-Lescano & Gunther Teubner, “Regime-Collisions: The Vain Search for Legal Unity in the Fragmentation of Global Law” (2003-2004) 25 *Mich J Int'l L* 999 at 1002. [hereinafter Fisher-Lescano & Teubner]

<sup>223</sup> ILC Study, *supra* note 219 at 14.

raises, as the ILC describes in its study, is “[h]ow should the relationship between such [specialized] ‘boxes’ be conceived?”<sup>224</sup> To understand how general principles can help address the concerns of fragmentation, it is useful to turn to the late Oscar Schachter’s analogy of the international legal system to a system of towns, villages, paths and highways, as well as to look at the additional functions of general principles which are also important for fulfilling the unification function.<sup>225</sup>

Schachter’s analogy compares international law to a large terrain. On this terrain, or map, a specialized branch of law is represented by a village or town, wherein they focus on their own affairs. There are narrow paths that run between these towns and villages, but they are used infrequently. Instead, covering the entire map are “superhighways, the connecting links, which in the metaphor convey the general principles and concepts.”<sup>226</sup> Schachter then proceeds to elaborate on how the actors on this map relate to the different elements of the terrain. He says:

Those who travel on the highways are generally only dimly aware of the lively activities in the towns and villages. Those who remain only in the local communities immersed in their specialties tend to lose sight of the interconnections and coherence of the larger whole.<sup>227</sup>

Schachter goes on to emphasize the importance of the superhighways, of general principles and concepts, because international law “is much more than a congeries of separate legal régimes in particular fields. Just as facts become meaningful when they are linked to ideas and norms, so do ideas and norms gather strength as they become part of a coherent interrelated system.”<sup>228</sup> For Schachter, it is these general principles and concepts that give the system unity. He states that “[w]e need to relate concepts to practice and thus give them content. We need to relate practices to concepts in order to give practice

---

<sup>224</sup> ILC Study, *ibid.*

<sup>225</sup> Schachter, *supra* note 163 at 1.

<sup>226</sup> Schachter, *ibid.*

<sup>227</sup> Schachter, *ibid.*

<sup>228</sup> Schachter, *ibid.*

meaning and direction.”<sup>229</sup> Principles and concepts are therefore an essential part of international law without which there can be no meaning and direction for practice. Principles and concepts are the important links uniting the growing number of specialized fields of law. Since, according to Martti Koskenniemi, there “[is] no meta-regime” in international law,<sup>230</sup> general principles and concepts can be used to increase our understanding and connect these different fields, as Schachter suggests.<sup>231</sup> The precise way in which general principles can play a role in increasing our understanding can be seen through the other three functions.

### 3.5.2 Gap-Filling Function

General principles “perform a gap-filling function where there is no customary or treaty law on the issue, or where a principle is required to decide which hierarchically equal norm should prevail in the event of a clash.”<sup>232</sup> In doing so, general principles “prevent[s] decision-makers from either pronouncing a *non liquet* (failure to decide) or, worse, deciding the issue according to their personal whim.”<sup>233</sup> This is one of the most common functions of general principles, second only perhaps to the interpretive function. Additionally, general principles can perform a gap-filling function to the point of being pseudo-decision-makers where there is a need to decide a conflict between norms.<sup>234</sup> Bassiouni suggests that general principles may fill gaps on “a more objective basis than the value-laden natural law philosophy espoused by some Continental and American scholars.”<sup>235</sup> In fact, the logical application of general principles to fill gaps in customary

---

<sup>229</sup> Schachter, *ibid* at 2.

<sup>230</sup> Martti Koskenniemi, “The Fate of Public International Law: Between Technique and Politics” (2007) 70 *Mod L Rev* 1 at 5.

<sup>231</sup> Schachter, *supra* note 162 at 1-2.

<sup>232</sup> Boas, *supra* note 17 at 47.

<sup>233</sup> Boas, *ibid* at 106.

<sup>234</sup> Boas, *ibid* at 107.

<sup>235</sup> Bassiouni, *supra* note 152 at 774.

and treaty law suggests it is “a source of law that overreaches other positive sources of international law, and eventually supersedes it.”<sup>236</sup>

Since gaps in positive international law do exist, there is need for something to fill these gaps, and general principles are the logical choice for that job. In fact, Bassiouni states, “[t]hat is why this source of law was included in article 38 of both the PCIJ and the ICJ Statutes.”<sup>237</sup> According to Ford, “[a]t the time the Statute of the PCIJ was drafted in 1920, the idea that international tribunals could invoke general principles in order to fill gaps was already well established in certain international contexts.”<sup>238</sup> Article 38(1)(c) of the ICJ Statute simply carried on this practice.<sup>239</sup> Article 38(1)(c) is, in Ford’s words, “an express textual warrant for gap-filling judicial discretion.”<sup>240</sup> This gap-filling function is ultimately articulated by the ICJ in the *Right of Passage* case, in which Judge Fernandes, in his dissenting opinion, stated that “[i]t frequently happens that a decision given on the basis of a particular or general convention or of a custom requires recourse to the general principles ... A court will have recourse to those principles to fill gaps in the conventional rules, or to interpret them.”<sup>241</sup> The ICJ did just that in the *Corfu Channel* case, where it relied upon a principle of the admissibility of indirect evidence to interpret the evidence admissible by Great Britain on the knowledge and responsibility of Albania for laying mines in the Corfu channel.<sup>242</sup>

---

<sup>236</sup> Bassiouni, *ibid* at 776.

<sup>237</sup> Bassiouni, *ibid* at 791.

<sup>238</sup> Ford, *supra* note 152 at 63.

<sup>239</sup> Ford, *ibid* at 64.

<sup>240</sup> Ford, *ibid* at 37.

<sup>241</sup> International Court of Justice, *Right of Passage Over Indian Territory (Port. v. India)*, 1960 I.C.J. 6 (Apr. 12) (Judge Fernandes dissenting) at para 45. Principles discussed by the court in this case include the principle of interpretation of legal rules, the principle of sovereignty, the doctrine of impleaded powers in general power, and the principle of a right of access to enclaved property.

<sup>242</sup> *Corfu Channel Case (United Kingdom v Albania); Merits*, International Court of Justice (ICJ), 9 April 1949, available at <http://www.refworld.org/docid/402399e62.html>.

### 3.5.3 Interpretive Function

The interpretive function is the most commonly employed use of general principles and, according to Bassiouni, “the one that is evidently the most needed and useful”.<sup>243</sup> Raz concurs that this function is “of the utmost importance since it is a crucial device for ensuring coherence of purpose among various laws bearing on the same subject.”<sup>244</sup> As such, it is also an important means of responding to fragmentation and performing the unification function of general principles. Though the “extent to which one can resort to ‘General Principles’ for interpretive purposes has never been established”<sup>245</sup>, these principles have nonetheless “been primarily used to clarify and interpret international law.”<sup>246</sup>

Some general principles are specifically interpretive in nature, such as the principle which dictates that special laws prevail over general ones (*lex specialis derogate legi generali*).<sup>247</sup> Meanwhile other principles, such as the general principle of respect for human dignity, identified by the ICTY in the *Furundzija* case as “the basic underpinning and indeed the very *raison d’être* of international humanitarian law and human rights” was employed by that court to help interpret the international laws relating to rape.<sup>248</sup> This use of general principles in *Furundzija* exemplifies Bassiouni’s assertion that “[t]hey are useful for interpreting words not susceptible to an ordinary or common meaning interpretation”.<sup>249</sup>

---

<sup>243</sup> Bassiouni, *supra* note 152 at 776.

<sup>244</sup> Raz, *supra* note 166 at 840.

<sup>245</sup> Bassiouni, *supra* note 152 at 776.

<sup>246</sup> Bassiouni, *ibid* at 776.

<sup>247</sup> Boas, *supra* note 17 at 107.

<sup>248</sup> *Prosecutor v Furundzija (Trial Judgement)*, IT-95-17/1-T, International Criminal Tribunal for the former Yugoslavia (ICTY), 10 December 1998, available at: <http://www.refworld.org/docid/40276a8a4.html> at 183. [hereinafter *Furundzija*]

<sup>249</sup> Bassiouni, *supra* note 152 at 800.

Equally important when considering the interpretation of international law is the *Vienna Convention on the Law of Treaties* [VCLT].<sup>250</sup> Article 31(3) of the VCLT requires subsequent agreements, practices and rules of international law to be taken into account when interpreting a treaty.<sup>251</sup> The ILC Study on Fragmentation devoted some time to discussing Article 31(3)(c) of the VCLT, which reads as follows:

There shall be taken into account together with the context:

... (c) any relevant rules of international law applicable in the relations between the parties.<sup>252</sup>

The ILC refer to this article as an expression of a principle it calls the principle of “systemic integration”. The principle “points to the need to take into account the normative environment [of the obligations in question] more widely.”<sup>253</sup> The aim is to ensure that provisions are interpreted “so as to see the rules in view of some comprehensible and coherent objective, to prioritize concerns that are more important at the cost of less important objectives.”<sup>254</sup> This systemic nature of international law, integral to both interpretation and the unification of international law, can be anchored on this provision of the VCLT.<sup>255</sup> It is important to note that, though the provision “refers to rules of international law in general, the words cover all the sources of international law,

---

<sup>250</sup> VCLT, *supra* note 21.

<sup>251</sup> VCLT, *ibid* at Article 31(3). Article 31 reads: *Article 31 General rule of interpretation* 1.A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose. 2.The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes:(a) any agreement relating to the treaty which was made between all the parties in connection with the conclusion of the treaty; (b) any instrument which was made by one or more parties in connection with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty. 3.There shall be taken into account, together with the context: (a) any subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions; (b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation; (c) any relevant rules of international law applicable in the relations between the parties. 4. A special meaning shall be given to a term if it is established that the parties so intended.

<sup>252</sup> VCLT, *ibid* at Article 31(3)(c).

<sup>253</sup> ILC Study, *supra* note 219 at 209.

<sup>254</sup> ILC Study, *ibid* at 211.

<sup>255</sup> ILC Study, *ibid*.

including custom, general principles, and, where applicable, other treaties”.<sup>256</sup> While, at first glance, there may seem to be confusion by the use of the term “rules”, in the following sentence the ILC clarifies that this is inclusive of custom and general principles, not merely rules founded in conventions.<sup>257</sup> The ILC Study further elaborates that the “general principles of law recognized by civilized nations perform a rather similar task in locating the treaty provision within a principled framework”.<sup>258</sup>

Within a fragmented international legal system consisting of so many specialized institutions, law must not be employed in isolation “only as an instrument for attaining regime-objectives.”<sup>259</sup> Rather, “law is also about protecting rights and enforcing obligations, above all rights and obligations that have a backing in something like a general, public interest.”<sup>260</sup> The ILC emphasizes that “[w]ithout the principle of ‘systemic integration’ it would be impossible to give expression to and to keep alive, any sense of common good of humankind, not reducible to the good of any particular institution or ‘regime’.”<sup>261</sup> The interpretation, and often by association the unification, functions of general principles are crucial to the exercise of international law and the preservation of the coherence of international law.

### 3.5.4 Development Function

The final function of general principles is the development function, or as Bassiouni refers to it, the “growth function”.<sup>262</sup> Essentially, general principles play a role in the development of international law. Bassiouni, citing James Brierly, describes the function as “an authoritative recognition of a dynamic element in international law and of

---

<sup>256</sup> ILC Study, *ibid* at 215.

<sup>257</sup> ILC Study, *ibid*.

<sup>258</sup> ILC Study, *ibid* at 236.

<sup>259</sup> ILC Study, *ibid* at 244.

<sup>260</sup> ILC Study, *ibid*.

<sup>261</sup> ILC Study, *ibid* at 244.

<sup>262</sup> Bassiouni, *supra* note 152 at 777.

the creative function of the courts which administer it.”<sup>263</sup> Bassiouni also notes that many scholars see this “underlying role of ‘General Principles’ as necessary to the development of international law.”<sup>264</sup> The reasoning behind this necessity is that “it would be stifling not to inject into the sources of any legal system the capability of growth and development.”<sup>265</sup> This function of general principles therefore serves to provide a certain amount of dynamism in the operation of international law.

The development function provides for the possibility that existing general principles could form the basis for creating new rules of international law.<sup>266</sup> Bassiouni goes so far as to say that the “development of new norms of conventional and customary law required the existence of ‘General Principles.’”<sup>267</sup> Given the importance of this dynamism and evolution of international law, Bassiouni “assume[s] that the framers of both the PCIJ and ICJ Statutes anticipated the prospective need for evolution and change in the development of international law – as evidenced by [...] article 38(1)(c).”<sup>268</sup> Ford goes further, stating that the “drafters of Article 38 deliberately empowered future Courts ‘to develop and refine the principles of international jurisprudence.’”<sup>269</sup>

The ICTY’s use of general principles in *Furundzija*, discussed above, is not only an example of the interpretive function of general principles but also an example of its development function. The Tribunal used the general principle of human dignity not only to interpret existing customary law on rape but also to develop the definition of rape in international law.<sup>270</sup> In doing so, the Tribunal concluded that forced oral penetration did

---

<sup>263</sup> Bassiouni, *ibid* at 777 (citing JL Brierly, *The Law of Nations* (6d 1963) at 63).

<sup>264</sup> Bassiouni, *ibid* at 777 (referencing JHW Verzijl, *International Law in Historical Perspective* 59 (1968); M Whiteman, *Digest of International Law* 90 (1963); and L Gross, *Essays on International Law and Organization* 145 (1984)).

<sup>265</sup> Bassiouni, *ibid* at 777.

<sup>266</sup> Raz, *supra* note 166 at 841.

<sup>267</sup> Bassiouni, *supra* note 152 at 778.

<sup>268</sup> Bassiouni, *ibid* at 777.

<sup>269</sup> Ford, *supra* note 152 at 65 (citing Ian Brownlie, *Principles of Public International Law* 16 (1990) at 16).

<sup>270</sup> *Furundzija*, *supra* note 248.

constitute rape.<sup>271</sup> The use of general principles allowed for continued development of international law.

### 3.6 Custom or Principle?: The Relationship between Custom and General Principles

There is a strong relationship between customary law and general principles. The relationship is so strong that the line between them is sometimes difficult to distinguish.<sup>272</sup> In fact, some general principles are both general principles and rules of customary international law at the same time.<sup>273</sup> One such example provided by Boas is the rule/general principle of *pacta sunt servanda* (the principle that agreements must be kept).<sup>274</sup> Furthermore, the concept of *jus cogens* or non-derogable principles, “is premised on the existence of a hierarchy of ‘General Principles.’”<sup>275</sup>

Another link between custom and principles is that general principles can play a role in the formation of customary international law. A general principle may provide evidence of custom through its consistent and/or widespread practice.<sup>276</sup> General principles and custom can also both “apply to states that have not tacitly agreed to those *particular* norms” by virtue of the fact that their validity and binding nature “is a product of the common will of the international community”.<sup>277</sup> Principles and custom are both evolutionary sources, the weight and influence of which develop over time.<sup>278</sup>

A key distinction between custom and principles, however, is that when custom is not perfected, “such as when a custom is not evidenced by sufficient or consistent

---

<sup>271</sup> *Furundzija*, *ibid* at para 184.

<sup>272</sup> Bassiouni, *supra* note 152 at 791.

<sup>273</sup> Boas, *supra* note 17 at 48.

<sup>274</sup> Boas, *ibid* at 48.

<sup>275</sup> Bassiouni, *supra* note 152 at 780.

<sup>276</sup> Bassiouni, *ibid* at 801.

<sup>277</sup> Boas, *supra* note 17 at 50.

<sup>278</sup> Raz, *supra* note 166 at 848.

practice, or when States express *opinio juris* without any supportive practice”, the practice does not have the binding force of customary law, but the practice may nonetheless be representative of a general principle of international law.<sup>279</sup> Ultimately, while general principles and customary international law may sometimes overlap, they both also play distinct and very important roles in the operation of international law.

### 3.7 Hierarchy of Sources of International Law

Crucial to understanding the role of general principles in international law is not simply knowing how to identify them and how they function, but also knowing their weight and status within the realm of different sources of international law. Article 38(1) lists conventions, custom, general principles, judicial decisions and the writings of publicists as sources of international law. Based on the wording of the Article, the natural interpretation would be that conventions, custom and general principles are ‘primary’ sources of international law, this inference being drawn from the fact that the Article expressly states that judicial decisions and the writings of publicists are ‘subsidiary’ sources.<sup>280</sup> In spite of what seems to be quite clear language, there exists a sense that treaty and custom are actually hierarchically superior to general principles.<sup>281</sup> On the other hand, Boas suggests that “the gap-filling and tie-breaking function of general principles only indicates that this formal source operates in a different way and in a different sphere from that of treaty and custom”, rather than an hierarchically inferior fashion.<sup>282</sup> Bassiouni also dismisses the suggestion that general principles are hierarchically inferior to custom and convention, noting that “in the context of legislative intent, it becomes evident that the drafters of article 38 of the PCIJ Statute never intended

---

<sup>279</sup> Bassiouni, *supra* note 152 at 768.

<sup>280</sup> ICJ Statute, *supra* note 13 at Article 38(1)(d). Also, Boas, *supra* note 17 at 105.

<sup>281</sup> Cassese, *supra* note 14 at 188.

<sup>282</sup> Boas, *supra* note 17 at 48.

to create a hierarchy of sources.”<sup>283</sup> Rather, the drafters consciously omitted the words “in the order following” from the language of the Article.<sup>284</sup>

As the ILC notes in its Study on Fragmentation, “[t]here is no formal hierarchy between the sources of international law”, though it suggested that, nonetheless, there may be an informal hierarchy between sources.<sup>285</sup> Instinctively, in looking to resolve an issue, there is a hierarchy, as conventional law is usually considered first, then customary international law, and then general principles.<sup>286</sup> In reality, the different functions of each respective source of international law can often allow them to operate in conjunction with each other or in a symbiotic way. However, as Bassiouni points out, “[t]he choice of which functions ‘General Principles’ should assume is clearly predicated on whether ‘General Principles’ are deemed a subsidiary or primary source of international law.”<sup>287</sup> As a primary source, general principles “may have a binding legal effect superior to that of positive normative rules of international law.”<sup>288</sup> On the other hand, as a subsidiary source, general principles “are only appropriately resorted to for the purposes of explaining inadequacies in the positive normative law and can also occasionally fill gaps in these two primary sources.”<sup>289</sup>

This question regarding the binding nature of general principles is “well established and its hierarchical ranking has simply been left to the functional need for their application in specific cases.”<sup>290</sup> The application by the PCIJ and ICJ in practice has “been cautious and [they] have often restricted ‘General Principles’ to a limited role that

---

<sup>283</sup> Bassiouni, *supra* note 152 at 782.

<sup>284</sup> Bassiouni, *ibid.*

<sup>285</sup> ILC Study, *supra* note 219 at 47.

<sup>286</sup> ILC Study, *ibid* at 47.

<sup>287</sup> Bassiouni, *supra* note 152 at 787.

<sup>288</sup> Bassiouni, *ibid.*

<sup>289</sup> Bassiouni, *ibid.*

<sup>290</sup> Bassiouni, *ibid.*

some would see as a subsidiary function”.<sup>291</sup> However, and as Bassiouni crucially notes, “one cannot rely on the caution of the courts as evidence that they intended to place ‘General Principles’ in a subsidiary position to other sources of international law.”<sup>292</sup> Ultimately, there is great strength in the position that general principles are a primary source based on the language of Article 38(1) of the ICJ Statute.

### 3.8 General Principles: The Soft Law Argument

As noted above, there are some who feel general principles are more of a subsidiary, or non-binding, source of international law rather than a primary source equal in stature to custom and treaty. Proponents of this position argue that treaty and custom are inherently more representative of the will of states.<sup>293</sup> As such, they feel that these sources should be prioritized over general principles and general principles should take on a lesser role entailing merely “explaining inadequacies in the positive normative law and [...] also occasionally fill gaps in these two primary sources.”<sup>294</sup> While the legitimacy of such claims is questionable, given the above discussion on the hierarchy of sources, it is nonetheless useful to examine the role of general principles if they are indeed a lesser or non-binding source of law.

There is an increasing tendency in several areas of law to “place normative statements and agreements in nonlegally binding or politically instruments such as declarations, resolutions, and programs of action.”<sup>295</sup> Such non-binding instruments are commonly referred to as soft law. In actuality “there is no accepted definition of ‘soft law’, but it usually refers to any international instrument other than a treaty that contains principles, norms, standards, or other statements of expected behavior.”<sup>296</sup>

---

<sup>291</sup> Bassiouni, *ibid* at 800.

<sup>292</sup> Bassiouni, *ibid*.

<sup>293</sup> Bassiouni, *ibid* at 787.

<sup>294</sup> Bassiouni, *ibid*.

<sup>295</sup> Dinah Shelton, “Normative Hierarchy in International Law” (2006) 100 Am J Int’l L 291 at 319. [hereinafter Shelton (2006)]

<sup>296</sup> Shelton, *ibid*.

General principles stated in soft law documents can still be powerful tools of evidence of existing law, or can be demonstrative of *opinio juris* or state practice leading to the formation of new customary law.<sup>297</sup> As Alan Boyle notes, once soft law begins to interact with binding instruments - for example, in the case of intergenerational equity in Article 3(1) of the 1992 Climate Change Convention - the non-binding character of soft law may be lost or altered.<sup>298</sup> This indicates that principles in soft law documents can evolve into binding norms. Principles expressed in soft law documents can also still play a very important role based on the influence they can exert on the interpretation, application and development of other rules of law.<sup>299</sup> For example, Article 31(3) of the VCLT calls upon such principles to be taken into account when interpreting a treaty.<sup>300</sup>

The usefulness of principles in international law expressed in a soft law document has also been articulated by Susan Marks.<sup>301</sup> Marks comments on how principles expressed in soft law documents can be useful as tools for the interpretation, application and articulation of international law.<sup>302</sup> They can also be used to reinforce trends already in existence in international law.<sup>303</sup> While Marks' comments center around a proposed principle of democratic inclusion, they are equally pertinent to the importance and usefulness of other soft law principles.

Whether general principles are considered binding or non-binding in nature, they are also widely recognized across cultures and states.<sup>304</sup> As well, they often have a strong

---

<sup>297</sup> Alan Boyle, "Soft Law in International Law-Making" in Malcolm D Evans, ed, *International Law*, 2d (Oxford: Oxford University Press, 2006) 141 at 153. [hereinafter Boyle (2006)]

<sup>298</sup> Boyle (2006), *ibid* at 150-151.

<sup>299</sup> Boyle (2006), *ibid* at 151-152.

<sup>300</sup> VCLT, *supra* note 21 at Article 31(3).

<sup>301</sup> Susan Marks, *The Riddle of All Constitutions* (Oxford: Oxford University Press, 2000) at 109-118. [hereinafter Marks]

<sup>302</sup> Marks, *ibid*.

<sup>303</sup> Marks, *ibid*.

<sup>304</sup> For example, see Weiss (1989), *supra* note 8.

normative content around which non-governmental organizations [NGOs], the public and states can easily rally. As Alan Boyle notes, “soft law instruments can thus become vehicles for focusing consensus on rules and principles, and for mobilizing a consistent, general response on the part of States”.<sup>305</sup> As such, even though it seems more likely that general principles have at least some, if not complete binding force, they can be powerful tools for the application and interpretation of international law whether they form part of soft or hard law.

### 3.9 Conclusion

This chapter has explored the nature of general principles of law as a source found in Article 38(1)(c) of the ICJ Statute. While there may not be one concise and precise definition of ‘general principles’, there are certain key characteristics they embody. These characteristics include: they are more general in nature than custom and convention; they are abstract; and they do not require universal acceptance. These characteristics lend themselves to identifying general principles not simply and strictly in one area, such as the national laws of states, but in multiple areas that also include principles intrinsic to the very idea of law, and principles found in international law itself. Furthermore, general principles perform multiple important functions in international law. They help to unify what seems to be a fragmented system of different specializations; they fill gaps in existing international law; they help to interpret existing laws; and they help to continue the growth and development of international law.

With this understanding of general principles in mind, the next chapters will turn to examining the two principles being used in this thesis: the principle of intergenerational equity and the precautionary principle, both principles found in international environmental and international sustainable development law. This chapter has demonstrated that general principles of international law can serve many important functions. They can be extremely useful tools for uniting international law as well as interpreting and applying international law. This will be of particular importance in the

---

<sup>305</sup> Boyle (2006), *supra* note 297 at 141.

remaining chapters of this thesis because it illustrates how intergenerational equity and the precautionary principle, as general principles of international law, can have the ability to influence other areas of law, such as international humanitarian law.

## Chapter 4

### 4 International Environmental Law: Exploring Sustainable Development and Intergenerational Equity

#### 4.1 Introduction

This chapter transitions into the realm of international environmental law (IEL). It begins with an introduction to the field of IEL as well as its important links to sustainable development. It then explores in some depth a principle of IEL and an integral part of sustainable development, the principle of intergenerational equity. This principle considers both long-term and short-term threats and harms. Not only is this relevant in the realm of environmental law, but also in the realm of human rights, a link that will be explored in the final part of the chapter.

#### 4.2 International Environmental Law & Sustainable Development

##### 4.2.1 International Environmental Law

International environmental law (IEL) is a relatively young area of law, growing out of mounting environmental concerns in the 1960s and evolving and building into today's increasingly important body of law.<sup>306</sup> Its primary goal is the protection of the environment. In protecting the environment, instruments, policies, principles and rules of IEL focus on a broad range of issues: from health, to the conservation of flora and fauna, to the ocean, to the atmosphere.<sup>307</sup> The protection of the environment touches on a

---

<sup>306</sup> Though it should be noted that environmentalism internationally long predates its rising awareness in the 1960s as is discussed in Karin Mickelson, "South, North, International Environmental Law, and International Environmental Lawyers" (2000) 11 YB Int'l Env L 52 at 55-57. [hereinafter Mickelson]

<sup>307</sup> See, for more examples, Patricia W Birnie, Alan Boyle, and Catherine Redgwell, eds, *International law and the environment*, 3d (Oxford; New York: Oxford University Press, 2009).

myriad of areas because there is little to no action that does not have an effect, to one degree or another, on some aspect of the environment.<sup>308</sup> Furthermore, “[e]nvironmental problems present a moving target” because “not only does scientific understanding develop, [but] environmental problems themselves change as human behaviour and technology change.”<sup>309</sup> These problems oftentimes will not be contained by the borders on a map. Many environmental problems have “effects that are widely dispersed and long term, with long latency periods.”<sup>310</sup> Sometimes these effects are irreversible.<sup>311</sup>

It is this nature of environmental problems that IEL seeks to address. The broad, all-encompassing, transitory, scientifically uncertain, long-lasting and potentially irreversible nature of environmental problems requires IEL to continue to adapt, adopt and create its own tools to meet the needs of the environment and humanity. More often than not, though, it is human needs that are the primary justification for, or reasoning behind, IEL efforts. As Alan Boyle notes, “[i]nternational environmental law is essentially anthropocentric rather than radically ecocentric in character.”<sup>312</sup> This anthropocentric focus means that environmental protections are often based upon human self-interest and/or cultural, economic or aesthetic needs, uses and benefits of the

---

<sup>308</sup> See Daniel Bodansky, Jutta Brunnée, & Ellen Hey, ‘International Environmental Law: Mapping the Field’ in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 1 at 6 [hereinafter Bodansky *et al.*]; Jaye Ellis & Stepan Wood, ‘International Environmental Law’ in Benjamin J Richardson & Stepan Wood, eds, *Environmental Law for Sustainability* (Oxford & Portland, Oregon: Hart Publishing, 2006) 343 at 380 [hereinafter Ellis & Wood]. The definition of ‘environment’ is also a rather complex one, for a more detailed exploration of the definition see Marie-Louise Larsson, “Legal Definitions of the Environment and Environmental Damage” (1999) 38 *Scandinavian Stud L* 155; or for a look at the differing interpretations of ‘environment’ between the Global North and South see Mickelson, *supra* note 303.

<sup>309</sup> Bodansky *et al.*, *ibid* at 7-8.

<sup>310</sup> Bodansky *et al.*, *ibid* at 7.

<sup>311</sup> Bodansky *et al.*, *ibid* at 14.

<sup>312</sup> Alan Boyle, ‘Relationship between International Environmental Law and Other Branches of International Law’ in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 125 at 141. [hereinafter Boyle (2007)]

environment.<sup>313</sup> However, it must also be noted, that some scholars emphasize an increasing development in IEL which embraces a more ecocentric approach, valuing and promoting the protection of the environment for its own intrinsic worth.<sup>314</sup>

These tools include both binding treaties and non-binding declarations and resolutions. An excellent example of the production of both treaties and declarations came out of the 1992 United Nations Conference on Environment and Development held in Rio de Janeiro, Brazil [Rio Conference]. Both the *UN Convention on Biological Diversity*<sup>315</sup> and the *UN Framework Convention on Climate Change (UNFCCC)*<sup>316</sup> were opened for signatures at the Rio Conference and are now binding IEL treaties. On the non-binding side, Agenda 21,<sup>317</sup> dealing with sustainable development, and the *Rio Declaration on Environment and Development* (Rio Declaration),<sup>318</sup> 27 principles on environment and development, were negotiated and produced at the Rio Conference. While the instruments themselves are non-binding, their content carries much weight, with many principles contained in them having achieved binding customary law status.<sup>319</sup>

---

<sup>313</sup> See Alexander Gillespie, ‘An introduction to ethical considerations in international environmental law’ in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 117.

<sup>314</sup> See, for example, Bodansky *et al.*, *supra* note 308 at 15-16.

<sup>315</sup> *Convention on Biological Diversity* (Biodiversity Convention), 6 May 1992, 1760 UNTS 79; 31 ILM 818 (1992). [hereinafter Biodiversity Convention]

<sup>316</sup> *United Nations Framework Convention on Climate Change* (UNFCCC), 9 May 1992, 1771 UNTS 107; S Treaty Doc No 102-38; UN Doc A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992), available at <http://unfccc.int/resource/docs/convkp/conveng.pdf>. [hereinafter UNFCCC]

<sup>317</sup> Agenda 21: Programme of Action for Sustainable Development, 14 June 1992, UN GAOR, 46th Sess, Agenda Item 21, UN Doc A/Conf.151/26 (1992), available at <http://www.un-documents.net/k-001962.htm>. [hereinafter Agenda 21]

<sup>318</sup> *Rio Declaration on Environment and Development*, 12 August 1992, A/CONF.151/26 (Vol. I), online United Nations website <<http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>>. [hereinafter Rio Declaration].

<sup>319</sup> For example, the precautionary principle enshrined in Principle 15 of the Rio Declaration as discussed in Sands *et al.*, *supra* note 11 at 218; Arie Trouwborst, *Precautionary Rights and Duties of States* (Leiden: Martinus Nijhoff Publishers, 2006) at 32 [hereinafter Trouwborst]; Joakim Zander, *The Application of the Precautionary Principle in Practice: Comparative Dimensions* (Cambridge: Cambridge University Press, 2010) at 72 [hereinafter Zander]; and, Nicolas de Sadeleer, “The principles of prevention and precaution in international law: two heads of the same coin?” in Malgosia Fitzmaurice, David M Ong and Panos

Tools of IEL include instruments produced by states<sup>320</sup> as well as those produced by experts.<sup>321</sup> As Dupuy notes, “resolutions adopted by experts [...], although they are less authoritative than those negotiated by state delegations[...], can be extremely influential in legitimizing and shaping successive legal developments.”<sup>322</sup> Furthermore, “resolutions adopted by states indicate how international law can evolve, whereas those adopted by experts indicate how international law should evolve.”<sup>323</sup> As with many areas of law, IEL requires the participation and consent of states as well as the expertise and opinion of experts in order to provide protection for the environment, to fully consider the many interests at stake, and to benefit from the different knowledge bases available in the realm of environmental protection.

While IEL benefits from both binding and non-binding instruments produced by both states and experts, it lacks “an integrated UN special agency that could serve as an ‘umbrella organization’ for coordinating environmental policies, integrating legislation, and monitoring implementation.”<sup>324</sup> Given this lack of umbrella organization, Dupuy suggests that “general customary rules and general principles may act, in part at least, as

Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 182 at 187 [hereinafter De Sadeleer (2010)].

<sup>320</sup> These include binding treaties, as well as many non-binding instruments such as Agenda 21, *supra* note 317, and the Rio Declaration, *supra* note 318.

<sup>321</sup> For example, reports put out by the experts groups of the United Nations Environment Programme (UNEP) or produced by the International Law Association (ILA) or International Law Commission (ILC).

<sup>322</sup> Pierre-Marie Dupuy, ‘Formation of Customary International Law and General Principles’ in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 449 at 459. [hereinafter Dupuy]

<sup>323</sup> Dupuy, *ibid.*

<sup>324</sup> Dupuy, *ibid* at 463. Note: the UNEP does not fulfill this role primarily because it is a UN Programme with limited legal personality and controlled by the UN General Assembly, as opposed to a UN Agency which are autonomous intergovernmental agencies create through an independent legal instrument. For further discussion on the differences between UN agencies and UN Programmes see UNEP, “United Nations Specialised Agencies versus United Nations Programmes” (7 June 2010) available at: [http://www.rona.unep.org/documents/partnerships/IEG/UN\\_Specialised\\_Agencies\\_Vs\\_UN\\_Programmes.pdf](http://www.rona.unep.org/documents/partnerships/IEG/UN_Specialised_Agencies_Vs_UN_Programmes.pdf). [hereinafter UNEP (2010)]

compensation for the institutional deficiencies of the system.”<sup>325</sup> Indeed, IEL has a large number of general rules or principles and they are often the focus of academic discussion. Sands *et al.* focus on seven “general rules and principles that have broad, if not necessarily universal, support and are frequently endorsed in practice.”<sup>326</sup> The general rules and principles that are the focus of academic discussion are:

- (1) the obligation reflected in Principle 21 of the Stockholm Declaration and Principle 2 of the Rio Declaration, namely, that states have sovereignty over their natural resources and the responsibility not to cause transboundary damage;
- (2) the principle of preventive action;
- (3) the principle of co-operation;
- (4) the principle of sustainable development;
- (5) the precautionary principle;
- (6) the polluter pays principle; and
- (7) the principle of common but differentiated responsibility.<sup>327</sup>

Ellis and Wood, meanwhile, focus on a non-exhaustive list of nine principles: prevention, equitable balancing of interests, precaution, common concern of humankind, common but differentiated obligations, co-operation, prior notice and consultation, prior informed consent and environmental impact assessments.<sup>328</sup> While there are some specific principles in common to the lists, others, such as sustainable development in the first list, incorporates or includes principles from the Ellis and Wood list, such as the equitable balancing of interests.

---

<sup>325</sup> UNEP (2010), *ibid.*

<sup>326</sup> Sands *et al.*, *supra* note 11 at 187.

<sup>327</sup> Sands *et al.*, *ibid.*

<sup>328</sup> Ellis & Wood, *supra* note 308.

## 4.2.2 Sustainable Development as Encompassing International Environmental Law

Many principles of IEL are also encompassed in sustainable development. Ellis and Wood state that “[i]t is possible to view all the legal principles [listed above] as segments of a wide, over-arching principle [...]: ‘sustainable development’ (or ‘sustainability’).”<sup>329</sup> Sustainable development is most commonly defined by its earliest definition in the Brundtland Report (1987) by the World Commission on Environment and Development: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.<sup>330</sup> It seeks to balance economic and social development with environmental protection, both in the short- and long-term. Though this basic understanding of sustainable development exists, it is nonetheless “highly susceptible to varied explanations”<sup>331</sup> and “[i]t is subject to considerable uncertainty as to its exact meaning and scope.”<sup>332</sup>

Also subject to great academic discussion is whether sustainable development is a body of law unto itself, a mere concept, or a principle. Each possibility receives support in the academic literature. Sands *et al.* discuss the “law of sustainable development”<sup>333</sup>, while French refers to “the notion, the principle – if not now – the mantra of sustainable development”.<sup>334</sup> For Boyle and Freestone, sustainable development is a “concept”<sup>335</sup>.

---

<sup>329</sup> Ellis & Wood, *ibid* at 373.

<sup>330</sup> Brundtland Report, *supra* note 10 at 8.

<sup>331</sup> Ulrich Beyerlin, ‘Different Types of Norms in International Environmental Law: Policies, Principles, and Rules’ in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 425 at 444. [hereinafter Beyerlin]

<sup>332</sup> Vaughan Lowe, ‘Sustainable Development and Unsustainable Arguments’ in Alan Boyle and David Freestone, eds, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 2001) 19 at 29. [hereinafter Lowe]

<sup>333</sup> Sands *et al.*, *supra* note 11 at 10.

<sup>334</sup> Duncan French, ‘Sustainable Development and the Instinctive Imperative of Justice in the Global Order’ in Duncan French, ed, *Global Justice and Sustainable Development* (Leiden & Boston: Martinus Nijhoff Publishers, 2010) 3. [hereinafter French, “Justice in the Global Order”]

<sup>335</sup> Alan Boyle and David Freestone, ‘Introduction’ in Alan Boyle and David Freestone, eds, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 2001) 1. [hereinafter Boyle & Freestone]

Beyerlin<sup>336</sup>, Dupuy<sup>337</sup>, and Das all also label it a “concept”, though Das qualifies it as a “holistic concept”.<sup>338</sup> This classification as a concept appears to also be supported by the majority decision in the ICJ’s decision in *Gabcikovo-Nagymaros*.<sup>339</sup> Judge Weeramantry’s Separate Opinion in this case, however, states that sustainable development is “more than a mere concept, but as a principle with normative value”.<sup>340</sup>

Judge Weeramantry also describes sustainable development as a “principle of reconciliation”.<sup>341</sup> This idea of reconciliation can also be found in the description of sustainable development by Lowe, Magraw and Hawke, and Ellis. Lowe uses the term “metaprinciple” and “modifying norm” which “[acts] upon other legal rules and principles” and “establish[es] the relationships between other, primary norms.”<sup>342</sup> Magraw and Hawke describe the “paradigm of sustainable development” as an “over-arching framework for improving quality of life throughout the world”.<sup>343</sup> Finally, for Ellis it is also an “over-arching concept”<sup>344</sup> that “informs and influences the development and interpretation of international law.”<sup>345</sup> While they use different terminology, the

---

<sup>336</sup> Beyerlin, *supra* note 331 at 443.

<sup>337</sup> Dupuy, *supra* note 322 at 461.

<sup>338</sup> Das, *supra* note 137.

<sup>339</sup> *Case Concerning Gabcikovo-Nagymaros Project (Hungary v Slovakia)*, [1997] ICJ Rep 7.at para 141. [hereinafter *Gabcikovo-Nagymaros*]

<sup>340</sup> *Gabcikovo-Nagymaros*, *ibid* (Separate Opinion of Judge Weeramantry).

<sup>341</sup> *Gabcikovo-Nagymaros*, *ibid* (Separate Opinion of Judge Weeramantry).

<sup>342</sup> Lowe, *supra* note 332 at 31, 33.

<sup>343</sup> Daniel Barstow Magraw & Lisa D Hawke, ‘Sustainable Development’ in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 613 at 614. [hereinafter Magraw & Hawke]

<sup>344</sup> Jaye Ellis, ‘Sustainable Development and Fragmentation in International Society’ in Duncan French, ed, *Global Justice and Sustainable Development* (Leiden & Boston: Martinus Nijhoff Publishers, 2010) 57 at 59. [hereinafter Ellis, “Sustainable Development and Fragmentation”]

<sup>345</sup> Jaye Ellis, ‘Sustainable Development as a Legal Principle: A Rhetorical Analysis’ in Hélène Ruiz Fabri, Rüdiger Wolfrum and Jana Gogolin, eds, *Select Proceedings of the European Society of International Law*, vol 2 2008 (Oxford & Portland, Oregon: Hart Publishing, 2010) 641. [hereinafter Ellis, “Sustainable Development as a Legal Principle”]

common thread to these conceptions of sustainable development is the over-arching, reconciling or unifying capacity of the idea.

While it is clear that the precise label for sustainable development remains unsettled, there is also debate as to what is its legal weight. Sands *et al.* boldly assert that “[t]here can be little doubt that the concept of ‘sustainable development’ has entered the corpus of international customary law”.<sup>346</sup> Many other scholars, however, do not seem so certain that such a status in international law has been achieved. Das takes the complete opposite position, stating that sustainable development is “devoid of binding international legal status”.<sup>347</sup> Meanwhile, Ellis states that “though it does not itself have the status of a legal norm, [it] has immense actual and potential significance to legal norms and institutions.”<sup>348</sup> In any case, French aptly points out that “the question of its legal *status* should in no way be considered determinative of its legal *influence*.”<sup>349</sup>

French’s statement is both noteworthy and accurate, since whatever label is attached to it, or whether it has binding or non-binding legal effect, in practice it seems to play a very similar role to general principles of international law, as discussed in the previous chapter. It takes on an interpretive role, guiding the understanding and application of other rules, principles and concepts of IEL and other areas of international law. As Ellis states, it “provide[s] guidance on analysing factual situations and identifying particularly salient features of those situations; assigning weight to different considerations; and interpreting the often more specific and elaborate guidance provided by rules.”<sup>350</sup> In doing so, it fulfills the important unifying function in a complex international legal system.

---

<sup>346</sup> Sands *et al.*, *supra* note 11 at 208.

<sup>347</sup> Das, *supra* note 138 at 127.

<sup>348</sup> Ellis, “Sustainable Development and Fragmentation”, *supra* note 344 at 64.

<sup>349</sup> Duncan French, ‘Sustainable development’ in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 51. [hereinafter French, “Sustainable development”]

<sup>350</sup> Ellis, “Sustainable Development as a Legal Principle”, *supra* note 345 at 642.

As Philippe Sands notes, “[t]he world of international law is invariably presented as one in which various substantive subject-matter areas exist in quasi-hermetical isolation” where they are “taught and treated as discrete areas, subject to their own norms and institutional structures.”<sup>351</sup> In reality, however, “[n]orms arising in different subject-matter areas can and do touch. They co-mingle and they compete. These apparently distinct subject-matter areas do not exist in a state of isolation.”<sup>352</sup> The unifying function is key to Ellis’ understanding of sustainable development. She states that “[i]ntegration is at the heart of sustainable development” as it is a “concept of reconciliation and harmonisation among environmental, economic and social fields.”<sup>353</sup>

In bringing together environment, economy and society, sustainable development provides an over-arching principle (or concept or body of law) which embodies the reality of the environment in day-to-day life: it affects numerous, if not all, aspects of life and, therefore, areas which fall under other legal regimes in addition to environmental law. Judge Weeramantry, in the *Gabcikovo-Nagymaros* case, notes links between sustainable development and “human rights, State responsibility, environmental law, economic and industrial law, equity, territorial Sovereignty, abuse of rights, good neighbourliness – to mention a few”.<sup>354</sup> Of particular interest in this thesis are the links sustainable developments helps to clarify between human rights, armed conflict, and the environment. Not only is there increasing debate over whether a ‘right to a healthy environment’ exists, but there is also significant support showing how environmental degradation can negatively impact the realization of human rights such as the rights to life, health home life, and property.<sup>355</sup> The connections between these areas of law and

---

<sup>351</sup> Philippe Sands, ‘Sustainable Development: Treaty, Custom, and the Cross-fertilization of International Law’ in Alan Boyle and David Freestone, eds, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 2001) 39 at 42. [hereinafter Sands]

<sup>352</sup> Sands, *ibid* at 43.

<sup>353</sup> Ellis, “Sustainable Development and Fragmentation”, *supra* note 344 at 57.

<sup>354</sup> *Gabcikovo-Nagymaros* (Separate Opinion of Judge Weeramantry), *supra* note 339.

<sup>355</sup> Dinah Shelton, ‘Human rights and the environment: substantive rights’ in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 265. [hereinafter Shelton (2010)]

IEL clearly exist - sustainable development provides, perhaps, the most direct route between them all.

This route provided by sustainable development finds clear expression in Judge Weeramantry' Separate Opinion in the *Gabcikovo-Nagymaros* case in which he champions both the right to development and the right to environmental protection as important principles in current international law.<sup>356</sup> Yet, these rights cannot be realized in isolation from each other, it is essential to “achiev[e] a blend of the concepts of development and of conservation of the environment, which alone does justice to humanity's obligations to itself and [...] to the planet which is its home”.<sup>357</sup> This demands seeing the bigger picture, the interconnectedness of environment and development and all the associated rights and responsibilities, benefits and consequences. Environmental protection is not merely about saving trees, it is also about a right to clean water, health care, education and development. Environmental protection has no borders - it applies everywhere, and it is always necessary, in peacetime and during conflict. Unfortunately, seeing this bigger picture often seems more difficult for those of us in the Global North and who do not deal on a daily basis with the great domino effect environmental degradation can have on every aspect of one's life. As Karin Mickelson notes, “[f]or more than thirty years, the South has been attempting to convey the desperate circumstances in which many of its peoples exist and to convince the international community of the ways in which these circumstances are inextricably connected with environmental degradation.”<sup>358</sup> We need to conceive of the ‘environment’ more broadly, “[e]nvironmental problems have to be addressed, but not in isolation from a host of other factors. They need to be understood in a broader economic, social, cultural, and historic context.”<sup>359</sup>

---

<sup>356</sup> *Gabcikovo-Nagymaros* (Separate Opinion of Judge Weeramantry), *supra* note 339.

<sup>357</sup> *Gabcikovo-Nagymaros*, *ibid.*, (Separate Opinion of Judge Weeramantry).

<sup>358</sup> Mickelson, *supra* note 306 at 53.

<sup>359</sup> Mickelson, *ibid.*

### 4.2.3 Conclusion

Sustainable development and IEL are closely linked. Environmental protection is a key priority in both areas. Many of the principles and concepts that make up sustainable development are also principles of IEL. Two such principles are the principle of intergenerational equity and the precautionary principle, which will both be explored in greater depth in this thesis. Examining these principles through the lens of sustainable development, in addition to their place in IEL, allows us to more clearly see the strong links between them and other areas of international law such as human rights and international humanitarian law. With this foundation, we can now turn to examining the first principle of focus in this thesis, the principle of intergenerational equity.

## 4.3 Intergenerational Equity

In an increasingly complex world where everything from technology to communication to the environment is changing rapidly, it is unsurprising that individuals, governments and decision-makers may sometimes feel at a loss to keep pace. It is for this very reason that it is increasingly crucial to consciously take into account the future implications of our decisions. In day-to-day life people benefit from the many natural resources available to allow fuel for cooking, water for bathing, and energy for the production of so many products relied upon everyday. People, particularly those living in the developed world, often take for granted the accessibility of these resources and the ability of the planet to provide all the necessary comforts depended upon. At the same time, many people lament the depleting ozone, melting icecaps, acid rain, and dwindling forests that decision-makers of past generations have burdened us with in the present. Much as the decisions of the past leave their mark on us in the present, so will our decisions leave their mark on the planet we pass on to subsequent generations. It is precisely this context in which the principle of intergenerational equity arises to help emphasize the importance of making decisions based not solely on short-term consequences, needs and interests, but also in light of considerations for future generations. The principle of intergenerational equity, also known as the Future Generations principle, focuses on the need of each generation to preserve the planet's natural and cultural heritage for future generations, balancing present needs with the

responsibility to pass on the planet to subsequent generations in as good, or better, condition as it was received from prior generations.<sup>360</sup>

### 4.3.1 Defining Intergenerational Equity

In the simplest of terms, intergenerational equity is the responsibility of current generations to future generations for the protection and preservation of the environment. At the core of the concept is a strong temporal element with the idea that “each generation receives a natural and cultural legacy in trust from previous generations and holds it in trust for future generations.”<sup>361</sup> Intergenerational equity provides each generation with both rights and responsibilities for the environment. Edith Brown Weiss refers to this as “rights of access to and use of property, which are coupled with obligations to conserve that property.”<sup>362</sup> Each generation has the right to use and benefit from the environment they have received from previous generations. At the same time, each generation’s rights are restricted by their responsibility to succeeding generations. The rights of current generations must be exercised in a manner that will ensure they pass on to subsequent generations a world whose cultural and natural environment is in as good, or better, condition as when they themselves received it from preceding generations.<sup>363</sup> Present generations are not entitled to act in ways that could “deprive future generations of environmental, social and economic opportunities of well-being.”<sup>364</sup> A recognition embodied in intergenerational equity is that “our actions today pose long-term risks to the health of our planet and to our cultural resource base for which the

---

<sup>360</sup> Weiss (1989), *supra* note 8.

<sup>361</sup> Weiss (1989), *ibid* at 2.

<sup>362</sup> Weiss (1989), *ibid* at 17.

<sup>363</sup> Edith Brown Weiss, “Intergenerational equity: a legal framework for global environmental change” in Edith Brown Weiss, ed, *Environmental change and international law: New challenges and dimensions*, (Tokyo: United Nations University Press, 1992). [hereinafter Weiss (1992)]

<sup>364</sup> Sébastien Jodoin and Yolanda Saito, “Crimes Against Future Generations: Harnessing the Potential of Individual Criminal Accountability for Global Sustainability” (2011-2012) 7 McGill Int'l J. Sust. Dev. L. & Pol'y 115 at 130 [hereinafter Jodoin & Saito](citing Marie-Claire Cordonier Segger & Ashfaq Khalfan, *Sustainable Development Law: Principles, Practices & Prospects* (Oxford: Oxford University Press, 2004)).

present generation will be unable to compensate future generations.”<sup>365</sup> People are both custodians of the planet and users of its resources, according to Brown, which means that as custodians humans have certain “moral obligations to future generations” and these obligations can be transformed into “legally enforceable norms.”<sup>366</sup> At the same time, “as beneficiaries of the legacy of past generations, [humans] inherit certain rights to enjoy the fruits of this legacy, as do future generations.”<sup>367</sup>

Edith Brown Weiss, one of the most prolific writers in the area of intergenerational equity, identifies three kinds of equity problems between generations: i) the depletion of resources for future generations; ii) the degradation in the quality of resources for future generations; and, iii) access to use and benefits of the resources received from past generations.<sup>368</sup> If preceding generations fail in their responsibilities to subsequent generations, it is these subsequent generations who will bear the burden of increased costs<sup>369</sup> and who will suffer the loss of natural resources and cultural heritage. This cultural heritage is composed of different cultural resources, such as “knowledge about economic, political and social systems, including archives and historical records, about languages, works of art, musical compositions, literary works, architectural treasures, and monuments.”<sup>370</sup> Concerns on the environmental side of the concept range from the over-consumption and depletion of resources, to the degradation of environment through waste disposal and the destruction of environmental services provided by forests, soils and watersheds.<sup>371</sup>

Ultimately, the concept of intergenerational equity encompasses a strong temporal element requiring actors to consider both short and long-term consequences of

---

<sup>365</sup> Weiss (1989), *supra* note 8 at 5.

<sup>366</sup> Weiss, *ibid* at 21.

<sup>367</sup> Weiss (1989), *ibid*.

<sup>368</sup> Weiss (1989), *ibid* at 6.

<sup>369</sup> Weiss, *ibid* at 7.

<sup>370</sup> Weiss, *ibid* at 9.

<sup>371</sup> Weiss, *ibid* at 6-7, 9-12.

their actions within the context of protection of both natural and cultural environments. As both beneficiaries, from prior generations, and trustees, on behalf of future generations, of these environments we, the current generation, must examine our actions in light of their immediate effects as well as how these actions will affect these resources over time and spanning generations. The concept is beautifully summed up by Alexandre Kiss and Dinah Shelton, who state,

. . . [E]ach generation has the right to benefit from and develop the natural and cultural patrimony inherited from previous generations in such a manner that it can be passed on to future generations in no worse condition than it was received. This requires conservation of renewable resources, of ecosystems and of life-support processes, as well as human knowledge and art. It requires the avoidance of actions with harmful and irreversible consequences for the natural and cultural heritage.<sup>372</sup>

#### 4.3.2 The History of Evolution of Intergenerational Equity

Having established a basic understanding of the meaning and content of the concept of intergenerational equity, this section turns to its history and evolution in international environmental law. Quite interestingly, “there is no society that has not, in some way, applied the principle of current generations being responsible to future generations” in some form or another.<sup>373</sup> As Edith Brown Weiss notes, the concept of intergenerational equity, with the “fundamental thesis that we have obligations to conserve the planet for future generations and rights to have access to its benefits”, can be found in the “diverse legal traditions of the international community.”<sup>374</sup> Intergenerational equity can be found in “the common law and civil law traditions, in Islamic law, in African customary law, and in Asian nontheistic traditions.”<sup>375</sup> These

---

<sup>372</sup> A. Kiss & D. Shelton, *International Environmental Law*, 2d ed. (United States: Transnational Publishers, 2000) at 254-255. [hereinafter Kiss & Shelton]

<sup>373</sup> Edward W Ploman, “Foreword” in Weiss (1989), *supra* note 8 at xxvii.

<sup>374</sup> Weiss(1989), *supra* note 8 at 18.

<sup>375</sup> Weiss (1989), *ibid* at 18.

broad roots are useful in efforts to promote and strengthen the concept in modern international law.

Within international law, the first documented use of intergenerational equity was by the United States of America in the *Pacific Fur Seals Arbitration* in 1893. Its first appearance in an international convention occurred in the 1946 *International Whaling Convention*, the preamble to which states that, “Recognizing the interest of the nations of the world in *safeguarding for future generations* the great natural resources represented by whale stocks”.<sup>376</sup> The frequency with which the concept was incorporated into international conventions increased in the late 1960s and into the 1970s, first with the 1968 *African Conservation Convention*<sup>377</sup> and the 1972 *World Heritage Convention* [*Heritage Convention*].<sup>378</sup> The *Heritage Convention* incorporates the idea of not only preserving the natural environmental but also cultural heritage in Article 4, which states that parties to the convention recognize the “duty of ensuring the identification, protection, conservation, presentation and transmission to future generations of the cultural and natural heritage”.<sup>379</sup> The concept can also be found in Principle 1 of the Stockholm Declaration of 1972, produced at the United Nations Conference on the Human Environment that year, stating that, “man bears a solemn responsibility to protect and improve the environment for present and future generations.”<sup>380</sup>

Throughout the 1970s and 1980s, the concept of intergenerational equity continued to appear in international conventions, many of which dealt with specific areas of environmental protection. References to intergenerational equity can be seen in the

---

<sup>376</sup> *International Protocol for the Regulation of Whaling*, 2 December 1946, 161 UNTS 72, 62 Stat 1716, Can TS 1946 No 54. [emphasis added]

<sup>377</sup> *African Convention on the Conservation of Nature and Natural Resources*, 15 September 1968, 1001 UNTS 3 [preamble].

<sup>378</sup> *Convention Concerning the Protection of the World Cultural Property and Natural Heritage*, 16 November 1972, BTS 1985 No 2, Can TS 1976 No 45. [hereinafter *Heritage Convention*]

<sup>379</sup> *Heritage Convention*, *ibid* at Article 4.

<sup>380</sup> *Declaration of the United Nations Conference on the Human Environment*, UNEP/OC, June 16, 1972, UN Doc A/CONE48/14/Rev.1 (1973), reprinted in 11 ILM 1416, (1972) [*Stockholm Declaration 1972*] at Principle 1.

preambles to conventions addressing the protection of endangered species of flora and fauna;<sup>381</sup> essential renewable natural resources;<sup>382</sup> the environment generally;<sup>383</sup> the marine environment;<sup>384</sup> the resources of the Earth,<sup>385</sup> natural heritage,<sup>386</sup> and natural resources.<sup>387</sup> The increasing reliance and use of intergenerational equity in international law through these decades demonstrates an increased awareness about human impact on the environment not only for current generations but also for continuing impacts on future generations. In order to preserve these valuable resources, increased action for

---

<sup>381</sup> *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, 3 March 1973, 993 UNTS 243, 12 ILM 1085 (CITES): “Recognizing that wild fauna and flora in their many beautiful and varied forms are an irreplaceable part of the natural systems of the earth which must be protected for this and the generations to come”

<sup>382</sup> *Convention on Conservation of Nature in the South Pacific*, 12 June 1976, available at: ECOLEX <<http://www.ecolex.org>>: “Desirous of taking action for the conservation, utilization and development of these resources through careful planning and management for the benefit of present and future generations”

<sup>383</sup> ENMOD, *supra* note 6: “Realizing that the use of environmental modification techniques for peaceful purposes could improve the interrelationship of man and nature and contribute to the preservation and improvement of the environment for the benefit of present and future generations”.

<sup>384</sup> *Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution*, 4 April 1978, 17 ILM 511: “Aware of the importance of co-operation and co-ordination of action on a regional basis with the aim of protecting the marine environment of the Region for the benefit of all concerned, including future generations”

ALSO 1982 *Regional Convention for the Conservation of the Red Sea and Gulf of Aden* (Jeddah Convention), 14 February 1982, available online at <http://www.unep.ch/regionalseas/main/persga/convtxt.html> Article 1(1): “Aware of the importance of co-operation and coordination of action on a regional basis with the aim of protecting the marine environment of the Red Sea and Gulf of Aden for the benefit of all concerned, including future generations”

ALSO 1983 *Convention for the Protection, Management and Development of the Marine Environment of the Wider Caribbean Region Concerning Co-operation in Combating Oil-Spills in the Wider Caribbean Region* (Cartagena Convention) available at: <http://www.cep.unep.org/pubs/legislation/cartxt.html>: “Conscious of their responsibility to protect the marine environment of the wider Caribbean region for the benefit and enjoyment of present and future generations”

<sup>385</sup> *Convention on the Conservation of Migratory Species of Wild Animals*, 23 June 1979, 1651 UNTS 333, 19 ILM 15: “Aware that each generation of man holds the resources of the earth for future generations and has an obligation to ensure that this legacy is conserved and, where utilized, is used wisely”

<sup>386</sup> *Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region* (Nairobi Convention), 21 June 1985, available at: ECOLEX <http://www.ecolex.org>: “Conscious of our responsibility to manage our marine and coastal environment and natural heritage, including its biological diversity, for the sustainable use and benefit of present and future generations”

<sup>387</sup> 1985 *Agreement on the Conservation of Nature and Natural Resources* (ASEAN Convention), 9 July 1985, available at: ECOLEX <<http://www.ecolex.org>>: “Recognizing the importance of natural resources for present and future generations”

their protection was needed and realized in increasing international legal efforts for conservation, protection and preservation.

This increasing environmental awareness of the 1970s and 1980s culminated with the 1987 Brundtland Report, issued by the United Nations and written by the World Commission on Environment and Development (WCED). The report provided insight into the (perhaps) competing interests of environmental protection and development. Notably the report further developed the idea of sustainable development, stating “Humanity has the ability to make development sustainable to ensure that it *meets the needs of the present without compromising the ability of future generations to meet their own needs.*”<sup>388</sup> Crucially, the report places intergenerational equity at the epicenter of how it defines sustainable development and the key to ongoing environmental protection.

Sustainable development and intergenerational equity continued to influence international environmental law in the 1990s. In 1992, three environmental conventions and one declaration were issued. The 1992 *Biological Diversity Convention*’s preamble stated the parties were “[d]etermined to conserve and sustainably use biological diversity for the benefit of present and future generations.”<sup>389</sup> Meanwhile, Article 2(5)(c) of the 1992 *Transboundary Waters Convention* stated that “[i]n taking measures referred to in paragraphs 1 and 2 of this article, the Parties shall be guided by the following principles: [...] (c) Water resources shall be managed so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.”<sup>390</sup> Article 3(1) of the 1992 *Climate Change Convention* stated that “[i]n their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, inter alia, by the following: 1. The Parties should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and

---

<sup>388</sup> Brundtland Report, *supra* note 10 at 8. [emphasis added]

<sup>389</sup> *Biodiversity Convention*, *supra* note 315 [preamble].

<sup>390</sup> *Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, 17 March 1992 available at: <http://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf> at Article 2(5)(c).

in accordance with their common but differentiated responsibilities and respective capabilities.”<sup>391</sup> Finally, the 1992 *Rio Declaration on Environment and Development* [Rio Declaration] enshrined intergenerational equity in Principle 3 which states that “[t]he right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.”<sup>392</sup>

The use, reliance and appearance of intergenerational equity in international law has not been restricted to preambular statements in international Conventions and Declarations; it has also appeared in cases and advisory opinions of the International Court of Justice [ICJ]. Two such instances are the ICJ’s Advisory Opinion on the *Legality of the Threat or Use of Nuclear Weapons*<sup>393</sup> in 1996 and the 1997 *Gabcikovo-Nagymaros*<sup>394</sup> case between Hungary and Slovakia. In the former, the ICJ noted that “the environment is not an abstraction but represents the living space, the quality of life and the very health of human beings, *including generations unborn*.”<sup>395</sup> In the latter case, the Court acknowledged and relied upon sustainable development in its judgment,<sup>396</sup> with Vice-President Weeramantry noting in his Separate Opinion that “the principle of sustainable development is ... a part of modern international law by reason not only of its inescapable logical necessity, but also by reason of its wide and general acceptance by the global community.”<sup>397</sup> As seen in the definition of sustainable development in the Brundtland Report,<sup>398</sup> and as can be seen in the characterization of sustainable

---

<sup>391</sup> UNFCCC, *supra* note 316 at Article 3(1).

<sup>392</sup> *Rio Declaration*, *supra* note 318 at Principle 3.

<sup>393</sup> *Nuclear Weapons* case, *supra* note 47.

<sup>394</sup> *Gabcikovo-Nagymaros* case, *supra* note 339.

<sup>395</sup> ICJ *Nuclear Weapons* case, *supra* note 47 [emphasis added] Note: in this Advisory Opinion the Court was asked to rule on the legality of using, or threatening to use, nuclear weapons in conflict. The court ultimately concluded that it could not definitively make a conclusion as to the lawfulness of their use in a situation of extreme self-defence. However, in their judgment the court discussed the environmental impact and impact on future generations of the use of nuclear weapons, threats that would seem to run contrary to the humanitarian protections found in the laws of armed conflict.

<sup>396</sup> *Gabcikovo-Nagymaros*, *supra* note 339 at para 140.

<sup>397</sup> *Gabcikovo-Nagymaros*, *ibid* [Separate Opinion Weeramantry] at paras 92-95.

<sup>398</sup> Brundtland Report, *supra* note 10.

development by other international legal scholars such as Philippe Sands,<sup>399</sup> intergenerational equity is an integral and strong component of sustainable development. As such, support for sustainable development can arguably be interpreted as strengthening the status and presence in international law of intergenerational equity.

### 4.3.3 The Current Legal Status of Intergenerational Equity

While the growth of the presence of, and reliance on, intergenerational equity in international environmental law suggests an ongoing strengthening of its status in international law, it is unlikely that it has achieved customary law status. As Judge Weeramantry notes in his dissenting opinion in the ICJ's 1995 *Nuclear Tests Case Order*, intergenerational equity is "an important and rapidly developing principle of contemporary environmental law."<sup>400</sup> The more recent work of Sébastien Jodoin and Yolanda Saito suggests that the status continues along the lines noted by Judge Weeramantry, as they write that,

[a]lthough the principle of intergenerational equity has not yet achieved the status of customary international law, the protection of the interests of future generations undoubtedly forms an important value and concern of the international community, informing developments in contemporary international law.<sup>401</sup>

As previously noted, the majority of references in international law to intergenerational equity can be found in the preambles to international conventions. The preamble to a treaty or convention "stat[es] the reasons for and underlying understandings of the drafters and adopters of the instrument"<sup>402</sup> and also tends to provide an "express or?

---

<sup>399</sup> Sands *et al.*, *supra* note 11 at 206-210.

<sup>400</sup> International Court of Justice, *Request for an Examination of the Situation in Accordance with Para 63 of the Court's Judgement of 20 December 1974 in the Nuclear Tests Case (New Zealand v. France)*, Order of 22 September 1995, [1995] ICJ Rep 288 (dissenting opinion of Judge Weeramantry, 317) at 341 [hereinafter *Nuclear Tests Case Order*].

<sup>401</sup> Jodoin & Saito, *supra* note 364 at 132.

<sup>402</sup> UNICEF, "Introduction to the Convention on the Rights of the Child" available at: <http://www.unicef.org/crc/files/Definitions.pdf>.

explicit general statement of the treaty's objects and purposes.”<sup>403</sup> Thus, the inclusion of intergenerational equity in the preambles of international conventions is important because it provides an over-arching objective or guide for the substantive obligations to be carried out under that convention. It appears that intergenerational equity is a strongly established principle of international environmental law and one that continues to be used in international conventions, declarations and legal cases.

#### 4.3.4 Intergenerational Equity and Human Rights

The principle of intergenerational equity is one explicitly invoked in environmental protection, but it is often invoked, sometimes implicitly, in international human rights law. It benefits rights which are directly linked to environmental and cultural protections, but it also aids the realization of other human rights which benefit from the consideration of long-term and short-term impacts of actions. This section will explore the explicit link between intergenerational equity, children's rights and the environment, as well as how, the principle of intergenerational equity is implicitly interlinked with the right to health.

While debates over universality and cultural relativity persist in the field of human rights law,<sup>404</sup> incorporating the principle of intergenerational equity should be a less contentious suggestion given that the principle has roots in the many different legal and philosophical traditions of the world.<sup>405</sup> That this concept has broad foundations in different cultures makes it a more easily incorporated and adapted principle for the implementation of human rights.

---

<sup>403</sup> Ian McTaggart Sinclair, *The Vienna Convention on the Law of Treaties*, (Manchester: Manchester University Press, 1984) 128.

<sup>404</sup> P Alston, R Goodman and H Steiner, eds, *International Human Rights in Context*, 3d, (Oxford: Oxford University Press, 2008) 517. Jack Donnelly, “International Human Rights: Universal, Relative or Relatively Universal?” in Mashood A Baderin and Manisuli Ssenyonjo, eds, *International Human Rights Law Six Decades after the UDHR and Beyond* (Farnham, UK: Ashgate Publishing Limited, 2010) 31-48.

<sup>405</sup> Weiss (1989), *supra* note 8.

The rights of children are an excellent example of an area in which intergenerational equity can be seen and applied, not only in its traditional milieu of natural environment and cultural heritage, but also in a broader human rights sense. Arguably, children can be seen as both a current and future generation. They are a current generation in that they are alive and existing currently with rights and invested interests in the environment, their culture, and their own well-being. However, they are also a future generation because more often than not they do not yet have a direct voice or role in the institutions and decision-making processes designed for the use of natural resources and the protection of human rights. These aspects remain the purview of adults who have reached the age of majority and can directly participate, or indirectly have a say through voting. It is for this reason that intergenerational equity can and does play an integral role in our approach to the rights of children: We must consider not just the present implications of failures to protect the rights of children but also the implications of such failures in the future for both the present generation of children and future generations to come.

The rights of children from the traditional environmental perspective are evident in the domestic case of *Oposa v Factoran*<sup>406</sup> in the Philippines.

In March 1990, a domestic case was brought in the Philippines by an environmental non-governmental organization [NGO], the Philippine Ecological Network (PEN) and its president, Antonio Oposa, on behalf of a group of children and future generations. Grounded on a constitutional right to a ‘balanced and healthful ecology’,<sup>407</sup> the complainants argued that the continued destruction of the Philippines’ old-growth rainforests would deprive them and future generations of their right to a

---

<sup>406</sup> Judgment of June 30, 1993 (*Juan Antonio Oposa, et al. v. the Honorable Fulgencio Factoran, Jr., Secretary of the Department of the Environment and Natural Resources et al.*), Supreme Court of the Philippines, G.R. No. 101083 (Phil.) available at: [http://www.lawphil.net/judjuris/juri1993/jul1993/gr\\_101083\\_1993.html](http://www.lawphil.net/judjuris/juri1993/jul1993/gr_101083_1993.html). [hereinafter *Oposa v Factoran*]

<sup>407</sup> The 1987 Constitution of the Republic of the Philippines, Article II, Section 16: “The State shall protect and advance the right of the people to a balanced and healthful ecology in accord with the rhythm and harmony of nature.” available online at <http://www.gov.ph/the-philippine-constitutions/the-1987-constitution-of-the-republic-of-the-philippines/>.

‘balanced and healthful ecology’. The Supreme Court of the Philippines granted standing to the children and the NGO stating,

We find no difficulty in ruling that they can, for themselves, for others of their generation and for the succeeding generations, file a class suit. Their personality to sue on behalf of the succeeding generations can only be based on the concept of intergenerational responsibility insofar as the right to a balanced and healthful ecology is concerned.<sup>408</sup>

This case represents an important development in the trajectory of the principle of intergenerational equity: it was the “first time that a nation’s highest court has explicitly granted legal standing to representatives of future generations.”<sup>409</sup> Furthermore, the case is important for its recognition of the fact that “the interests of future generations are not abstract or unascertainable, but can be identified and advocated by a legal representative.”<sup>410</sup>

Current and future generations children have a vested interest in both reaping the benefits of the environment and natural resources and in protecting these resources since they will eventually become responsible for passing on the planet in good condition to succeeding generations. The decisions made by those currently in power, therefore, have both immediate and lasting effects on children throughout lives, affecting their ability to fulfill their responsibilities to future generations.

A similar analysis applies to the right to health. Pollution and environmental degradation are increasingly discussed in the context of the right to health.<sup>411</sup> As Laura Westra notes, the protection of other human rights “mean little if the child is born with serious mental, physical or emotional challenges, often irreversible, based on pre-birth or

---

<sup>408</sup> *Oposa v Factoran*, *supra* note 406.

<sup>409</sup> Ted Allen, “The Philippine Children's Case: Recognizing Legal Standing for Future Generations” (1993-1994) 6 *Geo Int'l Envtl L Rev* 713 at 713. [hereinafter Allen]

<sup>410</sup> Allen, *ibid* at 741.

<sup>411</sup> Manisuli Ssenyonjo, *Economic, Social and Cultural Rights in International Law* (Oxford and Portland, OR: Hart Publishing, 2009) 326.

other early environmental exposure.”<sup>412</sup> The important link between environmental protection and the right to health, as well as other human rights, can be found in Justice Weeramantry’s decision in the *Gabcikovo-Nagymaros* case before the International Court of Justice [ICJ]. Justice Weeramantry stated that,

The protection of the environment is ... a vital part of contemporary human rights doctrine, for it is a sine qua non for numerous human rights such as the right to health and the right to life itself. It is scarcely necessary to elaborate on this, as damage to the environment can impair and undermine all the human rights spoken of in the Universal Declaration and other human rights instruments.<sup>413</sup>

The right to health is enshrined in Article 12 of the International Covenant on Economic, Social and Cultural Rights [ICESCR] which recognizes “the right of everyone to the enjoyment of the highest attainable standard of physical and mental health.”<sup>414</sup> This specifically includes the “healthy development of the child”,<sup>415</sup> “[t]he improvement of all aspects of environmental and industrial hygiene”<sup>416</sup>, “[t]he prevention, treatment and control of [...] diseases”<sup>417</sup>, and “[t]he creation of conditions which would assure to all medical service and medical attention in the event of sickness”.<sup>418</sup> This right to health is echoed in Article 24 of the Convention on the Rights of the Child.<sup>419</sup>

---

<sup>412</sup> Laura Westra, *Environmental Justice and the Rights of Unborn and Future Generations* (London: Earthscan, 2006) at 3.

<sup>413</sup> *Gabcikovo-Nagymaros*, *supra* note 339 at 91-92.

<sup>414</sup> *International Covenant on Economic, Social and Cultural Rights*, GA res. 2200A (XXI), 21 UN GAOR Supp. (No. 16) at 49, UN Doc. A/6316 (1966); 993 UNTS 3; 6 ILM 368 (1967) at Article 12(1). [hereinafter ICESCR]

<sup>415</sup> ICESCR, *ibid* at Article 12(2)(a).

<sup>416</sup> ICESCR, *ibid* at Article 12(2)(b).

<sup>417</sup> ICESCR, *ibid* at Article 12(2)(c).

<sup>418</sup> ICESCR, *ibid* at Article 12(2)(d).

<sup>419</sup> *Convention on the Rights of the Child*, A res. 44/25, annex, 44 UN GAOR Supp. (No. 49) at 167, U.N. Doc. A/44/49 (1989); 1577 UNTS 3; 28 ILM 1456 (1989).

Intergenerational equity can and does play an important role in the application of the right to health, particularly in the context of children, because failure to adequately fulfill this right for children can have negative lifelong, as well as potentially intergenerational, impacts. The World Health Organization notes that “[m]any challenges faced by adults[...] can be traced back to early childhood.”<sup>420</sup> It must be noted that there are often close links between poverty and poor health which are simultaneously perpetuated through lifetimes and between generations. The impacts of such chronic poverty “include poor nutrition and chronic ill-health, low educational achievement, psychological harm and low aspirations.”<sup>421</sup> The links between poverty and poor health are strong, for example, poverty often makes it difficult to secure adequate nutrition, “an area where damage in early childhood can have some of the most significant effects on an individual’s well-being, and that of the next generation.”<sup>422</sup>

In 2011 approximately 1.5 million children died from preventable diseases<sup>423</sup> and approximately 6.9 million children under 5, which equates to nearly 800 per hour, died.<sup>424</sup> At the most basic level, failure to adequately fulfill the right to health for children denies the possibility of existence for members of future generations. A child that never gets the chance to grow up will never have the chance to participate in the protection of the environment and rights for others, will never have the chance to have children themselves. The right to health is not merely a right that affects current generations, but a right, the fulfillment of which, has implications throughout the life of the present generation and potentially ongoing impacts for future generations.

---

<sup>420</sup> World Health Organization, “Early Childhood Development” available at: <http://www.who.int/mediacentre/factsheets/fs332/en/index.html>.

<sup>421</sup> Caroline Harper, Rachel Marcus, and Karen Moore, “Enduring Poverty and the Conditions of Childhood: Lifecourse and Intergenerational Poverty Transmissions” (2003) 31:3 *World Development* 535 at 536. [hereinafter Harper *et al.*]

<sup>422</sup> Harper *et al.*, *ibid* at 542.

<sup>423</sup> UNICEF, “Immunization: Facts and Figures April 2013” available at: [http://www.unicef.org/immunization/files/UNICEF\\_Key\\_facts\\_and\\_figures\\_on\\_Immunization\\_April\\_2013\(1\).pdf](http://www.unicef.org/immunization/files/UNICEF_Key_facts_and_figures_on_Immunization_April_2013(1).pdf).

<sup>424</sup> World Health Organization, “Child Mortality and Causes of Death” available at: [http://www.who.int/gho/child\\_health/mortality/en/index.html](http://www.who.int/gho/child_health/mortality/en/index.html).

The intergenerational impacts of inadequate realization of rights to health and a clean environment are only exacerbated in the context of armed conflict. Warfare is not only inherently destructive of the environment, it also threatens numerous human rights. A resolution adopted at the 1968 International Conference on Human Rights in Tehran noted that “peace is the underlying condition for the full observance of human rights and war is their negation”.<sup>425</sup> More recently, the NGO Amnesty International has noted that “[w]here wars erupt, suffering and hardship invariably follow. Conflict is the breeding ground for mass violations of human rights including unlawful killings, torture, forced displacement and starvation.”<sup>426</sup> However, it is not simply these most egregious violations of human rights which occur in periods of conflict. Rather, armed conflict has the potential to jeopardize all human rights. For example, weapons which endanger the environment also threaten the right to health both directly and through potential contamination of water supplies and food sources. Attacks destroy infrastructure and buildings, such as hospitals and schools. The general insecurity produced in regions embroiled in conflict infringes on the ability to realize “enjoy economic, social, cultural and political development, in which all human rights and fundamental freedom can be fully realized.”<sup>427</sup> The effects of war on human rights often persist long after the conflict has officially ended.<sup>428</sup> These lasting effects are why intergenerational equity considerations play an important role in the protection and realization of human rights not merely in peacetime but also in periods of conflict.

#### 4.4 Conclusion

The principle of intergenerational equity may have arisen in recent decades in the field of environmental law and sustainable development, but it has the potential to inform

---

<sup>425</sup> Resolution XXIII " Human Rights in Armed Conflicts " adopted by the International Conference on Human Rights, Tehran, 12 May 1968, preamble, available at: <http://www1.umn.edu/humanrts/instree/1968a.htm>.

<sup>426</sup> Amnesty International, “Armed Conflict”, available at <http://www.amnesty.org/en/armed-conflict>.

<sup>427</sup> *UN Declaration on the Right to Development*, 4 December 1986, A/RES/41/128 at Article 1.

<sup>428</sup> For example, continuing insecurity in many countries such as Afghanistan and Iraq, continuing health problems in Vietnam from the lasting effects of U.S. use of Agent Orange, continuing threats from unexploded ordnance in many previously war-torn countries such as Cambodia.

other areas of law such as international human rights law and humanitarian law. The benefits and importance of considering the long-term effects and repercussions of decisions made in the present are manifold. It is not merely useful when dealing with the protection and preservation of our planet's natural and cultural heritage, but it is also beneficial for other aspects of our well-being, such as health, education, and general development. Broadening the application of intergenerational equity into human rights and IHL is an ideal way to improve human rights not only in the present, but for future generations by helping to put an end to the perpetuation of disadvantage and harms.

This chapter has provided a foundation in international environmental law and explored its links to sustainable development and, consequently, to armed conflict. It has also examined the principle of intergenerational equity. Intergenerational equity is a general principle of international environmental law which necessitates considering the short and long-term consequences of actions. There is an obligation to preserve the planet not only for the present generation, but also for future generations. This realization is not merely helpful for the protection of the environment, but also the protection of human rights. Similarly, this way of thinking has important potential for guiding military actions in armed conflicts in accordance with the rules of international humanitarian law which protect the environment and humans. The next chapter will build on this understanding of international environmental law by exploring the second principle of focus: the precautionary principle.

## Chapter 5

### 5 The Precautionary Principle in International Environmental Law

All scientific work is incomplete – whether it be observational or experimental. All scientific work is liable to be upset or modified by advancing knowledge. That does not confer upon us a freedom to ignore the knowledge we already have or to postpone the action that it appears to demand at a given time.

Sir Bradford Hill<sup>429</sup>

#### 5.1 Introduction

This chapter returns to the realm of international environmental law, but shifts focus from the principle of intergenerational equity to the second key principle relied upon in this thesis: the precautionary principle. Though a more recent development in international law and IEL than intergenerational equity, the precautionary principle has also come to take on an important role in the field with its emphasis on environmental protection and its relation to scientific uncertainty. The precautionary principle is also often considered part of, or an essential feature of, sustainable development.<sup>430</sup>

This chapter explores the emergence and development of the precautionary principle in international law. It examines its definition and two key components: threat of harm and scientific uncertainty. It also discusses the burden of proof that applies to the principle and its current legal status in international law. It then considers the principle's links to human health by considering the links between health and environment. Finally, the concept of precaution under the principle is compared to that in international

---

<sup>429</sup> Sir Bradford Hill, “The environment and disease: association and causation” (1965) 58 *Proceedings of the Royal Society of Medicine* 295 at 300.

<sup>430</sup> For example see Bodansky *et al.*, *supra* note 308 at 14; Rajendra Ramlogan, *Sustainable Development: Towards a Judicial Interpretation* (Leiden & Boston: Martinus Nijhoff Publishers, 2011) at 99 [hereinafter Ramlogan]; Rio Declaration, *supra* note 318.

humanitarian law. Ultimately, this chapter aims to provide the necessary understanding of the precautionary principle to be able to see how it can be applied in the context of military decision-making, which will be the focus of the final chapter of this thesis.

## 5.2 Emergence and Development of the Precautionary Principle in International Environmental Law

The precautionary principle began to emerge in IEL instruments in the mid-1980s, though earlier instances of the principle can be seen in national legal systems.<sup>431</sup> In particular, some scholars suggest that the principle grew out of the similar concept of *Vorsorgeprinzip* in West Germany of the 1970s and 80s.<sup>432</sup> Precautionary thinking, though not yet the precautionary principle, can be seen in international law prior to the 1980s in instruments such as the 1972 *World Heritage Convention*<sup>433</sup> and the 1973 *Convention on International Trade in Endangered Species of Wild Fauna and Flora*.<sup>434</sup> The 1982 UN World Charter for Nature articulated an early version of the precautionary principle, though, once again, it did not use the term itself. Articles 11(a) and (b) of the Charter stated, as follows:

11. Activities which might have an impact on nature shall be controlled, and the best available technologies that minimize significant risks to nature or other adverse effects shall be used; in particular:

(a) Activities which are likely to cause irreversible damage to nature shall be avoided;

---

<sup>431</sup> See Sands *et al.*, *supra* note 11 at 217-218.

<sup>432</sup> Sonja Boehmer-Christiansen, “The Precautionary Principle in Germany – enabling Government” in Timothy O’Riordan & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994) 31; Jonathan B Wiener, “Precaution” in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 597 at 599. [hereinafter Wiener]

<sup>433</sup> Heritage Convention, *supra* note 378.

<sup>434</sup> *Convention on International Trade in Endangered Species of Wild Fauna and Flora*, 3 March 1973, 993 UNTS 243, 12 ILM 1085 (CITES). See Zander, *supra* note 315 at 34-35.

(b) Activities which are likely to pose a significant risk to nature shall be preceded by an exhaustive examination; their proponents shall demonstrate that expected benefits outweigh potential damage to nature, and where potential adverse effects are not fully understood, the activities should not proceed [...].<sup>435</sup>

The concepts of ‘significant risk to nature’, ‘adverse effects’, and irreversibility would all come to be integral parts of the precautionary principle.

Meanwhile, the term ‘precaution’ or ‘precautionary’ began appearing in instruments such as the 1985 *Vienna Convention for the Protection of the Ozone Layer*.<sup>436</sup> The preamble to this Convention contained the phrase, “Mindful also of the precautionary measures for the protection of the ozone layer which have already been taken at the national and international levels”.<sup>437</sup> The 1987 *Montreal Protocol* to this Convention also referenced precaution.<sup>438</sup> Also in 1987, the *London Ministerial Declaration of the Second International Conference on the Protection of the North Sea* made several references to “a more precautionary approach”, “the principle of precautionary action” and “the principle of precaution”, and state that “a precautionary approach is necessary which may require action to control inputs of such substances even before a causal link has been established by absolutely clear scientific evidence”.<sup>439</sup>

With the 1990s came an ever-increasing reliance upon, or use of, the precautionary principle in international law. An important instrument in the trajectory of the precautionary principle was the 1990 *Bergen Ministerial Declaration on Sustainable*

---

<sup>435</sup> UN General Assembly, *World Charter for Nature*, 28 October 1982, A/RES/37/7, available at: <http://www.refworld.org/docid/3b00f22a10.html>, Article 11(a) and (b). [hereinafter *World Charter for Nature*]

<sup>436</sup> *1985 Vienna Convention for the Protection of the Ozone Layer*, 22 March 1985, Vienna, Austria, 1513 UNTS 293 / [1988] ATS 26 / 26 ILM 1529 (1987).

<sup>437</sup> *1985 Vienna Convention for the Protection of the Ozone Layer*, *ibid*, preambular paragraph 5.

<sup>438</sup> *Montreal Protocol on Substances that Deplete the Ozone Layer* (Montreal Protocol), 16 September 1987, 1522 UNTS 3; 26 ILM 1550 (1987).

<sup>439</sup> *Second International Conference on the Protection of the North Sea, Ministerial Declaration*, London, Nov. 1987, available at: <http://www.seas-at-risk.org/Images/1987%20London%20Declaration.pdf>, at preamble and para 1.

*Development in the Economic Commission for Europe Region.*<sup>440</sup> This was the first international instrument, albeit a non-binding one, which “treat[ed] the principle as one of general application and linked [to] sustainable development.”<sup>441</sup> Paragraph seven of the Declaration stated:

In order to achieve sustainable development, policies must be based on the Precautionary Principle. Environmental measures must anticipate, prevent and attack the causes of environmental degradation. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.<sup>442</sup>

In 1992, the principle appeared in at least six international instruments, including the 1992 *Convention for the Protection of the Marine Environment of the North-East Atlantic*,<sup>443</sup> the 1992 *Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea*,<sup>444</sup> the 1992 *Helsinki Convention on the Protection and Use of*

---

<sup>440</sup> Bergen Ministerial Declaration on Sustainable Development in the Economic Commission for Europe Region, 1990, UN Doc A/CONF.151/PC/10 at paragraph 7. [hereinafter Bergen Declaration]

<sup>441</sup> Sands *et al.*, *supra* note 11 at 219.

<sup>442</sup> Bergen Declaration, *supra* note 440 at paragraph 7.

<sup>443</sup> *Convention for the Protection of the Marine Environment of the North-East Atlantic* (OSPAR Convention), 22 October 1992, 2354 UNTS 67; 32 ILM 1069 (1993), available at: [http://www.ospar.org/html\\_documents/ospar/html/ospar\\_convention\\_e\\_updated\\_text\\_2007.pdf](http://www.ospar.org/html_documents/ospar/html/ospar_convention_e_updated_text_2007.pdf), at Article 2(2)(a): “2.The Contracting Parties shall apply: (a) the precautionary principle, by virtue of which preventive measures are to be taken when there are reasonable grounds for concern that substances or energy introduced, directly or indirectly, into the marine environment may bring about hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea, even when there is no conclusive evidence of a causal relationship between the inputs and the effects”. [hereinafter OSPAR Convention]

<sup>444</sup> *Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992* (Helsinki Convention), 9 April 1992, 507 UNTS 167; 1994 OJ (L 73) 20; 13 ILM 546 (1974) at Article 3(2): “2.The Contracting Parties shall apply the precautionary principle, i.e., to take preventive measures when there is reason to assume that substances or energy introduced, directly or indirectly, into the marine environment may create hazards to human health, harm living resources and marine ecosystems, damage amenities or interfere with other legitimate uses of the sea even when there is no conclusive evidence of a causal relationship between inputs and their alleged effects.”

*Transboundary Watercourses and International Lakes*,<sup>445</sup> the 1992 *UN Framework Convention on Climate Change*,<sup>446</sup> Agenda 21,<sup>447</sup> and the 1992 *Rio Declaration on Environment and Development*.<sup>448</sup>

The articulation of the precautionary principle in Principle 15 of the *Rio Declaration*, though a non-binding instrument, has come to be a definition of great importance. Principle 15 of the *Rio Declaration* states:

In order to protect the environment, the Precautionary approach shall be widely applied by states according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.<sup>449</sup>

This definition has since been said to reflect the core, or essence, of the principle.<sup>450</sup> It is also said to be the “most cited and conclusive definition of the principle in effect at the

---

<sup>445</sup> *Convention on the Protection and Use of Transboundary Watercourses and International Lakes* (Helsinki Water Convention), 17 March 1992, 1936 UNTS 269; 31 ILM 1312 (1992) at Article 2(5)(a): “5. In taking the measures referred to in paragraphs 1 and 2 of this article, the Parties shall be guided by the following principles: (a) The precautionary principle, by virtue of which action to avoid the potential transboundary impact of the release of hazardous substances shall not be postponed on the ground that scientific research has not fully proved a causal link between those substances, on the one hand, and the potential transboundary impact, on the other hand”.

<sup>446</sup> UNFCCC, *supra* note 313 at Article 3(3): “In their actions to achieve the objective of the Convention and to implement its provisions, the Parties shall be guided, inter alia, by the following: 3. The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.”

<sup>447</sup> Agenda 21, *supra* note 317.

<sup>448</sup> *Rio Declaration*, *supra* note 318 at Principle 15.

<sup>449</sup> *Rio Declaration*, *ibid.*

<sup>450</sup> Sands *et al.*, *supra* note 11 at 218; Trouwborst, *supra* note 319 at 32.

international level.”<sup>451</sup> The importance of the Principle 15 definition is also emphasized by the fact that, “[s]ince the 1992 Rio Conference, [the precautionary principle] has been taken up in the majority of bilateral and multilateral international treaties relating to environmental protection.”<sup>452</sup>

The precautionary principle has continued to appear in numerous international instruments, both binding and non-binding, since 1992. In particular, it has appeared in treaties, agreements, and declarations focusing on water-related pollution,<sup>453</sup> fisheries,<sup>454</sup> air pollution,<sup>455</sup> and animal and biodiversity conservation.<sup>456</sup> In all, since its emergence in the 1980s, the precautionary principle “within the space of a decade experienced a meteoric rise” and is now included in most environmental protection treaties.<sup>457</sup> In total, there are “some 60 multilateral treaties, covering a wide array of environmental issues

---

<sup>451</sup> Zander, *supra* note 319 at 72.

<sup>452</sup> De Sadeleer (2010), *supra* note 319 at 187.

<sup>453</sup> For example, *Agreement on the Protection of the Meuse* (26 April 1994, Charleville Mezieres), 34 ILM (1995), 854 at Article 3(2)(a); *Agreement on the Protection of the Scheldt* (26 April 1994, Charleville Mezieres), 34 ILM (1995), 859 at Article 2(a); *Convention on Co-operation for the Protection and Sustainable Use of the Danube River* (Sofia Convention) (29 June 1994, Sofia), International Environment Reporter, 35: 251 at Article 2(4); 1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, 3 November 1995, UNEP (OCA)LBA/IG.2/7, available at: [http://coralreef.noaa.gov/threats/pollution/resources/unep\\_lbsp\\_prgrm.pdf](http://coralreef.noaa.gov/threats/pollution/resources/unep_lbsp_prgrm.pdf), Articles 23(i), 24, 104(b)(i), 111(a), 118(b)(i) and 124(b)(i); *Convention on the Protection of the Rhine* (Rotterdam Convention), (22 January 1998, Rotterdam), 1404 UNTS 59; 2001 International Convention on the Control of Harmful Anti-fouling Systems on Ships, 5 October 2001, London, United Kingdom, [2008] ATS 15 / AFS/CONF/26 at Article 6(3) and (5); *Framework Convention for the Protection of the Marine Environment of the Caspian Sea* (Tehran Convention) 4 November 2003, 44 ILM 1 (2005) at Article 5; *2004 International Convention for the Control and Management of Ships’ Ballast Water and Sediments*, 13 February 2004, London, UK, IMO Doc BWM/CONF/36 at fourth preambular paragraph.

<sup>454</sup> See, for example, United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Straddling Fish Stocks Agreement), 4 August 1995, 34 ILM 1542 (1995); 2167 UNTS 88 at Article 6.

<sup>455</sup> See, for example, *2002 ASEAN Agreement on Transboundary Haze Pollution*, 10 June 2002, Kuala Lumpur, Malaysia, available at: <http://cil.nus.edu.sg/2002/2002-asean-agreement-on-transboundary-haze-pollution-signed-on-10-june-2002-in-kuala-lumpur-malaysia/>, at Article 3(3).

<sup>456</sup> See, for example, Cartagena Protocol on Biosafety to the Convention on Biological Diversity (Cartagena Protocol), 28 January 2000, 2226 UNTS 208; 39 ILM 1027 (2000); UN Doc. UNEP/CBD/ExCOP/1/3, at 42 (2000) at Article 10(6).

<sup>457</sup> De Sadeleer (2010), *supra* note 319 at 183.

ranging from air pollution to waste management”<sup>458</sup> in existence currently, and this number seems likely to only continue rising.

### 5.3 Defining the Precautionary Principle

The precautionary principle has rapidly emerged as an important principle of IEL, to the point where it is now widely used in international treaties and declarations. However, the principle is also often criticized for being “vague and undefined”.<sup>459</sup> There are at least twelve different definitions of the principle in international instruments.<sup>460</sup> Nonetheless, these varying definitions tend to focus around certain essential elements of the principle and its objectives: ultimately, no matter how it is phrased, the precautionary principle seeks to protect the environment from serious damage, even where scientific uncertainty exists as to the causal link between the action and the damage.

The precautionary principle endeavors to respond to the lesson of history: “[t]oo often, our experience in matters relating to the environment indicates that when we are certain we are impotent – it is too late to repair the damage.”<sup>461</sup> Therefore, rather than wait until there is scientific certainty and, most likely the damage has already occurred, the precautionary principle “assert[s] that potential long-term, adverse, unintended consequences should be considered in advance rather than addressed after the fact.”<sup>462</sup> This means acting in a precautionary manner under conditions of scientific uncertainty. It is for this reason that the principle is often associated with the adage ‘better safe than sorry’<sup>463</sup> and scholars, such as Arie Trouwborst, note that the “principle is supposed to

---

<sup>458</sup> De Sadeleer (2010), *ibid* at 187.

<sup>459</sup> Trouwborst, *supra* note 319 at 6.

<sup>460</sup> Nicolas de Sadeleer, *Environmental Principles: From Political Slogans to Legal Rules* (Oxford & New York: Oxford University Press, 2002) at 97. [hereinafter De Sadeleer (2002)]

<sup>461</sup> Cameron (1999), *supra* note 9 at 29.

<sup>462</sup> Peter J Balint, Ronald E Stewart, Anand Desai and Lawrence C Walters, eds, *Wicked Environmental Problems: Managing Uncertainty and Conflict* (Washington, DC: Island Press, 2011) at 66. [hereinafter Balint *et al.*]

<sup>463</sup> De Sadeleer (2002), *supra* note 460 at 92.

ensure that erring, which after all is human, is done on the side of caution and not to the detriment of the environment.”<sup>464</sup>

In seeking to protect the environment from degradation at the hands of humans, several key elements of the principle can be isolated. Timothy O’Riordan and James Cameron, an environmental scientist and a lawyer respectively, identify six basic concepts they find in the precautionary principle: (1) preventative anticipation; (2) safeguarding of ecological space; (3) proportionality of response or cost-effectiveness of margins of error; (4) duty of care or onus of proof on those who propose change; (5) promoting the cause of intrinsic natural rights; and (6) paying for past ecological debt.<sup>465</sup> Though, having identified these concepts, O’Riordan and Cameron go on to state that “[b]y no means all of these interpretations are formally approved in international law and common practice.”<sup>466</sup> Rather, in practice, they suggest, the principle boils down to “act[ing] prudently where there is sufficient scientific evidence and where action can be justified on reasonable judgments of cost effectiveness and where inaction could lead to potential irreversibility or demonstrate harm to the defenders and future generations.”<sup>467</sup>

Meanwhile Romeo Quijano, a medical doctor and toxicologist, identifies five essential elements to the precautionary principle: (1) prevention [of environmental harm]; (2) reverse onus [of proof]; (3) elimination [of harms/risks]; (4) community orientation [right to health and healthy environment trumps economic and property rights]; and (5) uncertainty is a threat.<sup>468</sup>

---

<sup>464</sup> Trouwborst, *supra* note 319 at 5.

<sup>465</sup> Timothy O’Riordan & James Cameron. “The History and contemporary significance of the precautionary principle” in Timothy O’Riordan & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994) 12 at 17-18. [hereinafter O’Riordan & Cameron, “History”]

<sup>466</sup> O’Riordan & Cameron, “History”, *ibid* at 18.

<sup>467</sup> O’Riordan & Cameron, “History”, *ibid*. [emphasis in original]

<sup>468</sup> Romeo F Quijano, “Elements of the Precautionary Principle” in Joel A Tickner, ed, *Precaution, Environmental Science and Preventive Public Policy* (Washington, DC: Island Press, 2003) 21 at 23-26. [hereinafter Quijano]

Per Sandin, a philosopher specializing in bioethics and environmental ethics, speaks of four dimensions to the precautionary principle: “(1) the threat dimension concerns the possible threat, (2) the uncertainty dimension concerns the limits of knowledge, (3) the action dimension concerns the response to the threat, and (4) the command dimension concerns the way in which the action is prescribed.”<sup>469</sup> He suggests that, “most formulations of the Precautionary Principle can be recast by inserting the formulations expressing the four dimensions into the following if-clause: If there is (1) a threat, which is (2) uncertain, then (3) some kind of action (4) is mandatory.”<sup>470</sup>

Finally, Trouwborst, a legal scholar, limits himself to identifying three common elements to definitions of the precautionary principle: “(1) threat of harm, (2) uncertainty, and (3) action.” He also suggests a basic definition which encompasses these key components common among the many varying definitions of the precautionary principle in existence. That basic definition is expressed as follows:

Wherever, on the basis of the best information available, there are reasonable grounds for concern that serious and/or irreversible harm to the environment may occur, effective and proportional action to prevent and/or abate this harm must be taken, including in situations of scientific uncertainty regarding the cause, extent and/or probability of the potential harm.<sup>471</sup>

Common to these different articulations and classifications of key elements of the precautionary principle are a threat of harm to the environment and related uncertainty. These are very much the key components of the principle and will be discussed in greater detail below. First, however, an important note must be made with regards to the terminology used in labeling the principle. Some instruments will refer to it as the “precautionary principle”, while others use the term “precautionary approach”. According to some scholars, a ‘precautionary approach’ is softer and less legalistic than a

---

<sup>469</sup> Per Sandin, “Dimensions of the Precautionary Principle” (1999) 5:5 *Human and Ecological Risk Assessment* 889 at 891. [hereinafter Sandin]

<sup>470</sup> Sandin, *ibid.*

<sup>471</sup> Trouwborst, *supra* note 319 at 159.

‘precautionary principle’.<sup>472</sup> This is a view in which ‘precautionary approach’ is seen as not legally binding, as compared to a legal principle.<sup>473</sup> There seems to be a geographic preference between the labels, with the European Community being more closely associated with the term ‘precautionary principle’, while the United States seems to have a preference for the term ‘precautionary approach’.<sup>474</sup> Ultimately, it seems the difference is no more than a “semantic squabble”, with numerous scholars and international instruments seeming to use the terms interchangeably.<sup>475</sup> Trouwborst notes that, in practice, “the only real difference seems to be the terminological distinction itself.”<sup>476</sup> The 1995 *Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities* uses both terms at various points in its text,<sup>477</sup> while Principle 15 of the *Rio Declaration* uses ‘precautionary approach’, yet the *Programme for Further Implementation of Agenda 21*, adopted by the UN General Assembly in 1997, in referring to Principle 15 of the *Rio Declaration* refers to the ‘precautionary principle’.<sup>478</sup> There

---

<sup>472</sup> De Sadeleer (2002), *supra* note 460 at 98; Zander, *supra* note 319 at 4, 29.

<sup>473</sup> De Sadeleer (2010), *supra* note 319 at 186.

<sup>474</sup> Sands *et al.*, *supra* note 11 at 218. These differing opinions on the terminology, approach vs. principle can best be seen in the WTO Beef Hormones case. This case saw a dispute between the United States and Canada against the European Union over the use of artificial beef hormones. The European Union used in its argument the precautionary principle, while the United States and Canada countered stating that the precautionary approach was an approach and not a legal principle. *EC Measures Concerning Meat and Meat Products (Hormones) (Canada and United States v European Community)*, 16 January 1998, AB-1997-4, *WTO Doc* WT/DS26/AB/R and WT/DS48/AB/R. [hereinafter Beef Hormones case]

<sup>475</sup> For example, see De Sadeleer(2010), *supra* note 319 at 187; Trouwborst, *supra* note 319 at 11.

<sup>476</sup> Trouwborst, *ibid.*

<sup>477</sup> 1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities, 3 November 1995, UNEP (OCA)LBA/IG.2/7, available at: [http://coralreef.noaa.gov/threats/pollution/resources/unep\\_lbsp\\_prgrm.pdf](http://coralreef.noaa.gov/threats/pollution/resources/unep_lbsp_prgrm.pdf): Articles 23(i), 24, and 111(a), use the term ‘precautionary approach’ while Articles 104(b)(i), 118(b)(i) and 124(b)(i) use ‘precautionary principle’; see also Trouwborst, *supra* note 23 at 12.

<sup>478</sup> *Programme for Further Implementation of Agenda 21*, 19 September 1997, UN General Assembly A/RES/S-19/2, paragraph 14, available at: <http://www.un.org/documents/ga/res/spec/ares19-2.htm>: “4. Progress has been made in incorporating the principles contained in the Rio Declaration on Environment and Development - including the principle of common but differentiated responsibilities, [...] the precautionary principle [...]”

seems to be no tangible differences in reality between ‘precautionary approach’ and ‘precautionary principle’.<sup>479</sup>

## 5.4 Threat of Harm

The threat of harm to the environment, as seen in the different components listed above, is without doubt one of the key elements of the precautionary principle. A threat of harm to the environment is what triggers the need for the precautionary principle in the first place or, as Rajendra Ramlogan notes, “the presence of a threat of serious or irreversible harm is a condition precedent for the application of the precautionary principle.”<sup>480</sup> Given the pivotal role threat of harm plays in the operation and application of the principle, it is essential to have a better understanding of what is meant by this term. In the context of the precautionary principle, the term ‘threat of harm’ is often found, as well as other variations such as ‘damage’ or ‘environmental degradation’ or ‘adverse impact’.<sup>481</sup> These different words and phrases seem to be used interchangeably to represent the threat which triggers the precautionary principle.

Since all interactions with the environment produce some sort of effect or potential change on the environment, it is important to distinguish between acceptable and unacceptable environmental change. According to Trouwborst, “[e]nvironmental change [...] qualifies as harm only when it is negative”, which, in the context of the precautionary principle, includes “the impairment of values of nature to humans and the impairment of the intrinsic value of nature”.<sup>482</sup> Furthermore, generally only anthropogenic - that is, human-caused or -produced, threats - are considered.<sup>483</sup> Modern examples include deforestation, air pollution, and hunting species to the point of extinction.

---

<sup>479</sup> Rio Declaration, *supra* at note 318; Agenda 21, *supra* at note 317; Trouwborst, *supra* note 319 at 12.

<sup>480</sup> Ramlogan, *supra* note 430 at 99.

<sup>481</sup> Trouwborst, *supra* note 319 at 40.

<sup>482</sup> Trouwborst, *ibid* at 133.

<sup>483</sup> Sandin, *supra* note 469 at 891.

Since most human activity tends to have impacts on the environment, the precautionary principle tends to include a threshold for identifying which threats, meeting or surpassing the threshold, merit the application of the principle and which threats do not meet the threshold and therefore do not warrant precautionary action.<sup>484</sup> The environmental harm that the precautionary principle seeks to avoid “is not minor or trivial, but tangible, appreciable and measurable.”<sup>485</sup> The threshold terms frequently used in the precautionary principle are ‘serious or irreversible damage’<sup>486</sup> as referred to in Principle 15 of the *Rio Declaration*.

Two key indicators of the seriousness of harm are geographic dispersion, that is, how large an area the harm is going to affect, and the duration or persistence of the harm over time:<sup>487</sup> the inference is that the larger the area affected and the more long-term or persistent the harm, the more serious the harm. The fact that the harm is also irreversible will also add to its seriousness, “since irreversible damage is by definition serious.”<sup>488</sup> However, while irreversibility of harm bolsters a finding of seriousness, serious harm is not always irreversible.<sup>489</sup> For example, the damage from oil spills at sea is largely reversible, but oil spills nonetheless “fall within the scope of the precautionary principle owing to their seriousness.”<sup>490</sup> Meanwhile, irreversibility is still an indication of the gravity of the potential harm, as well as incorporating a specific temporal element into the harm threshold.<sup>491</sup>

---

<sup>484</sup> See, for example, Minna Pyhälä, Anne Christine Brusendorff and Hanna Paulomäki, “The precautionary principle” in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 203 at 212. [hereinafter Pyhälä *et al.*]

<sup>485</sup> Trouwborst, *supra* note 319 at 52.

<sup>486</sup> See, for example, Ramlogan, *supra* note 430 at 99.

<sup>487</sup> Trouwborst, *supra* note 319 at 56.

<sup>488</sup> De Sadeleer (2002), *supra* note 460 at 165.

<sup>489</sup> De Sadeleer (2002), *ibid.*

<sup>490</sup> De Sadeleer (2002), *ibid.*

<sup>491</sup> Trouwborst, *supra* note 319 at 58.

Finally, for the threat of environmental harm to trigger the precautionary principle there must be “some indication, some hint, some concrete information suggesting that harm may occur.”<sup>492</sup> It is not sufficient that there be merely a “theoretical possibility of environmental damage”.<sup>493</sup> Despite this, it is also not required that the harm be a scientific certitude either, since scientific uncertainty is the second key trigger for precautionary action. It is simply that there must be “at least a minimal requirement of proof” otherwise “the remotest possibilities would be eligible as a basis for precautionary action.”<sup>494</sup> From this point, the question then becomes a threshold question, not about the threat of harm, but about the degree of scientific uncertainty which triggers the precautionary principle.

## 5.5 Uncertainty and Risk

The sheer complexity of the environment, its many elements, many ecosystems, and the interconnectedness of them all, makes scientific certainty in the environmental realm a challenge, to say the least. Isolating causes and effects becomes difficult and this difficulty is only increased when effects may not be fully known or realized in the short-term. Current advances in “scientific methods of risk identification and prediction have uncovered more subtly related causes and effects that unfold over longer latency periods, thereby calling for ever-earlier actions to anticipate uncertain future effects and to manage suspected present causes.”<sup>495</sup> To understand scientific uncertainty in the context of the precautionary principle, it is crucial to first understand uncertainty and risk in science.

Certainty and uncertainty have slightly different meanings in the scientific context than they do in ordinary day-to-day life. In science, “certainty is generally considered to

---

<sup>492</sup> Trouwborst, *ibid* at 106.

<sup>493</sup> Trouwborst, *ibid*.

<sup>494</sup> Trouwborst, *ibid*.

<sup>495</sup> Wiener, *supra* note 432 at 598.

lie in the realm of 95%”<sup>496</sup> and not 100%, since 100% certainty is deemed virtually impossible. A scientist will find something certain if the probability of occurrence or accuracy of the finding is 95% or higher. Therefore, uncertainty in the scientific community exists between 0 and 95 percent.<sup>497</sup> In terms of risks, there are certain risks and uncertain risks. Certain risks are those where there is scientific certainty as to the link between cause and effect, while uncertain risks are those for which the “occurrence of such risks remains controversial at a scientific level, but it is not unreasonable to anticipate their occurrence on the basis of certain data, even if those data have not yet been fully validated.”<sup>498</sup> Uncertainty here is “a situation in which the hazard and harm is known, but it is impossible to assign probabilities to its realisation.”<sup>499</sup> Uncertain risks are the focus of the precautionary principle, whereas certain risks, since they are known, fall under a principle of prevention.<sup>500</sup> For example, the risks of cancer from smoking are well established in science. Therefore there are certain or known risks, as well as preventative measures to prevent people acquiring cancer from smoking, such as warning labels on packaging. In contrast, where scientific knowledge is less firmly established, accepted risks will be uncertain and measures to prevent such risks will be precautionary. For example, if only a single scientific study suggests eating broccoli causes cancer this finding of risk is uncertain and taking measures to prevent this risk, such as refraining from eating broccoli, would constitute precautionary measures.

Uncertainty, meanwhile, has a variety of sources. Uncertainty can stem from a complete or partial lack of data.<sup>501</sup> This is “[t]raditionally the most common form of

---

<sup>496</sup> Nancy J Myers, “Precautionary Procedures: Tools of Analysis and Intention” in Nancy J Myers and Carolyn Raffensperger, eds, *Precautionary Tools for Reshaping Environmental Policy* (Cambridge, MA: MIT Press, 2006) 29 at 41. [hereinafter Myers]

<sup>497</sup> Zander, *supra* note 319 at 15.

<sup>498</sup> De Sadeleer (2002), *supra* note 460 at 158-159.

<sup>499</sup> Zander, *supra* note 319 at 14.

<sup>500</sup> Zander, *ibid* at 15.

<sup>501</sup> Timothy O’Riordan & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994) at 62 [hereinafter O’Riordan & Cameron, *Interpreting the Precautionary Principle*]; also Myers, *supra* note 493 at 41.

uncertainty” and is labeled ‘ignorance’.<sup>502</sup> Uncertainties may also stem from the “imperfection of models in making predictions” or the method of research, such as scientific results gathered in a controlled lab versus the uncontrolled real world.<sup>503</sup> Finally, uncertainty may be the result of indeterminacy.<sup>504</sup> This source of uncertainty “means that the systems being studied operate to processes that cannot be encapsulated in traditional scientific terms.”<sup>505</sup> In other words, it “refers to the layer of complexity and unpredictability added when biological systems function in the world of human agency.”<sup>506</sup>

As science and technology continue to progress, it is possible for new knowledge and capabilities to resolve past uncertainties, thereby initiating a shift from precautionary to preventive measures.<sup>507</sup> In the meantime, scientific uncertainty, when combined with a ‘serious or irreversible’ threat to the environment, will trigger the precautionary principle. The threshold terminology generally associated with scientific uncertainty in the precautionary principle is ‘reasonable grounds for concern’.<sup>508</sup> This refers to the likelihood of the threat occurring or “how (scientifically) plausible a threat must be to trigger precaution.”<sup>509</sup> If there are reasonable grounds for believing the threat may materialize, then precautionary action is required. It is suggested that this threshold falls “somewhere between the *possibility* and the *probability* of harm coming about.”<sup>510</sup>

---

<sup>502</sup> O’Riordan & Cameron, *Interpreting the Precautionary Principle*, *ibid.*

<sup>503</sup> Myers, *supra* note 496 at 41.

<sup>504</sup> Myers, *ibid* at 42; O’Riordan & Cameron, *Interpreting the Precautionary Principle*, *supra* note 501 at 65.

<sup>505</sup> O’Riordan & Cameron, *Interpreting the Precautionary Principle*, *ibid.*

<sup>506</sup> Myers, *supra* note 496 at 42.

<sup>507</sup> Cameron (1999), *supra* note 9 at 55.

<sup>508</sup> Trouwborst, *supra* not 319 at 116; De Sadeleer (2002), *supra* note 460 at 160.

<sup>509</sup> Trouwborst, *ibid*; Sandin, *supra* note 469 at 893.

<sup>510</sup> Trouwborst, *ibid* at 117 (referencing EJ Molenaar, *Coastal State Jurisdiction over Vessel-Source Pollution* (Dordrecht 1998) at 45).

Finally, there are two cautions that must be expressed when dealing with scientific uncertainty and the precautionary principle. First, decision-makers must be aware of, and give due consideration to, “countervailing risks that are created by precautionary actions.”<sup>511</sup> Since most actions present a consequence, whether negative or positive, for the environment, options for action must not be considered so narrowly as to ignore potentially greater risks in the course of action chosen to address the initial threat which triggered the precautionary principle.<sup>512</sup> Second, it is important to recognize when scientific certainty is falsely manufactured through statistics.<sup>513</sup> Despite these cautions, however, the precautionary principle is a necessary part of IEL and environmental protection because an ounce of precaution is better than no precaution at all.

## 5.6 The Burden of Proof

No understanding of the precautionary principle would be complete without an examination of the burden of proof that attaches to the principle. In the context of the precautionary principle, the burden of proof is often described as a ‘reverse onus’ or a ‘shifting burden of proof’.<sup>514</sup> Traditionally, the burden of proof lies with the opponent of the proposed activity, who must provide sufficient evidence of guilt or harm or risk of harm, depending on the context and standard of proof in question.<sup>515</sup> In criminal justice, the accused is innocent until proven guilty and has no obligation to provide evidence

---

<sup>511</sup> Wiener, *supra* note 432 at 608.

<sup>512</sup> Wiener, *ibid* at 609.

<sup>513</sup> Joel Tickner and David Kriebel, “The role of science and precaution in environmental and public health policy” in Elizabeth Fisher, Judith Jones and René von Schomberg, eds, *Implementing the Precautionary Principle: Perspectives and Prospects* (Cheltenham, UK: Edward Elgar Publishing, 2006) 42 at 53. [hereinafter Tickner & Kriebel]

<sup>514</sup> Sands *et al.*, *supra* note 11 at 222; De Sadeleer (2002), *supra* note 460 at 203; Balint *et al.*, *supra* note 462 at 66; Quijano, *supra* note 468 at 23; Cameron (1999), *supra* note 9 at 46-47; Pyhälä *et al.*, *supra* note 484 at 213; O’Riordan & Cameron, ‘History’, *supra* note 465 at 16; Trouwborst, *supra* note 319 at 193; Stephen Dovers, “Precautionary policy assessment for sustainability” in Elizabeth Fisher, Judith Jones and René von Schomberg, eds, *Implementing the Precautionary Principle: Perspectives and Prospects* (Cheltenham, UK: Edward Elgar Publishing, 2006) 88 at 92. [hereinafter Dovers]

<sup>515</sup> Sands *et al.*, *supra* note 11 at 222.

against him/herself.<sup>516</sup> Even in the environmental context, “[t]raditional legal standards [...] have tended to privilege parties accused of degrading the environment; until ‘proven wrong’ such parties can continue the activity in question.”<sup>517</sup>

In contrast, under the precautionary principle, the burden is shifted to the proponent of action, thereby “placing the burdens and responsibilities for safety and understanding on producers and not putting the burden of proof of harm on the potential victims.”<sup>518</sup> In doing so, the burden shifts to “the party or entity that will benefit from the activity” and, even more importantly, “on the party best able to generate the information needed to make the decision.”<sup>519</sup> The burden lies with the entity looking to change the status quo, wherein the status quo is the current less polluted world prior to the introduction of the newly proposed risks.<sup>520</sup>

Such a shift in the burden of proof would seem very appropriate, perhaps even a matter of common sense, in situations where the precautionary principle is in operation. First, the environment and individuals likely to be the victims should the potential harms be realized are rarely in the position to mount an objection prior to the risky activities having taken place. They may lack knowledge about the existence of the proposed activity, or, if known, they may lack access to information necessary to mount an opposition, and quite often they will lack the resources to challenge the actions in court prior to the harms having occurred. As such, the precautionary principle “calls for assigning appropriate burdens” which demands a shift since the “aim is fairness and accountability” for all parties involved.<sup>521</sup> Furthermore, the shifting burden is arguably necessary to align with the objectives and intentions of the precautionary principle which

---

<sup>516</sup> For example, see section 6 of the Canadian *Criminal Code*, RSC 1985, c C-46.

<sup>517</sup> Cameron (1999), *supra* note 9 at 46.

<sup>518</sup> Quijano, *supra* note 468 at 23.

<sup>519</sup> Wiener, *supra* note 432 at 606.

<sup>520</sup> Cameron (1999), *supra* note 9 at 47.

<sup>521</sup> Myers, *supra* note 496 at 48.

“posits a presumption in favour of protection of the environment and public health.”<sup>522</sup> Trouwborst equates the presumption of innocence in criminal law with a presumption of harmfulness under the precautionary principle.<sup>523</sup> Therefore, where threat of harm and scientific uncertainty have triggered the precautionary principle, the maxim should be ‘harmful until proven harmless’.<sup>524</sup>

This shifting burden is not only the product of academic discourse, but appears in numerous international instruments which include the precautionary principle. The 1998 Wingspread Statement, produced by academics at the Wingspread Conference on the Precautionary Principle, stated that, under the precautionary principle, “the proponent of an activity, rather than the public, should bear the burden of proof.”<sup>525</sup> Other international instruments that have included a precautionary burden of proof include the 1988 *Convention on the Regulation of Antarctic Mineral Resource Activities*,<sup>526</sup> the 1991 *Antarctic Protocol*,<sup>527</sup> the 2002 *Guiding Principles on Invasive Alien Species*,<sup>528</sup> and the 1992 *Convention for the Protection of the Marine Environment of the North-East Atlantic*.<sup>529</sup> Evidence suggest that, in practice, states often apply this shifted burden, but

---

<sup>522</sup> De Sadeleer (2010), *supra* note 319 at 203.

<sup>523</sup> Trouwborst, *supra* note 319 at 200.

<sup>524</sup> Trouwborst, *ibid.*

<sup>525</sup> Science and Environmental Health Network, The Wingspread Consensus Statement on the Precautionary Principle, (1998) available at: <http://www.sehn.org/state.html>. [hereinafter Wingspread Statement]

<sup>526</sup> 1988 *Convention on the Regulation of Antarctic Mineral Resource Activities* (CRAMRA), 6 February 1988, 27 ILM 868 at Article 4(1)-(4).

<sup>527</sup> *Protocol on Environmental Protection to the Antarctic Treaty*, 10 April 1991, 30 ILM 1455 (1991) at Articles 3, 7, and 8: a moratorium on mineral resource activities is created and a requirement that scientific related research must complete environmental impact assessment before any scientific research may be carried out.

<sup>528</sup> Guiding Principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species (annexed to Decision VI/23 adopted by the Conference of the Parties to the CBD, The Hague, April 2002) at Article 10(1) and (2): create a prohibition on the introduction of alien species without prior authorization under an assessment of risks and in accordance with the precautionary principle.

<sup>529</sup> OSPAR Convention, *supra* note 443 at Annex II, Article 3(3)(c) which requires parties wishing to dump certain wastes at sea to provide scientific evidence demonstrating these products would not cause hazards to environment or health.

even more frequently states have used and created definitions of the precautionary principle which are silent with regard to the burden of proof to be applied.<sup>530</sup> In such cases, it is unclear whether the traditional burden of proof is automatic and assumed. A strong argument for the precautionary style burden's logic and trueness to the objectives and aims of the principle itself can be made to suggest it is inherent in the invocation of the principle even where it is not explicitly stated.<sup>531</sup>

## 5.7 The Legal Status of the Precautionary Principle

Despite its meteoric rise and widespread inclusion in international and domestic legal instruments, the legal status of the precautionary principle is still subject to debate. The question is whether the precautionary principle is a legal principle, a general principle of international law, a customary international law norm, or, perhaps, all three. Those who deny that the principle has achieved any of these statuses primarily attribute it to the fact that the principle is subject to so many varying interpretations, that there are “no clear rules of application”, and that it is “ambiguous and undefined”.<sup>532</sup> In contrast, proponents of the principle note that the more general nature of the principle is essential because in order “to be effective it must be general in character but capable of devolving to the particular”.<sup>533</sup> In practice, the principle has demonstrated this capacity through its application to both specific areas of IEL, such as ozone depletion, as well as to more general concepts, as in the case of environmental protection and development.<sup>534</sup>

---

<sup>530</sup> Trouwborst, *supra* note 319 at 223.

<sup>531</sup> Such an implied burden of proof where definitions are silent has been claimed in the 1996 *FAO “Precautionary approach to capture fisheries and species introductions”, FAO Technical Guidelines for Responsible Fisheries 2*, available at: <http://www.fao.org/docrep/003/w3592e/w3592e00.htm>; as well as in the Pakistani Supreme Court case *Shehla Zia v WAPDA*, PLD, 1994 Supreme Court 693.

<sup>532</sup> See Dupuy, *supra* note 322 at 462; Zander, *supra* note 319 at 29-31; Dovers, *supra* note 514 at 89.

<sup>533</sup> Cameron (1999), *supra* note 9 at 47.

<sup>534</sup> Cameron (1999), *ibid.*

Furthermore, they note that it is “characteristic of *general* principles with a wide scope of application [...to have] various elements [...] open to interpretation”.<sup>535</sup>

That the precautionary principle is a general principle of international law is broadly embraced in academic discourse.<sup>536</sup> It has “received widespread support by the international community”,<sup>537</sup> and also forms “an essential part of all municipal (domestic) systems for protecting health, safety and the environment.”<sup>538</sup> Cameron notes that “[i]t has also achieved near universal recognition as a fundamental element in the creation of new environmental policy instruments”,<sup>539</sup> which suggests that the principle’s acceptance is continuing to increase. In her work, Ramlogan provides an overview of some countries which have embraced and/or applied the precautionary principle in either national legislation and/or national courts.<sup>540</sup> These countries include Pakistan,<sup>541</sup> Australia,<sup>542</sup> India,<sup>543</sup> Canada,<sup>544</sup> Kenya,<sup>545</sup> and Trinidad and Tobago.<sup>546</sup> It appears there is a great

---

<sup>535</sup> Trouwborst, *supra* note 319 at 160.

<sup>536</sup> See, for example, De Sadeleer (2010), *supra* note 319 at 183; Cameron, *supra* note 9 at 30; Trouwborst, *supra* note 319 at 6.

<sup>537</sup> Sands *et al.*, *supra* note 11 at 221.

<sup>538</sup> Magraw & Hawke, *supra* note 343 at 632.

<sup>539</sup> Cameron(1999), *supra* note 9 at 30.

<sup>540</sup> Ramlogan, *supra* note 430 at 86-98.

<sup>541</sup> For example, see *Ms Shela Zia and others v WAPDA PLD*, 1994 SC 693 (Pakistani Supreme Court): case dealt with citizens’ concerns over the proposed construction of a grid station in a residential area. The court indicated that in matters of uncertainty they will use the precautionary principle.

<sup>542</sup> See, for example, *Telstra Corporation Limited v Hornsby Shire Council*, [2006] NSWLEC 133: At issue was the emission of radiofrequency electromagnetic energy by a telecommunications carrier. The Court accepted and gave due consideration to the precautionary principle in its decision.

<sup>543</sup> See, for example, *Vellore Citizens Welfare Forum v Union of India*, Writ Petition (C) No 914 of 1991: The court applied the precautionary principle as it is required to do under national law; however, it also noted that even without national legislation incorporating the precautionary principle, it would do so as the principle is part of customary international law.

<sup>544</sup> See, for example, *Canada Ltée (Spraytech, Société d’arrosage) v Hudson (Town)*, [2001] 2 SCR 241: This case concerned the restriction of pesticide use in the town of Hudson. The court interpreted relevant legislation in accordance with principles of international law, specifically the precautionary principle.

<sup>545</sup> See, for example, *Rodgers Muema Nzioka and 2 Others v Tiomin Kenya Ltd* (Civil Case No 97 of 2001) [2001] KEHC 3: The plaintiffs in this case were seeking an injunction against a titanium mining company based on concerns for environmental health. The court stated that it must be guided in its judgment by precautionary principles.

deal of evidence to support not only widespread practice by many states, but also recognition by many national courts that the precautionary principle has achieved international legal status.

In addition, there is confirmation that the precautionary principle is not only a general principle of international law, but that it has also attained customary status.<sup>547</sup> The widespread international and domestic support equally bolsters the conclusion that it has reached customary law status and general principle status. Furthermore, Trouwborst states that, “there is a core content of the precautionary principle on which there is apparent agreement among states”.<sup>548</sup> This core content of the customary precautionary principle includes the risk of “serious and/or irreversible harm to the environment” and “scientific uncertainty regarding the cause, extent and/or probability of the potential harm”, followed by the requirement to take “effective and proportional action to abate this harm

The decisions of international courts and tribunals have done little to clarify the legal status of the precautionary principle. International case law has yet to fully embrace, or alternatively denounce, the precautionary principle. It has been raised before different courts and tribunals and, more often than not, they have refrained from addressing the subject. New Zealand raised the precautionary principle before the ICJ in the *Nuclear Test* case.<sup>549</sup> Though the ICJ did not address it in its judgment, Ad Hoc Judge Palmer and Judge Weeramentry each addressed the principle in their dissenting opinions. Ad Hoc

<sup>546</sup> See, for example, *People United Respecting the Environment and Rights Action Group v Environmental Management Authority, Alutrint Limited and the Attorney General of Trinidad and Tobago*, CV 2007-02263: This case dealt with the disposal of spent pot liner and air pollution in a proposed smelter project. The judge examined the precautionary principle in the matter.

<sup>547</sup> See, for example, Sands *et al.*, *supra* note 11 at 228; De Sadeleer (2010), *supra* note 319 at 194; James Cameron, “The Status of the Precautionary Principle in International Law” in Timothy O’Riordan & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994) 262 at 283 [hereinafter Cameron (1994)]; Trouwborst, *supra* note 319 at 7.

<sup>548</sup> Trouwborst, *supra* note 319 at 8.

<sup>549</sup> *Nuclear Tests Case Order*, *supra* note 400.

Judge Palmer stated that the “precautionary principles ha[d] developed rapidly and m[ight] now be a principle of customary international law relating to the environment”,<sup>550</sup> while Judge Weeramantry’s remarks acknowledged the shifted burden that exists under the precautionary principle and said the principle “was gaining increasing support as part of the international law of the environment”.<sup>551</sup> The precautionary principle was raised again by Hungary in the *Gabcikovo-Nagymaros* case and, once again, the ICJ chose not to address it in its judgment.<sup>552</sup> In the 2010 *Pulp Mills* case before the ICJ, both parties - Argentina and Uruguay - discussed the precautionary principle in their submissions, but the majority judgment did not deal with the principle, other than to say it did not accept that it “operates as a reversal of the burden of proof”.<sup>553</sup> Judge Trinidad, in his separate opinion, discussed the precautionary principle at length. On the failure of his colleagues to address the precautionary principle in their judgment, he stated: “It escapes my comprehension why the ICJ has so far had so much precaution with the precautionary principle.”<sup>554</sup> He noted that both parties to the dispute seemed to have accepted the principle and only disagreed over whether it applied in the particular circumstances of the case.<sup>555</sup> Finally, he noted that “[t]he fact that the Court’s Judgment silenced on them does not mean that the principles of prevention and of precaution do not exist. They do exist and apply, and are [...] of the utmost importance as part of the *jus necessarium*. We can hardly speak of International Environmental Law nowadays without those general principles.”<sup>556</sup>

Elsewhere, the International Tribunal for the Law of the Sea has showed a willingness to both discuss and embrace the precautionary principle. In its Advisory

---

<sup>550</sup> *Nuclear Tests Case Order*, *ibid* (dissenting opinion of Ad Hoc Judge Palmer).

<sup>551</sup> *Nuclear Tests Case Order*, *ibid* (dissenting opinion of Judge Weeramantry).

<sup>552</sup> *Gabcikovo-Nagymaros*, *supra* note 339.

<sup>553</sup> *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Provisional Measures, Order of 13 July 2006, ICJ Reports 2006, 113 at para 164. [hereinafter *Pulp Mills* case]

<sup>554</sup> *Pulp Mills* case, *ibid* (Separate Opinion of Judge Trinidad).

<sup>555</sup> *Pulp Mills* case, *ibid* (Separate Opinion of Judge Trinidad).

<sup>556</sup> *Pulp Mills* case, *ibid* (Separate Opinion of Judge Trinidad).

Opinion on the *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*, it noted the increasing use of the principle in international instruments and expressed the opinion that this had “initiated a trend towards making this approach part of customary international law.”<sup>557</sup>

Ultimately, despite unclear articulation and application by international courts, there appears to be strong support for concluding that the precautionary principle is both a general principle of international law and customary law.

## 5.8 Health and the Precautionary Principle

The legal status debate also includes debate over whether a customary precautionary principle is limited to environmental protection or whether it also encompasses precaution towards risks to human health. Human health is often reliant on a healthy environment. Environmental degradation in the form of air pollution, water contamination, or health risks entering the food chain can have negative effects on human health.

Many scholars include risks to health as part of the precautionary principle. It is one part of a broader definition of ‘environment’, such as was used in the 2005 *Iron Rhine* case decided by the Permanent Court of Arbitration. The court defined ‘environment’ as including “air, water, land, flora and fauna, natural ecosystems and sites, human health and safety, and climate.”<sup>558</sup> Furthermore, it is very difficult to separate one from the other since a healthy environment promotes good human health and, even more so, an unhealthy environment is likely to have negative health impacts on individuals.<sup>559</sup> In spite of this, Trouwborst suggests that the customary legal definition of

---

<sup>557</sup> Seabed Disputes Chamber of the International Trib. for the Law of the Sea, *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*, Advisory Opinion, 1 February 2011, at para 135, available at: [http://www.itlos.org/fileadmin/itlos/documents/cases/case\\_no\\_17/Adv\\_Op\\_010211\\_eng.pdf](http://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/Adv_Op_010211_eng.pdf) .

<sup>558</sup> *Iron Rhine Railway (Belgium v Netherlands)* (2005) 27 RIAA 35, para 58, available at: [http://www.pca-cpa.org/showpage.asp?pag\\_id=1155](http://www.pca-cpa.org/showpage.asp?pag_id=1155).

<sup>559</sup> Trouwborst, *supra* note 319 at 16.

the precautionary principle does not include “health protection *in its own right*” within its scope.<sup>560</sup> However, human health “may be deemed as included within [the principle’s scope] as far as its protection from adverse environmental impacts is concerned.”<sup>561</sup> That is, while he suggests that health issues such as food safety may not fall under the customary principle,<sup>562</sup> health risks from water contaminants or air pollution would fall within its purview. Conversely, other scholars take the inclusion of health protection as an inherent part of the precautionary principle.<sup>563</sup>

It is difficult to separate many environmental threats from the consequent threats they pose to human health. Oftentimes, the threat to human health can be an important factor in the assessment of the severity of the threat of harm under the precautionary principle. This link between the environment and health is often even more evident in conflict zones where many weapons simultaneously threaten both the environment and human health. This link and the consideration of threats to human health under the precautionary principle will become more evident and more important in the following chapter of this thesis. Before we can begin to bring together the principles of IEL with the protections of IHL, there are two concepts which appear in both fields that must be examined to understand their similarities and differences.

## 5.9 Precaution and Proportion: The Precautionary Principle versus International Humanitarian Law

Proportionality arises under the precautionary principle when considering the course of action for addressing the threat of harm that has arisen.<sup>564</sup> Under the precautionary principle, proportionality seeks to ensure that responses to threats of harm

---

<sup>560</sup> Trouwborst, *ibid*.

<sup>561</sup> Trouwborst, *ibid* at 129.

<sup>562</sup> Trouwborst, *ibid*.

<sup>563</sup> For example, see Dayna Nadine Scott, “When Precaution Points Two Ways: Confronting “West Nile Fever” (2005) 20:2 Can J L & Soc’y 27; Carolyn Raffensperger & Joel Tickner, *Protecting Public Health and the Environment: Implementing the Precautionary Principle* (Washington, DC: Island Press, 1999).

<sup>564</sup> Trouwborst, *supra* note 319 at 149-158; De Sadeleer (2002), *supra* note 460 at 155.

“correspond to the perceived dimensions of the risk involved.”<sup>565</sup> In other words, “[t]he *more* significant or the *more* serious the expected environmental impact, the more rigorous preventive or abatement measures may, respectively must be.”<sup>566</sup> Should there be more than one option available and uncertainty or doubt as to which should be chosen, in keeping with the precautionary principle the option which errs on the side of protecting the environment should be selected.<sup>567</sup>

The concepts of precaution and proportionality are also, as discussed earlier, part of IHL. Under IHL proportionality is the “requirement to select the method or means of attack likely to cause the least collateral damage or incidental injury, all other things being equal, relative to the military advantage obtained.”<sup>568</sup> Even though the terminology, of precaution and proportionality, is similar or the same in both IEL and IHL, the definitions and applications vary. Proportionality under the precautionary principle is similar to proportionality under IHL in that it serves to “[adjust] the means to the objective” and demands that “a course of action is chosen that corresponds to the size of the risk involved.”<sup>569</sup> Where it differs is in the objective that is sought. Under the precautionary principle, actors are seeking to balance the desired action, development, with environmental protection. In this balancing and weighing process “the precautionary principle posits a presumption in favour of protection of the environment and public health.”<sup>570</sup> In IHL, the consideration of proportionality results in weighing and balancing military necessity with humanity. Generally, the benefit of the doubt is given to the military actors.<sup>571</sup>

---

<sup>565</sup> Trouwborst, *ibid* at 150.

<sup>566</sup> Trouwborst, *ibid*.

<sup>567</sup> Trouwborst, *ibid* at 158.

<sup>568</sup> Schmitt, *supra* note 75 at 150.

<sup>569</sup> Trouwborst, *supra* note 319 at 149-158.

<sup>570</sup> De Sadeleer(2002), *supra* note 460 at 203.

<sup>571</sup> Richard A Falk, *Revitalizing International Law* (Ames: Iowa State University Press, 1989) at 168. This can also be inferred from the remark in Gary D Solis, *The Law of Armed Conflict: International Humanitarian Law in War* (New York: Cambridge University Press, 2010) at 263 which states “Military necessity trumps the modest health risks to civilians [in the context of depleted uranium weapons].” It can

Precaution also differs in its precise meaning between the precautionary principle and IHL. While precaution under IHL without question “constitute[s] obligatory standards of conduct”,<sup>572</sup> and is enshrined in customary international law,<sup>573</sup> as we have seen, the precautionary principle, though likely the same, it is not quite so firmly as established as in IHL. Yet it would appear that precaution under IHL “remains relatively abstract”,<sup>574</sup> perhaps even more so than under the precautionary principle. Whereas the precautionary principle includes thresholds such as ‘serious or irreversible harm’ and ‘reasonable grounds for concern’, precaution in IHL is merely phrased as ‘all feasible precautions’ and left at that. This is worrisome because it largely leaves it to the military decision-maker to determine what the requirements for fulfilling this duty will be. It fails to provide a yardstick by which to gauge whether the duty has been fulfilled.

Whereas scientific uncertainty triggers the precautionary principle, the duty to take precautions in IHL flows from the principle of distinction. Outside the language of the duty, there is more discussion such that the duty of precaution in IHL can be said to include things such as a “duty to verify the nature of the target”,<sup>575</sup> an “obligation to choose the military objective that involves the least danger to civilian lives and civilian objects”,<sup>576</sup> and an “obligation to give advance warning of an attack that may affect the civilian population”.<sup>577</sup> Even so, even the latter obligation on giving warnings is not

---

also be inferred from the decision of the ICTY Prosecutor, Carla Del Ponte, not to open a criminal investigation into NATO bombings in Kosovo, see “Prosecutor's Report on the NATO Bombing Campaign”, 13 June 2000, The Hague, available at <http://www.icty.org/sid/7846>.

<sup>572</sup> Jean-François Quéguiner, “Precaution under the law governing the conduct of hostilities” (2006) 88:864 *Int'l Review of the Red Cross* 793 at 794. [hereinafter Quéguiner]

<sup>573</sup> ICRC Study, *supra* note 49 at “Rule 22. Principle of Precautions against the Effects of Attacks”.

<sup>574</sup> Quéguiner, *supra* note 572 at 796.

<sup>575</sup> Quéguiner, *ibid* at 797.

<sup>576</sup> Quéguiner, *ibid* at 805.

<sup>577</sup> Quéguiner, *ibid* at 806.

absolute. Since “surprise has become a primordial condition for success”,<sup>578</sup> if precautions are taken, it can be asked whether ‘all *feasible* precautions’ are actually taken. So, while precaution seems to demand certain outcomes (warnings, timing of attacks, weapon selection), some question “whether, and to what extent, [precaution in IHL] can be interpreted as legitimizing mistakes.”<sup>579</sup> The nature of the obligations said to flow from precaution in IHL would seem to suggest it has more of a preventive than precautionary nature, as precautionary is understood in the IEL context, since the IHL precaution provisions appear to target common-sense risks to civilians which do not attract a high degree of uncertainty. Examples might include, for instance, providing a warning in advance to clear an area of civilians or attacking at night when fewer civilians are out or in the area. If civilians are unaware of a pending attack they cannot take measures to protect themselves. Likewise, if an attack is conducted during the day there are likely to be more civilians in the streets, in office buildings, etc.. Issuing a warning and/or attacking at night would simply seem to be common sense preventive measures, rather than precautionary in the sense of the precautionary principle.

Meanwhile, the precautionary principle has thresholds which trigger action and is closely linked to science even if uncertainty plays a large role. Fundamentally, where precaution in IHL seems to demand certain actions/outcomes, “[a] fundamental feature of the precautionary principle is that it is not concerned with guaranteeing particular outcome, but rather with the *process* by which a decision is made.”<sup>580</sup> Finally, the precautionary principle prioritizes the protection of the environment above all else, with human health perhaps only an indirect beneficiary of this stringent protection. In contrast, precaution in IHL focuses primarily on avoiding harm to civilian lives and civilian objects.

---

<sup>578</sup> Quéguiner, *ibid.*

<sup>579</sup> Quéguiner, *ibid* at 810.

<sup>580</sup> Elizabeth Fisher, “Risk and Environmental Law: A Beginner’s Guide” in Benjamin J Richardson & Stepan Wood, eds, *Environmental Law for Sustainability* (Portland: Hart Publishing, 2006) 97 at 118.

While precaution and proportionality in IHL and under the precautionary principle both seek to protect entities from damage, under the precautionary principle they appear to provide better protection. Both seek to balance the size of the threat with the response to the harm, but under IHL the benefit of the doubt is often given to the military actor carrying out the risky activity. Meanwhile, under the precautionary principle the benefit of the doubt lies in favor of protecting the environment. Furthermore, the precautionary principle provides more substantive content and guidelines for assessing precaution (threat of serious or irreversible harm and scientific uncertainty) while under IHL a general and vague duty to take 'all feasible precautions' is given with little guidance as to the content of that duty. The precautionary principle provides more detailed and more protective standards than precaution and proportionality under IHL.

## 5.10 Conclusion

This chapter has explored the precautionary principle within international environmental law. Following the rapid development of the principle it has examined its definition and key components of threat of harm, scientific uncertainty and shifted burden of proof. It has also examined its legal status which suggests that it is both a general principle of international law and, quite possibly, a principle of customary international environmental law as well. The important link between the protection of health and the environment under the precautionary principle was also examined. Finally, the concepts of precaution and proportionality in international humanitarian law and under the precautionary principle were discussed and compared.

While some debate may exist as to the definition and legal status of the precautionary principle, it is apparent that key elements may be drawn from it, namely, the threat of harm and scientific uncertainty. These two elements act as triggers for the principle, calling it into action to ensure decision-making processes are used which prioritize environmental protection in the face of these threats and uncertainties. It is also clear that the precautionary principle has become a common inclusion in environmental legal and policy instruments, both general and specific. Not only has the principle taken on a key role internationally, it has been embraced domestically by states around the

world. It would appear that the precautionary principle is most certainly a general principle of international law, and likely also a part of customary international law.

This thesis has explored both intergenerational equity and the precautionary principle, in addition to general principles of international law and the protection of civilians and the environment in IHL. All of these elements fit together. Both intergenerational equity and the precautionary principle have been shown to be general principles of international law. The detailed examination of the functions of general principles in Chapter three, therefore, provides guidance on how intergenerational equity and the precautionary principle can be used to unify, fill gaps, interpret and develop international law, including international humanitarian law. The next chapter will therefore explore how intergenerational equity and the precautionary principle could be applied in military decision-making so as to limit instances in which civilian and environmental casualties can be justified within the context of international humanitarian law.

## Chapter 6

### 6 Application of IEL Principles to Military Decision-Making

#### 6.1 Introduction

The previous chapters have explored the main components of this thesis: (1) the current status of IHL protections for civilians and the environment; (2) the status and role of general principles of international law; (3) IEL, sustainable development, and the principle of intergenerational equity; and (4) the precautionary principle in IEL. This chapter will establish how these components can work together in military decision-making to provide more clarity and ensure that existing legal protections for civilians and the environment are better respected in practice.

To demonstrate this, the chapter will begin with a look at the question of how IEL - whether treaty provisions, principles or customary laws – can apply during armed conflict. It will then turn to the examples discussed in chapter two: the use of cluster munitions by NATO in Kosovo in 1999 and the use of depleted uranium weapons by Coalition forces in Iraq in 2003. While reference will be made to how these examples fare under the specific environmental provisions of Additional Protocol I, the focus will be on how considerations of intergenerational equity and precaution can improve protection in conducting proportionality assessments for military action under the traditional principles and provisions relating to the protection of civilians and objects.

#### 6.2 The Application of International Environmental Law in Armed Conflicts

It is a truth universally acknowledged that armed conflict causes the destruction and degradation of the environment, not merely during conflict but continuing even once a conflict has ended.<sup>581</sup> This damage is not only direct, such as the defoliation of forests in Vietnam, but also indirect, such as when unexploded ordnance make arable lands

---

<sup>581</sup> See e.g. Bothe *et al.*, *supra* note 117 at 570; Schmitt (1997), *supra* note 117 at 96; Hourcle, *supra* note 117 at 659.

unusable, thereby endangering not only the environment, but also “people’s health, livelihoods, and security.”<sup>582</sup> As concern for the protection of the environment in general has increased, scholars such as Richard Tarasofsky have questioned “whether a new customary principle has now emerged which directly protects the environment.”<sup>583</sup> In fact, the International Law Commission’s [ILC] *Draft Code of Crimes Against the Peace and Security of Mankind* indicates that such a customary rule has emerged to protect the environment from ‘widespread, long-term and severe’ damage.<sup>584</sup> However, the actual practice of States does not clearly support such a finding.<sup>585</sup> Even so, the protection of the environment has clearly taken on a great importance in international law and international law has recognized and begun to attempt to address the links between the environment and armed conflict.<sup>586</sup>

The question then becomes what, if any, effect the rules and principles of IEL have on the rules, principles and application of IHL. The traditional view was that treaties, and law outside IHL, did not survive the outbreak of war.<sup>587</sup> Instead, IHL was seen as *lex specialis*, taking priority over all other laws between belligerents.<sup>588</sup> The more modern view now sees conflict as “a continuation of interstate relation[s] and, thus, subject to legal limits”.<sup>589</sup> In other words, IHL is not seen as displacing other forms of international law. Rather, it complements them and brings greater specificity to their applicability in conflict. In the context of the interplay of IHL and IEL, “when an attack

---

<sup>582</sup> Bothe *et al.*, *ibid* at 571.

<sup>583</sup> Richard G Tarasofsky, “Legal protection of the environment during international armed conflict” (1993) 24 NYIL 17 at 39. [hereinafter Tarasofsky]

<sup>584</sup> ILC, *1996 Draft Code of Crimes against the Peace and Security of Mankind*, 51 UN GAOR Supp (No 10) at 14, UN Doc A/CN.4/L.532, corr.1, corr.3 (1996) at Article 22(3)(d), available at: [http://untreaty.un.org/ilc/texts/instruments/english/draft%20articles/7\\_4\\_1996.pdf](http://untreaty.un.org/ilc/texts/instruments/english/draft%20articles/7_4_1996.pdf).

<sup>585</sup> Tarasofsky, *supra* note 583 at 40.

<sup>586</sup> See e.g. Tarasofsky, *ibid* at 19; Sands *et al.*, *supra* note 11 at 790. For example, attempts to address these links include the ENMOD Convention, *supra* note 6, and Articles 35(3) and 55 of Additional Protocol I, *supra* note 4.

<sup>587</sup> Schmitt (1997), *supra* note 117 at 37.

<sup>588</sup> Tarasofsky, *supra* note 583 at 62.

<sup>589</sup> Schmitt(1997), *supra* note 117 at 37.

is launched, environmental considerations must play a role in the targeting process.”<sup>590</sup> This is supported by several international groups of experts. The *Conference of Experts on the Use of the Environment as a Tool of Conventional Warfare* held in Ottawa in 1991 expressed the opinion that rules of general or ‘peacetime’ international law protecting the environment would normally remain applicable in armed conflict.<sup>591</sup> A conference convened in Munich later that same year by the International Union for Conservation of Nature and Natural Resources and the International Council of Environmental Law affirmed the views of the experts at the Ottawa Conference and asserted that “creating distinctions between damage to the environment during peacetime and wartime is artificial.”<sup>592</sup> Finally, in 2001, the ILC released its report on the Effects of Armed Conflicts on Treaties, in which it stated that the outbreak of conflict does not necessarily terminate or suspend the operation of treaties.<sup>593</sup> Rather, whether a treaty remains operative or is suspended or terminated depends on several considerations: “express provisions and subject matter of the treaty, treaty interpretation according to Articles 31 and 32 of the Vienna Convention on the Law of Treaties [...], the nature and extent of the armed conflict, and the effect of the armed conflict on the [subject matter or object of the] treaty.”<sup>594</sup>

These comments on the continuing effect of IEL treaties in armed conflict apply equally to customary rules of IEL.<sup>595</sup> Furthermore, even soft law instruments which may not have yet achieved customary law status “may still inform the interpretation and

---

<sup>590</sup> Yoram Dinstein, “Protection of the Environment in International Armed Conflict” (2001) 5 Max Planck YB UN L 523 at 524. [hereinafter Dinstein]

<sup>591</sup> Gasser, *supra* note 117 at 639.

<sup>592</sup> Tarasofsky, *supra* note 583 at 62.

<sup>593</sup> ILC, “Effects of Armed Conflicts on Treaties” in Report of the International Law Commission, 59th session (7 May-5 June and 9 July-10 August 2007) A/62/10 154 at Article 3, available at: <http://www.refworld.org/docid/4a716c6a2.html>. [hereinafter ILC, “Effects of Armed Conflicts on Treaties”]

<sup>594</sup> Bothe *et al.*, *supra* note 117 at 580; ILC “Effects of Armed Conflicts on Treaties”, *ibid* at Article 4.

<sup>595</sup> Bothe *et al.*, *ibid* at 588.

application of international law”<sup>596</sup> during armed conflicts. For example, Principle 24 of the Rio Declaration states:

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.<sup>597</sup>

This could be interpreted in two different ways: (1) as a statement that IEL continues to apply in armed conflict or, alternatively, (2) an emphasis on the need for states to adhere to existing IHL protections for the environment.<sup>598</sup> Either way, this Principle speaks to a clear intention that caution must be taken in armed conflict to protect the environment.<sup>599</sup>

The Martens Clause is also often cited in support of the continued operation of IEL rules, principles and custom during armed conflict. As explained in chapter two, the Martens Clause embraces the ‘laws of humanity’ and ‘requirements of public conscience’ as IHL continues to develop.<sup>600</sup> Both are clearly capable, and indeed should, encompass the protection of the environment in modern conflict scenarios.<sup>601</sup>

The ILC Study Group’s “Fragmentation of International Law”<sup>602</sup> report also provides solid guidance as to the operation, or co-operation, between different bodies of international law. The study notes that characterizations such as ‘trade law’ or ‘environmental law’ “have no normative value per se” because they are merely “informal labels that describe the instruments from the perspective of different interests”.<sup>603</sup> They discuss at length the principle of *lex specialis derogat lex generalis*, which means that the

---

<sup>596</sup> Bothe *et al.*, *ibid* at 584.

<sup>597</sup> Rio Declaration, *supra* note 318 at Principle 24.

<sup>598</sup> Schmitt(1997), *supra* note 117 at 43-44.

<sup>599</sup> Bothe *et al.*, *supra* note 117 at 584.

<sup>600</sup> Solis, *supra* note 83 at 53(referencing James Brown Scott, ed, *The Hague Conventions and Declarations of 1899 and 1907* (New York: Oxford University Press, 1918) at 101-102).

<sup>601</sup> Sands *et al.*, *supra* note 11 at 793.

<sup>602</sup> ILC Study, *supra* note 219.

<sup>603</sup> ILC Study, *ibid* at 17.

more specific law overrides the more general law. It is the doctrine traditionally used to resolve conflicts between norms. It also applies in a scenario “where the specific rule should be read and understood within the confines or against the background of the general standard, typically as an elaboration, updating or a technical specification of the latter.”<sup>604</sup> In terms of the prior scenario, where it operates to make the more specific law apply in lieu of the more general, the ILC points to its earlier publication of the Draft Articles on Responsibility of States for Internationally Wrongful Acts, wherein the ILC stated that “[f]or the *lex specialis* to apply it is not enough that the same subject matter is dealt with by two provisions; there must be some actual inconsistency between them, or else a discernible intention that one provision is to exclude the other.”<sup>605</sup>

The ILC Study Group also looked to the ICJ Advisory Opinion in *Legality of the Threat or Use of Nuclear Weapons* Advisory Opinion in 1996 [*Nuclear Weapons*], which dealt expressly with the operation of IHL and other bodies of law during armed conflict. In considering the legality of nuclear weapons, the ICJ considered both human rights law and IEL. The court stated that human rights law continued to apply during armed conflicts.<sup>606</sup> It was only in determining the meaning of ‘arbitrariness’ in the context of ‘arbitrary deprivation of life’ in Article 6(1) of the *International Covenant on Civil and Political Rights*,<sup>607</sup> that IHL provided more specific guidance.<sup>608</sup> Both bodies of law applied, and in applying them, the “more general rule remains in the background providing interpretive direction to the special one.”<sup>609</sup>

Similarly, in the *Nuclear Weapons* advisory opinion, the ICJ did not dismiss IEL in favour of IHL. Instead, the court stated that “existing international law relating to the

---

<sup>604</sup> ILC Study, *ibid* at 35.

<sup>605</sup> International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, (November 2001) Supplement No. 10 (A/56/10), chp.IV.E.1, Article 55(4), available at: <http://www.refworld.org/type,INTINSTRUMENT,,,3ddb8f804,0.html>.

<sup>606</sup> *Nuclear Weapons* case, *supra* note 47 at para 25.

<sup>607</sup> *1966 International Covenant on Civil and Political Rights* (ICCPR), 16 December 1966, New York, United States of America, 999 UNTS 171; 1057 UNTS 407; [1980] ATS 23; 6 ILM 368 (1967).

<sup>608</sup> *Nuclear Weapons* case, *supra* note 47 at para 25.

<sup>609</sup> ILC Study, *supra* note 219 at 56.

protection of the environment [...] indicates important environmental factors that are to be properly taken into account in the context of the implementation of the principles and rules of law applicable in armed conflict.”<sup>610</sup> While it does not trump a state’s right to self-defence, “[r]espect for the environment is one of the elements that go to assessing whether an action is in conformity with the principles of necessity and proportionality.”<sup>611</sup> The court’s opinion critically demonstrates that none of these bodies of law “enjoys intrinsic priority over the others”, rather “a justifiable decision would have to take all of these into account by articulating some systemic relationship between [the different bodies of law]”.<sup>612</sup> As the ILC aptly notes in its Fragmentation Study, “no rule, treaty or custom, however special its subject-matter or limited the number of States concerned by it, applies in a vacuum.”<sup>613</sup> Armed conflict represents an intersection between many areas of international law and, in particular, rules and customs of human rights law and the laws protecting the environment must play an important role in the application of IHL.

### 6.3 Assessing Real-Life Scenarios in Light of a Systemic Relationship between IEL and IHL

As discussed in chapter two, the environment enjoys protection in IHL both directly, from articles 35(3) and 55 of Additional Protocol I, as well as indirectly, under the many provisions for the protection of civilian objects in Additional Protocol I. Civilians also enjoy numerous protections from attack during armed conflict under Additional Protocol I. Many, if not all, of these protections for civilians, civilian objects and the environment are also found in customary international law. Despite these ample protections, there remain instances in conflicts where it is questionable whether the letter of the law is truly being adhered to. Such instances include, as described in chapter two, the NATO bombings in Kosovo and the use of depleted uranium weapons by Coalition

---

<sup>610</sup> *Nuclear Weapons* case, *supra* note 47 at para 33.

<sup>611</sup> *Nuclear Weapons* case, *ibid* at para 30.

<sup>612</sup> ILC Study, *supra* note 219 at 63.

<sup>613</sup> ILC Study, *ibid* at 64.

Forces in the 2003 Iraq War. This section will re-examine these examples under the specific environmental provisions of Additional Protocol I and, more importantly, under a proportionality assessment incorporating the IEL principles of intergenerational equity and precaution.

### 6.3.1 NATO bombings in Kosovo

Under Articles 35(3) and 55 of Additional Protocol I, the threshold is set by the phrase ‘widespread, long-term and severe damage’. Such damage to the environment is prevented under IHL. Scholars note that this is, in fact, a rather high threshold to meet since the terms are cumulative, that is, all three (widespread, long-term and severe) must be met.<sup>614</sup> In fact, Hulme goes so far as to state that “the [widespread, long-term and severe] threshold of harm is so high in practice that it would seem to make little difference.”<sup>615</sup> Indeed, it appears that “negotiators assumed that, in practice, these provision would ‘not impose any significant limitation on combatants waging conventional warfare’.”<sup>616</sup>

In considering whether the use of cluster munitions by NATO in Kosovo meets the ‘widespread, long-term and severe’ threshold, considerations of principles of IEL do not have much relevance since it is not a balancing and weighing exercise, as seen with proportionality assessments, but rather a question of whether the threshold is met or not.<sup>617</sup> Working backwards through the threshold,<sup>618</sup> the definition for ‘severe’ entails

---

<sup>614</sup> See e.g. Hourcle, *supra* note 117 at 673; Dinstein, *supra* note 590 at 536; Bothe *et al.*, *supra* note 117 at 575; Hulme, “Environmental protection”, *supra* note 117 at 592.

<sup>615</sup> Hulme, “Environmental protection”, *ibid.*

<sup>616</sup> Bothe *et al.*, *supra* note 117 at 573.

<sup>617</sup> It must, however, be noted that in the ICRC Study on customary IHL the language of the precautionary principle is included in rule 44 (‘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 inclusion in a direct rule on the environment is controversial and the ICRC rule confusingly omits the ‘widespread, long-term and severe’ threshold found in both direct environmental Articles in Additional Protocol I. This controversial inclusion and seemingly glaring omission is, in the author’s opinion reason to doubt the validity of rule 44 in the ICRC Study. See further criticism of rule 44 in Hulme, “Environmental protection”, *supra* note 117 at 592-594.

<sup>618</sup> I have opted to work backwards through the threshold here so as to address ‘widespread’, which is the least well-defined of the three threshold terms, at the end of the analysis.

destruction or disturbance of the environment ‘in some large degree’, probably beyond the battlefield damage regularly caused in war”.<sup>619</sup> This rather vague characterization of the term ‘severe’ leaves plenty of room to argue that many actions or weapon systems would fall in to this category. Some additional guidance on interpretation can perhaps be gleaned from the understanding of the term in the ENMOD Convention, in which ‘severe’ is understood to involve “serious or significant disruption or harm to human life, natural and economic resources or other assets.”<sup>620</sup> While still broadly defined, this definition provides a bit more detail on which to base a determination. Given that land polluted by unexploded cluster munitions is rendered unusable until the ordnance has properly and safely been removed, in addition to the severe health risk posed by unexploded ordnance, cluster munitions clearly pose a severe risk of damage to the environment.

Next is the question of whether the damage caused by the use cluster munitions is long-term or long-lasting. While the term is interpreted under ENMOD to mean “lasting for a period of months, or approximately a season”,<sup>621</sup> indications are that, in Additional Protocol I, the drafters intended a stricter threshold for the term with a “scale of decades, twenty or thirty years as being a minimum”.<sup>622</sup> Cluster munitions could meet either threshold. Unexploded ordnance creates damage that lasts until it is safely removed and disposed of or, in the worst-case scenario, until someone unknowingly triggers it and is wounded or killed by the resulting explosion. Unexploded cluster munitions, therefore, have the potential to cause damage that poses a permanent threat.

There is no definition for the final threshold term, widespread. The definition of the same term in ENMOD suggests “encompassing an area on the scale of several hundred square kilometres”.<sup>623</sup> This could be the term upon which cluster munitions fail

---

<sup>619</sup> Hulme, “Environmental protection”, *ibid* at 594.

<sup>620</sup> Tarasofsky, *supra* note 583 at 45.

<sup>621</sup> Tarasofsky, *ibid*.

<sup>622</sup> Hulme, “Environmental protection”, *supra* note 117 at 594.

<sup>623</sup> Tarasofsky, *supra* note 583 at 45.

the threshold test for Articles 35(3) and 55 of Additional Protocol I. It depends on whether the damage is considered on the basis of a single attack with a small number of bombs or if damage is considered on the broader scale of an entire military campaign. Under the former, cluster munitions are unlikely to meet the threshold of widespread since the dispersal of bomblets generally covers an area of only 350 to 500 metres, with shrapnel travelling potentially a further 150 metres.<sup>624</sup> Even when considered in the context of an entire military campaign, there is still potential that cluster munitions would fail to meet this part of the threshold.

Turning to a more traditional proportionality assessment, it is useful to examine the use of cluster munitions by NATO in the specific case of the intended attack on the airport in Niš, Serbia. In this instance, evidently technical errors led to the bombs being dropped on the market and hospital in lieu of the airport. This fact will play a role in the assessment of scientific uncertainty under the precautionary principle.

A first concern with cluster munitions are their indiscriminacy. This raises a red flag, since weapons of an indiscriminate nature are prohibited under the principle of distinction in IHL as well as in Article 51(4) of Additional Protocol I. Articles 51(4)(b) and (c) state that indiscriminate attacks are “those which employ a method or means of combat which cannot be directed at a specific military objective; or [...] those which employ a method or means of combat the effects of which cannot be limited as required by this Protocol”.<sup>625</sup> Once released, the bomblets cannot distinguish between combatants and non-combatants, or between civilian objects and military objects, nor can the shrapnel released when the individual bomblets explode. Furthermore, the unexploded bomblets are also incapable of distinguishing between civilian and military. Instead, they remain waiting for whomever or whatever - man, woman, child, farm stock, or wildlife - will be the unfortunate one to trigger it. That the effects are also indiscriminate towards the environment must be noted, but is, arguably, slightly less relevant. In terms of indiscriminacy, there is no weapon system that can discriminate between military

---

<sup>624</sup> For example, see Wiebe & Peachey, *supra* note 108.

<sup>625</sup> Additional Protocol I, *supra* note 4 at Article 51(4)(b) and (c).

combatants or objects and the environment since the environment is present wherever a military object or combatants is located. As such, military necessity in terms of an assessment of discriminatory lessens the force of environmental protections. This is because any form of attack will be indiscriminate towards the environment, therefore, military necessity of being able to conduct operations necessitates indiscriminate action *vis à vis* the environment.

The next assessment is to examine the balancing of military necessity and humanity in the attack on the airport of Niš. This assessment demonstrates the true benefit and utility of incorporating principles of IEL into the decision-making process. The precautionary principle and the principle of intergenerational equity help provide greater definition to humanity protections for civilians and civilian objects, including the environment, in IHL. While the use of cluster munitions near population-dense areas was questioned at the time,<sup>626</sup> these principles provide a more a more clear and defined criteria by which to evaluate the choices of military actors. The attack occurred in close proximity to urban areas, and the airport - a dual use object with both civilian and military purposes – was targeted with a weapon that could not discriminate between the two. These two facts cause concern since the military necessity applies only to the attack on the military objective, the airport, while weighing against it is the indiscriminate nature of the weapon and the threat it poses to a civilian object, the airport, civilians lives in proximity to that object, and the environment. The threat has the potential to be both severe and long-lasting.

Furthermore, serious questions of scientific uncertainty are raised by the use of cluster munitions both in terms of their threats of harm to the environment as well as to human health. The scientific uncertainty arises with the failure rate of the bomblets because of the numbers which fail to explode on initial impact and remain unexploded ordnance. The general failure rate provided by officials is about 5%, though this varies, and in Kosovo failure rates see estimate from 8-12% or even as high as 20%.<sup>627</sup> Of

---

<sup>626</sup> See e.g. Wiebe, *supra* note 62. These concerns, criticisms, and allegations of violations of IHL were raised by international NGOs, scholars, and even the Russian Parliament (see Wiebe at 134).

<sup>627</sup> Wiebe, *ibid* at 111.

course, this is merely an average failure rate and “[t]o achieve that average rate of failure some dispensers will have failed totally, some will have had 50 per cent malfunctions, others 20 per cent and many will have had only one or two or no failed submunitions.”<sup>628</sup> What’s more, as McGrath notes, “it is the actual number of unexploded bomblets in a given situation that is of significance.”<sup>629</sup> Some of the most conservative estimates state that approximately a minimum of 234,123 submunitions fell during the Kosovo Conflict.<sup>630</sup> At a failure rate of 5%, that would still mean approximately 11,706 unexploded bomblets lay over the former Yugoslavia by the conflict’s end. After the conflict, clearance survey reports indicated that approximately 54% of the contaminated lands were agricultural.<sup>631</sup> Still, whether the agricultural lands of a community are covered by 500 or 50 unexploded bomblets will make little difference to the people who can no longer safely use those lands for their own food needs or as a source of income because they have no way of knowing how many unexploded bomblets cover their land or where exactly they lie.<sup>632</sup> Therefore, there is uncertainty with cluster munitions with regards to where they will land, where their submunitions will land, whether their submunitions will detonate on impact, or how many will be left behind as unexploded ordnance.

The unexploded ordnance left behind pose a particular long-term threat to both the environment and human health. As noted, they make the land on which they lay unusable, essentially polluting it to the point where it can no longer safely be used. They pose an ongoing health risk to the civilian population since they could still explode if triggered by being picked up, kicked, or jostled. This risk can span generations, depending on the resources available for safe disposal units and the time it takes to safely clear a contaminated area.

---

<sup>628</sup> Rae McGrath, “Cluster Bombs: The military effectiveness and impact on civilians of cluster munitions” (2000) at 7, available at: [http://www.landmineaction.org/resources/Cluster\\_Bombs\(1\).pdf](http://www.landmineaction.org/resources/Cluster_Bombs(1).pdf). [hereinafter McGrath]

<sup>629</sup> McGrath, *ibid.*

<sup>630</sup> Moyes, *supra* note 46 at 9.

<sup>631</sup> Moyes, *ibid* at 41.

<sup>632</sup> McGrath, *supra* note 628 at 7.

This demonstrates that cluster munitions, particular in populated areas, but even in agricultural rural areas, pose a significant threat to both civilians and civilian objects, including the environment. There is also significant scientific uncertainty surrounding where they will land and whether they will detonate or become unexploded ordnance. They also threaten to pose risks for long periods, possibly generations. These fulfill the guiding markers provided by the precautionary principle and doctrine of intergenerational equity, but the other side of the scale - military necessity - must also be considered.

As is often the case, states which use cluster munitions, including the U.S. and U.K. as prominent players in NATO's Kosovo operations, emphasize the military utility of the weapon. They claim that cluster munitions possess "exceptional effectiveness against specific types of targets".<sup>633</sup> In fact, Moyes suggests, the data indicates that the utility seems to be more "in the wide range of targets against which they could plausibly be deployed." In particular, they "were considered useful where vegetation cover obscured targets" which "suggests that cluster munitions were more a weapon of convenience than a specific tool for a specific job."<sup>634</sup> Furthermore, there was evidence from the use of cluster munitions during the 1991 Gulf War that soft ground was a major factor leading to failures to detonate, which makes the decision to "use [...] cluster bombs against concealed targets in forested areas, despite evidence that a common weakness of the weapon is an inability to penetrate overgrowth without a high percentage of malfunctions"<sup>635</sup> particularly confusing and raises questions about the thoroughness and, perhaps even good faith, put into the proportionality assessments for those operations. Finally the US Munitions Effects Assessment Team, who conducted an assessment in Kosovo in the immediate aftermath of the conflict, "found that of 744 'confirmed' NATO strikes, evidence could only be found of 58 successful strikes."<sup>636</sup>

---

<sup>633</sup> Moyes, *supra* note 46 at 25.

<sup>634</sup> Moyes, *ibid.*

<sup>635</sup> McGrath, *supra* note 628 at 49.

<sup>636</sup> McGrath, *ibid* at 48.

Another argument military officials raise in support of their continuing use of cluster munitions is that all weapons have failure rates.<sup>637</sup> Moyes provides three solid counterarguments to this assertion. First, he notes that the high number of bomblets “radically alters the probability of unexploded items being produced.”<sup>638</sup> An ordinary bomb will mean one unexploded item, while a single bomb containing 147 submunitions at a failure rate of 5%, means 7 unexploded ordnance. Second, with cluster munitions, the risk of civilian injury is increased because one large unexploded bomb is more noticeable and more easily avoided than many small unexploded and seemingly benign bomblets.<sup>639</sup> Finally, “[t]he failure rates of cluster munitions are likely to be higher than those of unitary munitions because the process of delivery involves more stages and at each of these stages failures can occur that result in unexploded ordnance.”<sup>640</sup>

Overall, it would seem that claims of the essential nature or military utility of cluster munitions are greatly over-exaggerated. Meanwhile, the threat to civilians and the environment is a real and substantial one. By applying the guidelines provided by the doctrine of intergenerational equity and the precautionary principle, it is clear that, whatever proportionality assessment was made in regard to this attack, it was inadequate.

### 6.3.2 Depleted Uranium Weapons in the 1991 Gulf War and the 2003 Iraq War

Applying the ‘widespread, long-term and severe’ threshold in Articles 35(3) and 55 of Additional Protocol I to depleted uranium weapons is more difficult than with cluster munitions because there is even greater uncertainty about the effects of the weapon on the environment. In terms of widespread damage, on impact a depleted uranium weapon produces an aerosolized toxic dust which can travel up to 400m from the impact site.<sup>641</sup> Contamination from initial deployment, as well as produced by the

---

<sup>637</sup> Moyes, *supra* note 46 at 37.

<sup>638</sup> Moyes, *ibid*.

<sup>639</sup> Moyes, *ibid*.

<sup>640</sup> Moyes, *ibid* at 38.

<sup>641</sup> McDonald, *supra* note 115 at 21.

decay of the metal over time where it lands, could potentially spread up to 6km<sup>642</sup> and risks leaching into not only the soil but the water table as well. Ultimately, as Wexler notes, “the widespread effects debate turns on the amount of [depleted uranium weapons] used in a given conflict and the ability of [depleted uranium] dust to travel through the air, water, and soil.”<sup>643</sup> Based on this evidence, it seems questionable that depleted uranium weapons would be able to meet the widespread part of the threshold.

The long-term aspect of the threshold is more easily met for depleted uranium weapons. Depleted uranium weapons can “take several hundred years to fully corrode into the environment” and as such present a risk or threat of long-term damage to the environment.<sup>644</sup>

Finally, the assessment of whether the damage will be ‘severe’ is also a somewhat problematic one in this context. The worst-case scenarios presented by some scientists of polluted soils, water, flora and fauna, as well as the risks of cancer and other health problems to humans would certainly qualify as severe,<sup>645</sup> but it is difficult to know how to weigh these when the scientific uncertainty is quite high. In such a case, the precautionary principle is useful: depleted uranium weapons do indeed represent a threat of severe damage because the degree of potential risk to health and the environment is so high and long-lasting that when erring on the side of caution we should assume the threat to be sufficiently severe so as to require precautionary measures. Ultimately, however, since the ‘widespread’ aspect of the threshold is still unmet, depleted uranium weapons would still fail the ‘widespread, long-term and severe’ threshold overall.

Turning to the proportionality assessment, once again it appears that it can provide greater protection for civilians and the environment than the specific

---

<sup>642</sup> Hulme, “Environmental protection”, *supra* note 117 at 598.

<sup>643</sup> Wexler, *supra* note 117 at 484.

<sup>644</sup> Wexler, *ibid.*

<sup>645</sup> See e.g. Wexler, *ibid* at 475-476; Hulme, “Environmental protection”, *supra* note 117 at 598; Fairlie, *supra* note 112; WHO, “Depleted uranium”, *supra* note 111; International Physicians for the Prevention of Nuclear War, “Depleted Uranium Weapons and Acute Post-War Health Effects: An IPPNW Assessment” (2001) available at: <http://ippnw.org/pdf/depleted-uranium-ippnw-assessment.pdf> [hereinafter IPPNW]

environmental provisions of IHL. Apart from the threats to the environment mentioned above posed by depleted uranium weapons there are significant potential threats to human health. If used near civilian populations, the risk of inhalation of the toxic dust from depleted uranium weapons may be high.<sup>646</sup> There is also risk to anyone who may attempt to salvage from contaminated vehicles or to children who may play in the vicinity of these discarded materials.<sup>647</sup> People risk exposure through the ingestions of foods grown in contaminated soil and by drinking water contaminated by corroding depleted uranium weapons leaching into the groundwater.<sup>648</sup> The health concerns include cancer, birth defects and potential neurological disorders and other symptoms associated with the so-called ‘Gulf War Syndrome’. This latter syndrome plagues many veterans who have been exposed to depleted uranium weapons in conflicts.<sup>649</sup>

These all amount to a serious threat to both the environment and human health. There is also, as previously noted, significant scientific uncertainty regarding the effects of depleted uranium weapons. Furthermore, there is “much disagreement among scientists as to the exact effects of depleted uranium”.<sup>650</sup> Proponents of depleted uranium weapons, such as Solis, rely on a report by the United Nations Environment Programme (UNEP) in 2000, which reported insignificant levels of depleted uranium at sites examined, as evidence that depleted uranium weapons are legal and in compliance with all IHL requirements.<sup>651</sup> What Solis, and others, fail to note is that, in that same report, UNEP repeatedly mentions the scientific uncertainties regarding depleted uranium weapons and urges precaution and precautionary measures – essentially, they invoke the precautionary principle.<sup>652</sup> The World Health Organization also indicates that contamination levels may rise over periods of years and, as such, sites must be monitored

---

<sup>646</sup> Wexler, *supra* note 117 at 470.

<sup>647</sup> Wexler, *ibid.*

<sup>648</sup> Wexler, *ibid.*

<sup>649</sup> See e.g. Wexler, *ibid* at 471; Fairlie, *supra* note 113 at 52-53; IPPNW, *supra* note 645; Hulme, “Environmental protection”, *supra* 117 at 598.

<sup>650</sup> Hulme, “Environmental protection”, *ibid.*

<sup>651</sup> UNEP, “Depleted Uranium in Kosovo: Post-Conflict Environmental Assessment” (2000) available at: <http://www.iaea.org/newscenter/features/du/finalreport.pdf>. Also, Solis, *supra* note 20 at 263.

<sup>652</sup> For example, see UNEP “Depleted Uranium in Kosovo”, *ibid* at 4,7,26.

over time and caution taken.<sup>653</sup> The uncertainty is perhaps greater with regards to depleted uranium weapons than with cluster munitions, but the threat is nonetheless very serious with the potential to be quite long-lasting. As such, according to the guiding markers set out within intergenerational equity and the precautionary principle, this would suggest that depleted uranium weapons should not be used.

Still, we must consider this finding in light of the military necessity arguments on the other side. One of the military benefits of depleted uranium is that it is “inexpensive and plentiful supplies are available.”<sup>654</sup> Wexler notes four further strategic benefits of depleted uranium weapons: they “extend a tank’s effective firing range,” they “allow better tank penetration than traditional tungsten rounds do,” they “set hard targets on fire,” and “[depleted uranium] armored tanks are more difficult to penetrate than unarmored tanks.”<sup>655</sup> Indeed, one of the most often cited benefits is that the high density of depleted uranium makes it good at penetrating armored vehicles<sup>656</sup> and, one would assume, at preventing armored vehicles from being penetrated. There are, however, alternative weapons capable of providing the same results without the radioactivity of depleted uranium, such as tungsten, as Wexler notes, however, it is not as effective as depleted uranium.<sup>657</sup> This would seem to also be scientifically uncertain, as the U.K.-based International Coalition to Ban Uranium Weapons notes a British government study which found “a tungsten round combined with a German smoothbore barrel more effective than the current CHARM3 [depleted uranium] round”.<sup>658</sup> A potentially, somewhat less effective weapon may be required to strike the necessary balance between military necessity and humanity. Still, the risks of the potential alternatives must also be

---

<sup>653</sup> WHO, “Depleted uranium”, *supra* note 111 at 3.

<sup>654</sup> Fairlie, *supra* note 113 at 45.

<sup>655</sup> Wexler, *supra* note 63 at 468.

<sup>656</sup> See e.g. WHO, “Depleted uranium”, *supra* note 111 at 3; IPPNW, *supra* note 645 at 1; Hulme, “Environmental protection”, *supra* note 117 at 597-98; Michael Bothe, “The Protection of the Civilian Population and NATO Bombing on Yugoslavia: Comments on a Report to the Prosecutor of the ICTY” (2001) 12 EJIL 531 at 533. [hereinafter Bothe]

<sup>657</sup> Wexler, *supra* note 117 at 468.

<sup>658</sup> International Coalition to Ban Uranium Weapons, “CADU challenges flawed UK legal review of depleted uranium munitions” (13 July 2012) available at: <http://www.bandepleteduranium.org/en/cadu-challenges-flawed-uk-legal-review-of-du-munit>.

considered. Therefore, it must also be noted that tungsten itself, as a heavy metal, may, over time, present similar risks as depleted uranium weapons when it comes to water and food resources.<sup>659</sup> Either way, these weapons mandate further research to better evaluate the risks they pose to people and the environment. As for the outcome of the proportionality assessment, since both weapons pose uncertain risks, ideally they should both be banned until their risks are better understood. However given that military necessity is also a weighty consideration, the tungsten rounds, which seem to pose ever so slightly less health risks, would be preferable to depleted uranium.

## 6.4 Conclusion

Ultimately, it would seem that the traditional proportionality assessment applied in light of the relevant guiding principles of intergenerational equity and precaution provides a clearer guideline for evaluating military decision-making in armed conflict. The rigid and extremely high ‘widespread, long-term and severe’ threshold in the specific environmental provisions of Additional Protocol I makes them less sensitive to realities of environmental harms. There will always be a balancing of conflicting interests in armed conflict. Military necessity and humanity will forever be locked in a tug-of-war, but the intended protections are likely to be better respected if more clarity is provided in the considerations which must be evaluated in military decision-making. Providing guidelines such as protecting the planet from intergenerational harms and taking precautions to avoid irreversible damage even in the face of scientific uncertainty will allow individuals, civilians, NGOs, and other States to better understand, evaluate, and, if necessary, challenge the decision-making of armed forces in conflict.

---

<sup>659</sup> Wexler, *supra* note 117 at 499.

## Chapter 7

### 7 Conclusion

This final chapter restates the research problem and summarizes the findings and approach proposed in the thesis. It also discusses some limitations of the work and suggests areas for further research.

This thesis set out to propose a way of improving the application of existing protections in IHL for civilians and the environment so that the intent and purpose of the formal protections will be better realized in practice. It identified a gap between theory and practice, that is, between the extensive formal protections for civilians and the environment in armed conflict and the realities in practice of harm and damage suffered by civilians and the environment during conflicts, often with ongoing and lasting effects after the conflict has ended.

These formal protections in IHL were examined in chapter one, where it was shown that the protection of civilians during armed conflict has a long history stretching back to the 19<sup>th</sup> century. This history of IHL also includes the long-established restrictions on the methods and means of warfare available to combatants. It is firmly entrenched that the right to wage war is not unlimited, but rather carefully restricted. As environmental awareness grew in the 20<sup>th</sup> century, IHL began to incorporate specific protections for the environment during conflict, though it is important to note that the environment also enjoys protection indirectly as a civilian object and therefore is also protected by requirements of proportionality. IHL is governed chiefly by efforts to balance military necessity and humanity, but the 1999 bombings in Kosovo by NATO and the use of depleted uranium weapons in Iraq in the 1990s raise questions about whether the values of humanity are receiving their due regard in proportionality assessments by military decision-makers.

Chapter two provided a thorough examination of general principles of international law. It demonstrated that these principles are particularly useful in filling gaps in international law; in unifying different areas of international law, like IHL and

IEL; in helping to develop international law, just as the last decades have seen the increasing development of a more environmentally conscious international community; and in interpreting existing international law. This chapter helps to frame the later discussion in chapter six, in which general principles of law are used to interlink IHL and the principles of IEL in order to achieve the intended protections for civilians and the environment in armed conflict.

Chapters four and five turned to consideration of IEL. They examined the links between IEL and sustainable development, a concept that is also clearly linked to armed conflict. These chapters focused primarily on the two principles of international law I proposed employing to guide proportionality assessments under IHL: intergenerational equity and the precautionary principle. Together, these principles raise awareness about the importance of considering not only short-term but long-term consequences of our decisions. The current world already faces problems caused by past generations who failed to consider the long-term consequences of their choices, such as climate change, ozone depletion, acid rain, deforestation and the extinction of species. While there may be scientific uncertainty at times as to the exact nature or degree of harm that might be realized, if actions are taken without adequate regard to the consequences, it may be too late to undo the damage. For example, the environment and people of Vietnam continue, even four decades after the Vietnam War, to suffer the effects of chemical defoliants used.<sup>660</sup> The dictates of military necessity would have to be exceptionally high to find this type of action acceptable in light of modern values of humanity and the environment.

Chapter six takes these principles of IEL and looks at the application of IEL in armed conflicts. While traditional approaches to IHL saw it as displacing all other international law as *lex specialis*, it is clear that modern approaches no longer accept this assertion. In particular, the ICJ's *Nuclear Weapons* advisory opinion demonstrates that,

---

<sup>660</sup> See, for example, A Schechter *et al.*, "Agent Orange and the Vietnamese: the persistence of elevated dioxin levels in human tissues" 85 *American J Public Health* 4 (1995) 516; Akira Shiozaki *et al.*, "Contamination Status of Dioxins in Sediments from Saigon River Estuary, Vietnam" in Y Obayashi, T Isobe, A Subramanian, S Suzuki and S Tanabe, eds, *Interdisciplinary Studies on Environmental Chemistry — Environmental Research in Asia*, vol 2(Tokyo:Terrapub, 2009) 31, available at: <http://www.terrapub.co.jp/onlineproceedings/ec/02/pdf/ERA4.pdf>.

during armed conflict, the rules and customs of IHL do not operate to the exclusion of all others. Instead, other areas of law, such as human rights and IEL, continue to operate and provide guidance in the application and interpretation of IHL. As such, there is no reason not to use intergenerational equity and the precautionary principle to guide decision-makers' analyses of proportionality for a proposed attack.

The second half of chapter six, therefore, took existing IHL and applied it to the Kosovo cluster munitions and Iraq depleted uranium examples using the principles of IEL to guide this application. The markers of long-term thinking, serious harm and scientific uncertainty provide greater detail and understanding of the considerations of humanity being balanced against military necessity. Furthermore, they provide greater clarity against which to evaluate the decisions of military actors to ensure they are adequately performing their obligations in conducting these assessments justly and not disregarding humanitarian considerations. The analysis suggests that a proportionality assessment, guided by principles of IEL, might actually provide greater protection for the environment and civilians than the specific provisions dedicated to environmental protection with their strict and high threshold.

While this thesis makes a strong case for using principles of IEL to guide proportionality assessments in IHL, there are some limitations to the research that must be acknowledged. An important limitation of this work is that it focuses on international armed conflicts as opposed to internal or non-international conflicts. The distinction between international and internal conflicts remains complicated and at times controversial. Furthermore, the content of customary law applying to internal armed conflicts is less clear and the conventional law less developed. Thus, restricting the approach of this thesis, for now, to international armed conflicts allows for a more straightforward analysis. However, it is postulated that similar benefits would arise by using IEL to provide content to the IHL governing non-international armed conflict.

A second limitation of this thesis is that it only considers two principles of IEL. These two principles were chosen because they consider both short-term and long-term harms as well as scientific uncertainty. These considerations are important when dealing

with the environment and human health, but they are also highly relevant in armed conflicts, particularly with regards the types of weapons used. However, there are potentially other principles of IEL that would be equally applicable. For example, sustainable development was discussed briefly in this thesis, but a more in-depth look at its links with armed conflict and the environment could provide insight on further means of improving protections for civilians and the environment in wartime. The “polluter pays” principle which places the burden of remediating polluted areas should be assumed by the person responsible for causing the pollution also has the potential to be useful in redressing situations of harms from past conflicts. Similarly, there are also other areas of international law that may provide principles that could prove useful in IHL and in the protection of the environment. The strong links between human rights, the environment and armed conflict have already been noted and emerging human rights to development and a healthy environment could influence decision-making in armed conflicts.

A final limitation is that this thesis does not delve in to the issue of implementing the proposed approach within the international community. It develops the justification for the approach and applies it to real examples, taking this as a natural ending point and leaving for future research the political, legal and civil society issues that would likely have to be faced in order to see the approach fully implemented and realized in practice.

Other areas for future research include extending considerations of the operation of these laws and principles to non-state actors who increasingly take on greater roles, both directly and indirectly, in armed conflicts: for instance, the increasing use of private military companies and the role of arms manufacturers. Exploring the extension of protections for the environment in internal armed conflicts is also an important avenue to pursue. Future research might also examine the means of reconciling principles of sustainability and sustainable development with the inherently destructive nature of armed conflict.

In sum, military necessity in recent conflicts has appeared to be taking precedence over concerns for the protection of civilians and the environment. The approach proposed in this thesis has the potential to regain the proper balance between military necessity and

humanitarian concerns. It has the potential to save lives and preserve the planet for generations to come. Ultimately, it has the power to restore humanity to humanitarian law.

## Bibliography

### LEGISLATION

*1966 International Covenant on Civil and Political Rights (ICCPR)*, 16 December 1966, New York, United States of America, 999 UNTS 171;1057 UNTS 407; [1980] ATS 23; 6 ILM 368 (1967).

*1977 Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (ENMOD)*, adopted by the UN General Assembly, Res 31/72, 10 December 1976.

*1982 Regional Convention for the Conservation of the Red Sea and Gulf of Aden (Jeddah Convention)*, 14 February 1982, available at: <http://www.unep.ch/regionalseas/main/persga/convtext.html>.

*1983 Convention for the Protection, Management and Development of the Marine Environment of the Wider Caribbean Region Concerning Co-operation in Combating Oil-Spills in the Wider Caribbean Region (Cartagena Convention)* available at: <http://www.cep.unep.org/pubs/legislation/cartxt.html>.

*1985 Agreement on the Conservation of Nature and Natural Resources (ASEAN Convention)*, 9 July 1985, available at: ECOLEX <http://www.ecolex.org>.

*1985 Vienna Convention for the Protection of the Ozone Layer*, 22 March 1985, Vienna, Austria, 1513 UNTS 293 / [1988] ATS 26 / 26 ILM 1529 (1987).

*1988 Convention on the Regulation of Antarctic Mineral Resource Activities (CRAMRA)*, 6 February 1988, 27 ILM 868.

*1995 Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities*, 3 November 1995, UNEP (OCA)LBA/IG.2/7, available at: [http://coralreef.noaa.gov/threats/pollution/resources/unep\\_lbsp\\_prgrm.pdf](http://coralreef.noaa.gov/threats/pollution/resources/unep_lbsp_prgrm.pdf).

*1996 FAO "Precautionary approach to capture fisheries and species introductions", FAO Technical Guidelines for Responsible Fisheries 2*, available at: <http://www.fao.org/docrep/003/w3592e/w3592e00.htm>.

*2001 International Convention on the Control of Harmful Anti-fouling Systems on Ships*, 5 October 2001, London, United Kingdom, [2008] ATS 15 / AFS/CONF/26.

*2002 ASEAN Agreement on Transboundary Haze Pollution*, 10 June 2002, Kuala Lumpur, Malaysia, available at: <http://cil.nus.edu.sg/2002/2002-asean->

agreement-on-transboundary-haze-pollution-signed-on-10-june-2002-in-kuala-lumpur-malaysia/.

*2004 International Convention for the Control and Management of Ships' Ballast Water and Sediments*, 13 February 2004, London, UK, IMO Doc BWM/CONF/36.

*African Convention on the Conservation of Nature and Natural Resources*, 15 September 1968, 1001 UNTS 3.

*Agenda 21: Programme of Action for Sustainable Development*, 14 June 1992, UN GAOR, 46th Sess, Agenda Item 21, UN Doc A/Conf.151/26 (1992), available at <http://www.un-documents.net/k-001962.htm>.

*Agreement on the Protection of the Meuse* (26 April 1994, Charleville Mezieres), 34 ILM (1995), 854.

*Agreement on the Protection of the Scheldt* (26 April 1994, Charleville Mezieres), 34 ILM (1995), 859.

*Bergen Ministerial Declaration on Sustainable Development in the Economic Commission for Europe Region*, 1990, UN Doc A/CONF.151/PC/10.

*Canadian Criminal Code*, RSC 1985, c C-46.

*Cartagena Protocol on Biosafety to the Convention on Biological Diversity* (Cartagena Protocol), 28 January 2000, 2226 UNTS 208; 39 ILM 1027 (2000); UN Doc. UNEP/CBD/ExCOP/1/3

*Convention on Biological Diversity*, 5 June 1992, 1760 UNTS 79, Can TS 1993 No 24.

*Convention on Cluster Munitions*, 30 May 2008, CCM/77, available at: <http://www.clusterconvention.org/files/2011/01/Convention-ENG.pdf>.

*Convention Concerning the Protection of the World Cultural Property and Natural Heritage*, 16 November 1972, BTS 1985 No 2, Can TS 1976 No 45.

*Convention on Co-operation for the Protection and Sustainable Use of the Danube River* (Sofia Convention) (29 June 1994, Sofia), International Environment Reporter, 35: 251.

*Convention on Conservation of Nature in the South Pacific*, 12 June 1976, available at: ECOLEX <<http://www.ecolex.org>>

*Convention on the Conservation of Migratory Species of Wild Animals*, 23 June 1979, 1651 UNTS 333, 19 ILM 15.

*Convention on International Trade in Endangered Species of Wild Fauna and Flora*, 3 March 1973, 993 UNTS 243, 12 ILM 1085.

- Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction* (Biological Weapons Convention), 10 April 1972, 1015 UNTS 163; 11 ILM 309 (1972).
- Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* (Chemical Weapons Convention), 3 September 1992, 1974 UNTS 45; 32 ILM 800 (1993).
- 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*, Geneva, 10 October 1980, reprinted in Schindler, D and J Toman, eds, *The Laws of Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents* (Boston: Martinus Nijhoff Publishers, 2004) 179-184.
- Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction*, 18 September 1997, reprinted in *IRRC*, No 320, September-October 1997, pp. 563-578.
- Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992* (Helsinki Convention), 9 April 1992, 507 UNTS 167; 1994 OJ (L 73) 20; 13 ILM 546 (1974).
- Convention for the Protection of the Marine Environment of the North-East Atlantic* (OSPAR Convention), 22 October 1992, 2354 UNTS 67; 32 ILM 1069 (1993), available at: [http://www.ospar.org/html\\_documents/ospar/html/ospar\\_convention\\_e\\_updated\\_text\\_2007.pdf](http://www.ospar.org/html_documents/ospar/html/ospar_convention_e_updated_text_2007.pdf).
- Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region* (Nairobi Convention), 21 June 1985, available at: ECOLEX <http://www.ecolex.org>.
- Convention on the Protection of the Rhine* (Rotterdam Convention), (22 January 1998, Rotterdam), 1404 UNTS 59.
- Convention on the Protection and Use of Transboundary Watercourses and International Lakes*, 17 March 1992 available at: <http://www.unece.org/fileadmin/DAM/env/water/pdf/watercon.pdf>.
- Convention on the Rights of the Child*, A res. 44/25, annex, 44 UN GAOR Supp. (No. 49) at 167, U.N. Doc. A/44/49 (1989); 1577 UNTS 3; 28 ILM 1456 (1989).
- Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land*. The Hague, 29 July 1899 reprinted in Schindler, D and J Toman, eds, *The Laws of*

*Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents* (Boston: Martinus Nijhoff Publishers, 2004) 69-93.

*Convention (IV) Respecting the Laws and Customs of War on Land and its Annex: Regulation concerning the Laws and Customs of War on Land*, 18 October, 1907, 187 CTS 227; 1 Bevens 631.

*Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight*. Saint Petersburg, 29 November / 11 December 1868 reprinted in Schindler, D and J Toman, eds, *The Laws of Armed Conflicts* (Boston: Martinus Nijhoff Publisher, 1988) 102.

*Declaration of the United Nations Conference on the Human Environment*, UNEP/OC, June 16, 1972, UN Doc A/CONE48/14/Rev.1 (1973), reprinted in 11 ILM 1416, (1972).

*Framework Convention for the Protection of the Marine Environment of the Caspian Sea* (Tehran Convention) 4 November 2003, 44 ILM 1 (2005).

*Geneva Convention Relative to the Protection of Civilian Persons in Time of War* (Fourth Geneva Convention), 12 August 1949, 75 UNTS 287, available at: <http://www.icrc.org/ihl.nsf/INTRO/380>.

*Guiding Principles for the prevention, introduction and mitigation of impacts of alien species that threaten ecosystems, habitats or species* (annexed to Decision VI/23 adopted by the Conference of the Parties to the CBD, The Hague, April 2002).

*International Covenant on Economic, Social and Cultural Rights*, GA res. 2200A (XXI), 21 UN GAOR Supp. (No. 16) at 49, UN Doc. A/6316 (1966); 993 UNTS 3; 6 ILM 368 (1967).

*International Protocol for the Regulation of Whaling*, 2 December 1946, 161 UNTS 72, 62 Stat 1716, Can TS 1946 No 54.

*Kuwait Regional Convention for Cooperation on the Protection of the Marine Environment from Pollution*, 4 April 1978, 17 ILM 511.

*Montreal Protocol on Substances that Deplete the Ozone Layer* (Montreal Protocol), 16 September 1987, 1522 UNTS 3; 26 ILM 1550 (1987).

*Programme for Further Implementation of Agenda 21*, 19 September 1997, UN General Assembly A/RES/S-19/2, available at: <http://www.un.org/documents/ga/res/spec/aress19-2.htm>

- Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts*, June 8, 1977, 1125 UNTS 3.
- Protocol on Environmental Protection to the Antarctic Treaty*, 10 April 1991, 30 ILM 1455 (1991).
- Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous, or Other Gases, and of Bacteriological Methods of Warfare*, June 17, 1925, 26 UST 571, 94 LNTS 65.
- Protocol on Prohibitions or Restrictions on the use of Incendiary Weapons (Protocol III)*, 10 October 1980, 1342 UNTS 171, 19 ILM at 1534.
- Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices as amended on 3 May 1996 (Protocol II to the 1980 Convention as amended on 3 May 1996)* United Nations CCW/CONF.I/ 16.
- Resolution XXIII " Human Rights in Armed Conflicts "* adopted by the International Conference on Human Rights, Tehran, 12 May 1968, preamble, available at: <http://www1.umn.edu/humanrts/instreet/1968a.htm>.
- Rio Declaration on Environment and Development*, 12 August 1992, A/CONF.151/26 (Vol. I), available at: <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.
- Rome Statute of the International Criminal Court*, UN Doc A/CONF.183/9\*.
- Second International Conference on the Protection of the North Sea, Ministerial Declaration*, London, Nov. 1987, available at: <http://www.seas-at-risk.org/images/1987%20London%20Declaration.pdf>.
- Science and Environmental Health Network, *The Wingspread Consensus Statement on the Precautionary Principle*, (1998) available at: <http://www.sehn.org/state.html>.
- Statute of the International Court of Justice*, June 26, 1945, 59 Stat 1055, 33 UNTS 993.
- United Nations Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (Straddling Fish Stocks Agreement)*, 4 August 1995, 34 ILM 1542 (1995); 2167 UNTS 88.
- United Nations 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*, 13 October 1995, United Nations CCW/CONF.I/7.

*United Nations Declaration on the Right to Development*, 4 December 1986, A/RES/41/128.

*United Nations Declaration on the Rights of Indigenous Peoples*, 2 October 2007, UN Gen Ass Res, A/RES/61/295.

*United Nations Framework Convention on Climate Change* (UNFCCC), 1771 UNTS 107; S Treaty Doc No. 102-38; U.N. Doc. A/AC.237/18 (Part II)/Add.1; 31 ILM 849 (1992).

UN General Assembly, *World Charter for Nature*, 28 October 1982, A/RES/37/7, available at: <http://www.refworld.org/docid/3b00f22a10.html>,

US War Department, General Orders 100: Instructions for the Government of Armies of the United States in the Field (1863) [*Lieber Code*], reprinted in Schindler, D and J Toman, eds, *The Laws of Armed Conflict: A Collection of Conventions, Resolutions, and Other Documents* (Boston: Martinus Nijhoff Publishers, 2004) 3–23.

*Vienna Convention on the Law of Treaties*, 23 May 1969, United Nations, Treaty Series, vol. 1155, p. 331 available online at <http://www.refworld.org/cgi-bin/texis/vtx/rwmain?docid=3ae6b3a10>.

*Vienna Declaration and Programme of Action*, 12 July 1993, A/CONF.157/23 available at: <http://www.refworld.org/cgi-bin/texis/vtx/rwmain?docid=3ae6b39ec>.

## JURISPRUDENCE

*Canada Ltée (Spraytech, Société d'arrosage) v Hudson (Town)*, [2001] 2 SCR 241.

International Court of Justice, Advisory Opinion, *Legality of the Threat or Use of Nuclear Weapons*, UN document A/51/218.

International Court of Justice, *Asylum Case (Colom v Peru)*, 1950 ICJ 266, 369 (March 3).

International Court of Justice, *Case concerning the Gabčíkovo-Nagymaros Project (Hungary v. Slovakia)*, *Judgement*, 25 September 1997, ICJ Reports 1997 available online at <http://www.icj-cij.org/docket/files/92/7383.pdf>.

International Court of Justice, *Continental Shelf (Tunisia/ Libyan Arab Jamahiriya)* Judgment, ICJ Reports 1982, 18, available at: <http://www.icj-cij.org/docket/files/63/6267.pdf>.

International Court of Justice, *Corfu Channel Case (United Kingdom v Albania)*; *Merits*, 9 April 1949, available at: <http://www.refworld.org/docid/402399e62.html>.

International Court of Justice, *North Sea Continental Shelf cases (Federal Republic of Germany v Denmark; Federal Republic of Germany v Netherlands)*, ICJ Reports 1969, p 3, 20 February 1969, available at: <http://www.refworld.org/docid/50645e9d2.html>.

International Court of Justice, *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Provisional Measures, Order of 13 July 2006, ICJ Reports 2006, 113.

International Court of Justice, *Request for an Examination of the Situation in Accordance with Para 63 of the Court's Judgement of 20 December 1974 in the Nuclear Tests Case (New Zealand v. France)*, Order of 22 September 1995, [1995] ICJ Rep 288.

International Court of Justice, *Right of Passage Over Indian Territory (Port. v. India)*, 1960 ICJ 6 (Apr 12).

International Court of Justice, *South-West Africa Cases (Ethiopia v South Africa; Liberia v South Africa)*; Second Phase, 18 July 1966, available at: <http://www.refworld.org/docid/4023a9414.html>.

Judgment of June 30, 1993 (*Juan Antonio Oposa, et al. v. the Honorable Fulgencio Factoran, Jr., Secretary of the Department of the Environment and Natural Resources et al.*), Supreme Court of the Philippines, G.R. No. 101083 (Phil.) available at: [http://www.lawphil.net/judjuris/juri1993/jul1993/gr\\_101083\\_1993.html](http://www.lawphil.net/judjuris/juri1993/jul1993/gr_101083_1993.html).

*People United Respecting the Environment and Rights Action Group v Environmental Management Authority, Alutrint Limited and the Attorney General of Trinidad and Tobago*, CV 2007-02263.

Permanent Court of Arbitration, *Iron Rhine Railway (Belgium v Netherlands)* (2005) 27 RIAA 35, para 58, available at: [http://www.pca-cpa.org/showpage.asp?pag\\_id=1155](http://www.pca-cpa.org/showpage.asp?pag_id=1155).

Permanent Court of International Justice, *Diversion of Water from Meuse (Neth v Belg)*, 1937 PCIJ (ser A/B) No 70 (June 28) available online at [http://www.worldcourts.com/pcij/eng/decisions/1937.06.28\\_meuse.htm](http://www.worldcourts.com/pcij/eng/decisions/1937.06.28_meuse.htm).

*Prosecutor v Furundzija (Trial Judgement)*, IT-95-17/1-T, International Criminal Tribunal for the former Yugoslavia (ICTY), 10 December 1998, available at: <http://www.refworld.org/docid/40276a8a4.html>.

*Prosecutor v Kupreskic et al (Trial Judgement)*, IT-95-16-T, International Criminal Tribunal for the former Yugoslavia (ICTY), 14 January 2000, available at <http://www.refworld.org/docid/40276c634.html>.

*Rodgers Muema Nzioka and 2 Others v Tiomin Kenya Ltd* (Civil Case No 97 of 2001) [2001] KEHC 3.

Seabed Disputes Chamber of the International Trib. for the Law of the Sea, *Responsibilities and Obligations of States Sponsoring Persons and Entities with Respect to Activities in the Area*, Advisory Opinion, 1 February 2011, at para 135, available at: [http://www.itlos.org/fileadmin/itlos/documents/cases/case\\_no\\_17/Adv\\_Op\\_010211\\_eng.pdf](http://www.itlos.org/fileadmin/itlos/documents/cases/case_no_17/Adv_Op_010211_eng.pdf).

*Ms Shela Zia and others v WAPDA PLD*, 1994 SC 693 (Pakistani Supreme Court).

*Telstra Corporation Limited v Horsnby Shire Council*, [2006] NSWLEC 133.

*Vellore Citizens Welfare Forum v Union of India*, Writ Petition (C) No 914 of 1991.

World Trade Organization, *EC Measures Concerning Meat and Meat Products (Hormones) (Canada and United States v European Community)*, 16 January 1998, AB-1997-4, WTO Doc WT/DS26/AB/R and WT/DS48/AB/R.

## SECONDARY MATERIALS: MONOGRAPHS

Alston, P, R Goodman and H Steiner, eds, *International Human Rights in Context*, 3d, (Oxford: Oxford University Press, 2008).

Anghie, Antony. *Imperialism, Sovereignty and the Making of International Law* (Cambridge: Cambridge University Press, 2004).

Balint, Peter J, Ronald E Stewart, Anand Desai and Lawrence C Walters, eds, *Wicked Environmental Problems: Managing Uncertainty and Conflict* (Washington, DC: Island Press, 2011).

Beyerlin, Ulrich. "Different Types of Norms in International Environmental Law: Policies, Principles, and Rules" in Bodansky, Daniel and Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 425.

Birnie, Patricia W, Alan Boyle, and Catherine Redgwell, eds, *International law and the environment*, 3d (Oxford; New York: Oxford University Press, 2009).

Boas, Gideon. *Public International Law: Contemporary Principles and Practices* (Cheltenham, UK: Edward Elgar Publishing Limited, 2012).

- Bodansky, Daniel, Jutta Brunnée, & Ellen Hey. "International Environmental Law: Mapping the Field" in Bodansky, Daniel, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 1.
- Boehmer-Christiansen, Sonja. "The Precautionary Principle in Germany – enabling Government" in Timothy O’Riordan & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994) 31.
- Boyle, Alan. "Relationship between International Environmental Law and Other Branches of International Law" in in Bodansky, Daniel, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 125.
- Boyle, Alan. "Soft Law in International Law-Making" in Evans, Malcolm D, ed, *International Law*, 2d (Oxford: Oxford University Press, 2006) 141.
- Boyle, Alan and David Freestone. "Introduction" in Boyle, Alan and David Freestone, eds, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 2001) 1.
- Brownlie, Ian. *Principle of Public International Law*, 7d (Oxford: Oxford University Press, 2008).
- Cameron, James. "The Status of the Precautionary Principle in International Law" in Timothy O’Riordan & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994) 262
- Cameron, James. "The precautionary principle: Core meaning, constitutional framework and procedures for implementation" in Ronnie Harding and Elizabeth Fisher, eds, *Perspectives on the Precautionary Principle* (Sydney: The Federation Press, 1999) 29.
- Cameron, Maxwell A, Brian W Tomlin, and Bob Lawson, eds, *To Walk Without Fear: The Global Movement to Ban Landmines* (Oxford: Oxford University Press, 1998).
- Cassese, Antonio. *International Law*, 2d (Oxford, UK: Oxford University Press, 2005).
- Das, Onita. "The Impact of Armed Conflict on Sustainable Development: A Holistic Approach" in Quénivet, Noëlle & Shilan Shah-Davis, eds, *International Law and Armed Conflict: Challenges in the 21<sup>st</sup> Century* (The Hague: TMC Asser Press, 2010) 123.
- Donnelly, Jack. "International Human Rights: Universal, Relative or Relatively Universal?" in Baderin, Mashood A and Manisuli Ssenyonjo, eds, *International Human Rights Law Six Decades after the UDHR and Beyond* (Farnham, UK: Ashgate Publishing Limited, 2010) 31.

- Dovers, Stephen. "Precautionary policy assessment for sustainability" in Elizabeth Fisher, Judith Jones and René von Schomberg, eds, *Implementing the Precautionary Principle: Perspectives and Prospects* (Cheltenham, UK: Edward Elgar Publishing, 2006) 88.
- Dupuy, Pierre-Marie. "Formation of Customary International Law and General Principles" in Bodansky, Daniel, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 449.
- Ellis, Jaye. "Sustainable Development and Fragmentation in International Society" in French, Duncan, ed, *Global Justice and Sustainable Development* (Leiden & Boston: Martinus Nijhoff Publishers, 2010) 57.
- Ellis, Jaye. "Sustainable Development as a Legal Principle: A Rhetorical Analysis" in Ruiz Fabri, Hélène, Rüdiger Wolfrum and Jana Gogolin, eds, *Select Proceedings of the European Society of International Law*, vol 2 2008 (Oxford & Portland, Oregon: Hart Publishing, 2010) 641.
- Ellis, Jaye & Stepan Wood. "International Environmental Law" in Richardson, Benjamin J & Stepan Wood, eds, *Environmental Law for Sustainability* (Oxford & Portland, Oregon: Hart Publishing, 2006) 343.
- Falk, Richard A. *Revitalizing International Law* (Ames: Iowa State University Press, 1989).
- Fisher, Elizabeth. "Risk and Environmental Law: A Beginner's Guide" in Benjamin J Richardson & Stepan Wood, eds, *Environmental Law for Sustainability* (Portland: Hart Publishing, 2006) 97.
- French, Duncan. "Sustainable Development and the Instinctive Imperative of Justice in the Global Order" in French, Duncan, ed, *Global Justice and Sustainable Development* (Leiden & Boston: Martinus Nijhoff Publishers, 2010) 3.
- French, Duncan. "Sustainable development" in Fitzmaurice, Malgosia, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 51.
- Gillespie, Alexander. "An introduction to ethical considerations in international environmental law" in Fitzmaurice, Malgosia, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 117.
- Greenwood, Christopher. "The Law of War (International Humanitarian Law)" in Malcolm D Evans, ed, *International Law*, 2d, (Oxford: Oxford University Press, 2006) 783.

- Henckaerts, Jean-Marie and Louise Doswald-Beck, *Customary Humanitarian Law Vol I: Rules* (Cambridge: ICRC and Cambridge University Press, 2009) available at: <<http://www.icrc.org/customary-ihl/eng/docs>>.
- Hulme, Karen. "A Darker Shade of Green: Is it Time to Ecocentrise the Laws of War?" in Quénivet, Noëlle and Shilan Shah-Davis, eds, *International Law and Armed Conflict Challenges in the 21<sup>st</sup> Century* (The Hague: TMC Asser Press, 2010) 142.
- Hulme, Karen. "Environmental protection in armed conflict" in Fitzmaurice, Malgosia, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 586.
- Kiss, Alexandre & Dinah Shelton. *International Environmental Law*, 2d (United States: Transnational Publishers, 2000).
- Lowe, Vaughan. "Sustainable Development and Unsustainable Arguments" in Boyle, Alan and David Freestone, eds, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 2001) 19.
- Magraw, Daniel Barstow & Lisa D Hawke. "Sustainable Development" in Bodansky, Daniel, Jutta Brunneé and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 613.
- Marks, Susan. *The Riddle of All Constitutions* (Oxford: Oxford University Press, 2000).
- Murphy, Sean D. *Principles of International Law*, 2d (St Paul MN: Thomson Reuters, 2012).
- Myers, Nancy J. "Precautionary Procedures: Tools of Analysis and Intention" in Nancy J Myers and Carolyn Raffensperger, eds, *Precautionary Tools for Reshaping Environmental Policy* (Cambridge, MA: MIT Press, 2006) 29.
- Olson, James and Randy Roberts, eds. *My Lai: A Brief History with Documents* (Boston: Bedford Books, 1998).
- O'Riordan, Timothy & James Cameron, eds. *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994).
- O'Riordan, Timothy & James Cameron. "The History and contemporary significance of the precautionary principle" in O'Riordan, Timothy & James Cameron, eds, *Interpreting the Precautionary Principle* (London: Earthscan Publications Ltd, 1994).
- Ploman, Edward W. "Foreword" in Edith Brown Weiss, *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (Dobbs Ferry, New York: Transnational Publishers, Inc, 1989) xxvii.

- Prost, Mario. *The Concept of Unity in Public International Law* (Portland, OR: Hart Publishing, 2012).
- Pyhälä, Minna, Anne Christine Brusendorff and Hanna Paulomäki, “The precautionary principle” in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 203.
- Quijano, Romeo F. “Elements of the Precautionary Principle” in Joel A Tickner, ed, *Precaution, Environmental Science and Preventive Public Policy* (Washington, DC: Island Press, 2003) 21.
- Raffensperger, Carolyn & Joel Tickner. *Protecting Public Health and the Environment: Implementing the Precautionary Principle* (Washington, DC: Island Press, 1999).
- Ramlogan, Rajendra. *Sustainable Development: Towards a Judicial Interpretation* (Leiden & Boston: Martinus Nijhoff Publishers, 2011).
- De Sadeleer, Nicolas. *Environmental Principles: From Political Slogans to Legal Rules* (Oxford & New York: Oxford University Press, 2002).
- De Sadeleer, Nicolas. “The principles of prevention and precaution in international law: two heads of the same coin?” in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010).
- Sands, Philippe and Jacqueline Peel, with Adriana Fabra and Ruth MacKenzie, eds, *Principles of International Environmental Law*, 3d (Cambridge & New York: Cambridge University Press, 2012).
- Sands, Philippe. “Sustainable Development: Treaty, Custom, and the Cross-fertilization of International Law” in Boyle, Alan and David Freestone, eds, *International Law and Sustainable Development: Past Achievements and Future Challenges* (Oxford: Oxford University Press, 2001) 39.
- Schachter, Oscar. *International Law in Theory and Practice* (Dordrecht, Netherlands: Martinus Nijhoff Publishers, 1991).
- Shelton, Dinah. ‘Human rights and the environment: substantive rights’ in Malgosia Fitzmaurice, David M Ong and Panos Merkouris, eds, *Research Handbook on International Environmental Law* (Cheltenham, UK: Edward Elgar Publishing, 2010) 265.
- Sinclair, Ian McTaggart. *The Vienna Convention on the Law of Treaties*, (Manchester: Manchester University Press, 1984) 128.

- Solis, Gary D. *The Law of Armed Conflict: International Humanitarian Law in War* (New York: Cambridge University Press, 2010).
- Ssenyonjo, Manisuli. *Economic, Social and Cultural Rights in International Law* (Oxford and Portland, OR: Hart Publishing, 2009) 326.
- Tickner, Joel and David Kriebel. "The role of science and precaution in environmental and public health policy" in Elizabeth Fisher, Judith Jones and René von Schomberg, eds, *Implementing the Precautionary Principle: Perspectives and Prospects* (Cheltenham, UK: Edward Elgar Publishing, 2006) 42.
- Trouwborst, Arie. *Precautionary Rights and Duties of States* (Leiden: Martinus Nijhoff Publishers, 2006)
- Weiss, Edith Brown. *In Fairness to Future Generations: International Law, Common Patrimony, and Intergenerational Equity* (Dobbs Ferry, New York: Transnational Publishers, Inc, 1989).
- Weiss, Edith Brown. "Intergenerational equity: a legal framework for global environmental change" in Weiss, Edith Brown, ed, *Environmental change and international law: New challenges and dimensions*, (Tokyo: United Nations University Press, 1992).
- Westing, Arthur H. *Ecological Consequences of the Second Indochina War* (Atlantic Highlands, NJ: Almqvist & Wiksell International, 1976).
- Westra, Laura. *Environmental Justice and the Rights of Unborn and Future Generations* (London: Earthscan, 2006).
- Wiener, Jonathan B. "Precaution" in Daniel Bodansky, Jutta Brunnée and Ellen Hey, eds, *The Oxford Handbook of International Environmental Law* (Oxford: Oxford University Press, 2007) 597.
- World Commission on Environment and Development, *Our Common Future* [Brundtland report] (Oxford: Oxford University Press; 1987).
- Zander, Joakim. *The Application of the Precautionary Principle in Practice: Comparative Dimensions* (Cambridge: Cambridge University Press, 2010).

## SECONDARY MATERIALS: ARTICLES

- Allen, Ted. "The Philippine Children's Case: Recognizing Legal Standing for Future Generations" (1993-1994) 6 *Geo Int'l Env'tl L Rev* 713.
- Amnesty International, "Armed Conflict", available at <http://www.amnesty.org/en/armed-conflict>.

- Amnesty International. “‘Collateral Damage’ or Unlawful Killings? Violations of the Laws of War by NATO During Operation Allied Force” (2000), available at: <<http://www.amnesty.org/en/library/info/EUR70/018/2000>>.
- Bassiouni, M Cherif. “A Functional Approach to “General Principles of International Law” (1989-1990) 11 Mich J Int’l L 768.
- Betsy, Jose-Thota. “The fog of protection: Contested meanings and deliberate civilian deaths during armed conflict” (PhD Dissertation; University of Pittsburgh, 2011) [Accessible on ProQuest].
- Bleise, A, PR Danesi, and W Burkart. “Properties, use and health effects of depleted uranium (DU): a general overview” (2003) 64 J Envt’l Radioactivity 93.
- Bothe, Michael. “The Protection of the Civilian Population and NATO Bombing on Yugoslavia: Comments on a Report to the Prosecutor of the ICTY” (2001) 12 EJIL 531.
- Bothe, Michael Carl Bruch, Jordan Diamond, and David Jensen. “International law protecting the environment during armed conflict: gaps and opportunities” (2010) 92: 879 Intl R Red Cross 569.
- Busby, Chris. “The Health Effects of Exposure to Uranium and Uranium Weapons Fallout” (2010) European Committee on Radiation Risk, Documents of the ECRR 2010 No 2, Brussels, 2010 available at: <<http://www.euradcom.org/publications/ecrruraniumrept.pdf>>
- Dinstein, Yoram. “Protection of the Environment in International Armed Conflict” (2001) 5 Max Planck YB UN L 523.
- Fairlie, Ian. “Depleted uranium: properties, military use and health risks” (2009) 25:1 Medicine, Conflict and Survival 41 available at: <http://laka.org/docu/boeken/pdf/6-05-1-00-21.pdf>.
- Fischer-Lescano, Andreas & Gunther Teubner. “Regime-Collisions: The Vain Search for Legal Unity in the Fragmentation of Global Law” (2003-2004) 25 Mich J Int’l L 999.
- Ford, Christopher A. “Judicial Discretion in International Jurisprudence: Article 38(1)(c) and ‘General Principles of Law’” (1994-1995) 5 Duke Comp & Int’l L 35.
- Gasser, Hans-Peter. “For Better Protection of the Natural Environment in Armed Conflict: A Proposal for Action” (1995) 89 AJIL 637.
- Harper, Caroline, Rachel Marcus, and Karen Moore. “Enduring Poverty and the Conditions of Childhood: Lifecourse and Intergenerational Poverty Transmissions” (2003) 31:3 World Development 535.

Hayashi, Nobuo .“Requirements of Military Necessity in International Humanitarian Law and International Criminal Law” (2010) 28 Boston U Intl’l L J 39.

Hill, Sir Bradford. “The environment and disease: association and causation” (1965) 58 *Proceedings of the Royal Society of Medicine* 295.

Hourcle, Laurent R. “Environmental Law of War” (2000-2001) 25 Vt L Rev 653.

Human Rights Watch, “Cluster Munitions Information Chart” (2010), available at: [http://www.hrw.org/sites/default/files/related\\_material/2010.4.5%20Arms,%20Cluster,%20Info%20Chart%20Final.pdf](http://www.hrw.org/sites/default/files/related_material/2010.4.5%20Arms,%20Cluster,%20Info%20Chart%20Final.pdf).

International Coalition to Ban Uranium Weapons, “CADU challenges flawed UK legal review of depleted uranium munitions” (13 July 2012) available at: <http://www.bandepleteduranium.org/en/cadu-challenges-flawed-uk-legal-review-of-du-munit>.

ICRC, “Landmine Stockpile Destruction”, (December 2006), available at: <http://www.icrc.org/eng/resources/documents/legal-fact-sheet/mines-destruction-factsheet-010906.htm>.

International Law Commission, *Draft Articles on Responsibility of States for Internationally Wrongful Acts*, (November 2001) Supplement No. 10 (A/56/10), chp.IV.E.1, Article 55(4), available at: <http://www.refworld.org/type,INTINSTRUMENT,,,3ddb8f804,0.html>.

International Law Commission, *ILC Draft Code of Crimes against the Peace and Security of Mankind*, Report of the International Law Commission on the work of its 48th session, 6 May - 26 July 1996, Official Documents of the United Nations General Assembly’s 51st session, Supplement no 10 (A/51/10).

International Law Commission, “Effects of Armed Conflicts on Treaties” in Report of the International Law Commission, 59th session (7 May-5 June and 9 July-10 August 2007) A/62/10 154, available at: <http://www.refworld.org/docid/4a716c6a2.html>.

International Law Commission Study Group. “Fragmentation of International Law: Difficulties arising from the Diversification and Expansion of International Law”, Report of the Study Group of the International Law Commission finalized by Martti Koskenniemi (A/CN.4/L.682 and Corr.1) (13 April 2006).

International Coalition to Ban Uranium Weapons, “CADU challenges flawed UK legal review of depleted uranium munitions” (13 July 2012) available at: <http://www.bandepleteduranium.org/en/cadu-challenges-flawed-uk-legal-review-of-du-munit>.

- International Physicians for the Prevention of Nuclear War, “Depleted Uranium Weapons and Acute Post-War Health Effects: An IPPNW Assessment” (2001) available at: <http://ippnw.org/pdf/depleted-uranium-ippnw-assessment.pdf>.
- Jabbari-Gharabagh, Mansour. “Legal perspectives for the protection of the environment against the effects of military activities during international armed conflict” (PhD Dissertation; Université Laval, 1998) [Accessible on ProQuest]
- Jodoin, Sébastien and Yolanda Saito. “Crimes Against Future Generations: Harnessing the Potential of Individual Criminal Accountability for Global Sustainability” (2011-2012) 7 McGill Int'l J. Sust. Dev. L. & Pol'y 115
- Koskenniemi, Martti . “The Fate of Public International Law: Between Technique and Politics” (2007) 70 Mod L Rev 1.
- Larsson, Marie-Louise. “Legal Definitions of the Environment and Environmental Damage” (1999) 38 Scandinavian Stud L 155.
- McDonald, Avril. “Depleted uranium weapons: the next target for disarmament?” (2008) United Nations Disarmament Forum 17.
- McGrath, Rae. “Cluster Bombs: The military effectiveness and impact on civilians of cluster munitions” (2000) available at: [http://www.landmineaction.org/resources/Cluster\\_Bombs\(1\).pdf](http://www.landmineaction.org/resources/Cluster_Bombs(1).pdf).
- Mickelson, Karin. “South, North, International Environmental Law, and International Environmental Lawyers” (2000) 11 YB Int'l Env L 52.
- Mitsakou C, K Eleftheriadis, C Housiadas, and M Lazaridis. “Modeling of the dispersion of depleted uranium dispersal”(Apr 2003) Health Phys 84(4) 538.
- Moyes, Richard. “Cluster Munitions in Kosovo: Analysis of use, contamination and casualties” (2007) available at: <http://www.landmineaction.org/resources/Cluster%20Munitions%20in%20Kosovo.pdf>
- Office of the Prosecutor. “Final Report by the Committee established to Review the NATO Bombing Campaign against the Federal Republic of Yugoslavia”, PR/PIS/510-E, (June 13, 2000), available at: <http://www.icty.org/sid/10052>.
- Quéguiner, Jean-François. “Precaution under the law governing the conduct of hostilities” (2006) 88:864 Int'l Review of the Red Cross 793.
- Raz, Joseph. “Legal Principles and the Limits of Law” (1971-1972) 81 Yale L J 823.
- Sandin, Per. “Dimensions of the Precautionary Principle” (1999) 5:5 *Human and Ecological Risk Assessment* 889.

- Schechter, A *et al.*. "Agent Orange and the Vietnamese: the persistence of elevated dioxin levels in human tissues" 85 *American J Public Health* 4 (1995) 516.
- Shiozaki, Akira *et al.*. "Contamination Status of Dioxins in Sediments from Saigon River Estuary, Vietnam" in Y Obayashi, T Isobe, A Subramanian, S Suzuki and S Tanabe, eds, *Interdisciplinary Studies on Environmental Chemistry — Environmental Research in Asia*, vol 2(Tokyo:Terrapub, 2009) 31, available at: <http://www.terrapub.co.jp/onlineproceedings/ec/02/pdf/ERA4.pdf>.
- Schmitt, Michael N. "The Principle of Discrimination in 21<sup>st</sup> Century Warfare" (1999) 2 *Yale Hum Rts & Dev LJ* 143 (HeinOnline).
- Schmitt, Michael N. "Green War: An Assessment of the Environmental Law of International Armed Conflict" (1997) 22 *Yale J Int'l L* 1.
- Scott, Dayna Nadine. "When Precaution Points Two Ways: Confronting "West Nile Fever" (2005) 20:2 *Can J L & Soc'y* 27.
- Shelton, Dinah. "Normative Hierarchy in International Law" (2006) 100 *Am J Int'l L* 291.
- Solf, Waldemar A. "Protection of Civilians Against the Effects of Hostilities under Customary International Law and Under Protocol I" (1986) 1 *Am UJ Int'l L & Pol'y* 117 (HeinOnline).
- Tarasofsky, Richard G. "Legal protection of the environment during international armed conflict" (1993) 24 *NYIL* 17.
- Ticehurst, Rupert. "The Martens Clause and the Laws of Armed Conflict" (1997) *International Review of the Red Cross* No 317, available at: <http://www.icrc.org/eng/resources/documents/misc/57jnhy.htm>.
- UNEP. "Depleted Uranium in Kosovo: Post-Conflict Environmental Assessment" (2000) available at: <http://www.iaea.org/newscenter/features/du/finalreport.pdf>.
- UNEP, "United Nations Specialised Agencies versus United Nations Programmes" (7 June 2010) available at: [http://www.rona.unep.org/documents/partnerships/IEG/UN\\_Specialised\\_Agencies\\_Vs\\_UN\\_Programmes.pdf](http://www.rona.unep.org/documents/partnerships/IEG/UN_Specialised_Agencies_Vs_UN_Programmes.pdf).
- UNICEF. "Immunization: Facts and Figures April 2013" available at: [http://www.unicef.org/immunization/files/UNICEF\\_Key\\_facts\\_and\\_figures\\_on\\_Immunization\\_April\\_2013\(1\).pdf](http://www.unicef.org/immunization/files/UNICEF_Key_facts_and_figures_on_Immunization_April_2013(1).pdf).
- UNICEF. "Introduction to the Convention on the Rights of the Child" available at: <http://www.unicef.org/crc/files/Definitions.pdf>.

- United Nations Report of the International Law Commission on the Work of its Forty-sixth Session, 2 May -22 July 1994, GAOR A/49/10.
- Wexler, Lesley. "Limiting the Precautionary Principle: Weapons Regulation in the Face of Scientific Uncertainty" (2005) UC Davis L Rev 459 (Hein Online).
- Wiebe, Virgil. "Footprints of Death: Cluster Bombs as Indiscriminate Weapons Under International Humanitarian Law" (2000) 22 Mich J Int'l L 85 (HeinOnline).
- Wiebe, Virgil & Titus Peachey, *Clusters of Death: The Mennonite Central Committee Global Report on Cluster Bomb Production and Use*, (July 2000) available at: <http://www.mcc.org/clusterbomb/report/index.htm>.
- Women's Refugee Commission. "Ensuring Opportunities for Displaced Youth" available at: <http://womensrefugeecommission.org/programs/youth>.
- World Health Organization. "The chemical toxicity of uranium", available at: [http://www.who.int/ionizing\\_radiation/pub\\_meet/en/Depluranium4.pdf](http://www.who.int/ionizing_radiation/pub_meet/en/Depluranium4.pdf).
- World Health Organization. "Child Mortality and Causes of Death" available at: [http://www.who.int/gho/child\\_health/mortality/en/index.html](http://www.who.int/gho/child_health/mortality/en/index.html).
- World Health Organization. "Depleted uranium: sources, exposure and health effects" (2001) available at: [http://www.who.int/ionizing\\_radiation/pub\\_meet/en/DU\\_Eng.pdf](http://www.who.int/ionizing_radiation/pub_meet/en/DU_Eng.pdf).
- World Health Organization. "Early Childhood Development" available at: <http://www.who.int/mediacentre/factsheets/fs332/en/index.html>.

## Curriculum Vitae

**Name:** Kirsten Stefanik

**Post-secondary Education and Degrees:** University of British Columbia  
Vancouver, British Columbia, Canada  
2003-2009 B.A.

University of British Columbia  
Vancouver, British Columbia, Canada  
2009-2012 J.D.

The University of Western Ontario  
London, Ontario, Canada  
2012-2013 LLM

**Honours and Awards:** Norman Mackenzie Prize in Public International Law  
2011

**Related Work Experience** Research Assistant  
The University of Western Ontario  
2013

**Conferences:** The 17th Annual Interdisciplinary Legal Studies  
Graduate Students' Conference  
Faculty of Law  
University of British Columbia  
May 2013