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**THE LEGALITY OF MEANS AND METHODS OF  
WARFARE AND THEIR IMPACT ON THE  
ENVIRONMENT  
- The case of Fallujah-**

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## ABSTRACT

It is generally recognized that the environment merits protection even in times of war. In spite the fact that it even merits protection for its own sake, International Humanitarian Law is only concerned with the anthropocentric basis of the environmental protection. History has shown that the provisions that are supposed to directly protect the environment have failed to do so. Because protection that exists today leaves much to be desired, the aim of this thesis is to identify the basic principles of IHL and apply them to the protection of the environment. The case of Fallujah is used as an example that tells the story on how the conduct of war scars the fragile environment when certain means and methods of warfare are used. In this analysis, it seems that the long-term effects on the environment may not be included in the assessment of collateral damage. Because the global environmental ecosystems are interacting, such damage may very well affect us all.

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## LIST OF ABBREVIATIONS

AP I	Additional Protocol I to the Geneva Convention
ATSDR	Agency for Toxic Substances and Disease Registry
CCW	Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to Have Indiscriminate Effects
CWC	Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction
EPA	Environmental Protection Agency
FOI	Totalförsvarets Forskningsinstitut (Swedish Defense Research Agency)
HPCR	Program on Humanitarian Policy and Conflict Research
ICJ	International Court of Justice
ICRC	International Committee of the Red Cross
ICTY	International Criminal Tribunal for the Former Yugoslavia
IHL	International Humanitarian Law
NATO	North Atlantic Treaty Organization
SC	Security Council
UK JSP	United Kingdom Joint Service Publication
UN	United Nations
UNEP	United Nations Environment Programme
WP	White Phosphorus

## 1 Introduction

In April 2004, in Fallujah, the US Army started Operation Vigilant Resolve following the killing of four American private security specialists.<sup>1</sup> Later that year, on 8th of November, US forces (together with the UK forces) launched Operation Phantom Fury, also known as Al Fajr.<sup>2</sup> Fallujah was a city completely controlled by insurgents whose number the US forces estimated to be between 5000 and 6000.<sup>3</sup> Fallujah was seen as the epicenter of the Iraqi insurgency and was US top priority in a broader campaign of their security strategy.<sup>4</sup> Between 50 000 and 60 000 civilians were believed to still remain in the city when the attack was launched.<sup>5</sup> The city was said to be completely in ruins after the attacks.<sup>6</sup> The last year's reports about the rise in birth defects and cancer among the population<sup>7</sup> and the symptoms that American soldiers who came home after serving in Iraq showed<sup>8</sup>, triggered the allegations suggesting that the US forces had used weapons that potentially could have contributed to the seriousness of the today's situation.

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<sup>1</sup> Garamone, Jim, "Coalition working to Pacify Fallujah, Destroy Sadr Militia", American Forces Press Service April 8 2004 : <http://www.defense.gov/News/NewsArticle.aspx?ID=26905>  
See also "The High-Contracting Business", Private Warriors, Frontline, PBS:

<http://www.pbs.org/wgbh/pages/frontline/shows/warriors/contractors/highrisk.html>

<sup>2</sup> Garamone, Jim, "Iraqi, U.S. Troops Begin 'Al Fajr' Operation in Fallujah", American Forces Press Service November 8 2004: <http://www.defense.gov/News/NewsArticle.aspx?ID=24900>

<sup>3</sup> Ibid.

<sup>4</sup> Karon, Tony, "The Grim Calculations of Retaking Fallujah", Time Magazine, November 8 2004:

<http://www.time.com/time/world/article/0,8599,768590,00.html>

<sup>5</sup> Ibid.

See also Monbiot, George, "Behind the phosphorus clouds are war crimes within war crimes", The Guardian, November 22 2005: <http://www.guardian.co.uk/world/2005/nov/22/usa.iraq1>

<sup>6</sup> Ali Fadhil, Guardian Films for Channel Four news, "Fallujah-the real story", 2005,

See also "City of Ghosts", by Ali Fadhil, The Guardian, January 11 2005:

<http://www.guardian.co.uk/world/2005/jan/11/iraq.features11>

<sup>7</sup> Cockburn, Patric, "Toxic Legacy of US assault on Fallujah worse than Hiroshima", The Independent, July 24 2010:

<http://www.independent.co.uk/news/world/middle-east/toxic-legacy-of-us-assault-on-fallujah-worse-than-hiroshima-2034065.html>

<sup>8</sup> "We track soldiers' sickness", New York Daily News, September 29 2004:

<http://www.nydailynews.com/archives/news/track-soldiers-sickness-article-1.568815>

<http://www.nydailynews.com/archives/news/small-victory-ailing-g-i-s-article-1.550397>

## 1.1 Purpose

On the basis of these attacks in Fallujah, my aim is to identify the potential effects on the environment due to the means and methods used in Fallujah by US forces. It can certainly be so that the means and methods used in Fallujah have been used in other places of armed conflict. However, the usage has not necessarily been in the same way. The primary aim is to explore what environmental effects are conceived with the way these means and methods were specifically used in Fallujah.

Due to given allegations of this case and many uncertainties that are still overshadowing the factual background, my aim is to come a step closer to the possible legal outcome if the actions that allegedly occurred where not in conformity with the principles of International Humanitarian Law (IHL). If the attacks on Fallujah could presumably be linked to the effects on the environment and human health in that area over the last decade, how would that comply with IHL? Are the means and methods chosen and the way they were used in Fallujah within the framework of IHL? If not, has their use provoked damage/injury that is disproportionate or/and militarily unnecessary for the military advantage anticipated?<sup>9</sup>

## 1.2 Methodology

The research for this thesis was conducted in order to find out whether the usage of certain means and methods of warfare, such as weapons containing white phosphorus (WP), and the way they were used in Fallujah, is contrary to the principles of International Humanitarian Law (IHL).

First, it is important to identify the principles of IHL and in what international conventions they can be found. I have also looked at whether the certain principle is

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<sup>9</sup> For the sake of this paper, damage and injury are used synonymously.

perceived as customary rule of IHL. This part of the research, used throughout the thesis, is the traditional legal method, analyzing the existing and accepted sources of law in order to find out what the given rule is and how to fill out the interpretation of its text where necessary.<sup>10</sup>

Second, the traditional legal method also incorporates the different case law that was examined to analyze how the given rules, important for my case, were used and interpreted. The existing jurisprudence was then compared to the facts in my case for the sake of conceiving the possible outcome if the rules were to be interpreted in the same manner as given jurisprudence.

Third, the weapons and munitions containing WP demand an understanding and interpretation of the scientific information available. Therefore, I have collected data from different research agencies and interviewed scientists and research analysts in order to better understand the scientific information and create better conditions for optimal applications of the scientific findings to the legal principles of IHL.

### 1.3 Structure

The second chapter of this thesis is a short historical introduction to emergence of the protection of the environment and its molding into the form as we recognize it today. In chapter three, I have assessed how the notion of environment is understood in the legal discourse of IHL and what environmental damage might be perceived as.

Despite the fact that some legal protection exist for the environment in the area of humanitarian law, armed conflicts of last decade show that this protection is not sufficient enough to really make a difference.<sup>11</sup> The provisions of Art 35(3) and Art 55 of Additional Protocol I to the Geneva Conventions (AP I) set a very high threshold for environmental damage to be met. Given the likelihood that the effects on the environment from the attack

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<sup>10</sup> Lomio, Spang-Hanssen and Wilson, "Legal Research Methods in a Modern World: A Coursebook, Djof Publishing 2011, page 233 and 235.

<sup>11</sup> Protecting the Environment During Armed Conflict, An inventory and Analysis of International Law, United Nations Environment Program (UNEP) 2009, page 4.



in Fallujah would not reach that threshold of these two provisions for a number of reasons, this area of law might not help us in concluding the legality of the attack. In chapter four, I will assess why Art 35(3) and Art 55, directly protecting the environment, seem not able to assist us in analyzing environmental damages in Fallujah.

There are also other rules that could be helpful for protection of the environment in law related to armed conflict. Although it has a different threshold test, the Convention on the Prohibition of Military or any other Hostile Use of Environmental Modification Techniques (ENMOD) deals with environmental modification techniques that might be beneficial where ENMOD can be applied. Unfortunately, the characteristics of the events in Fallujah is not likely to be something considered to fall within the definition of modification techniques where only conventional weapons have been used.

Notwithstanding that there may well be harm that has been caused to the environment and environmental harm that indirectly affects the civilian population, there are other mechanisms within IHL that we may have to rely on in order to challenge the legality of the actions in Fallujah. These mechanisms would be the rules of military necessity, principle of distinction, proportionality principle and the meaning of military advantage. The interplay between these rules may help in properly addressing the consequences of both environmental damage and environmental damage that affects the civilian population that these events in Fallujah gave rise to. In order to answer the question whether the usage of chosen means and methods (such as weapon MK 77 and other munitions containing white phosphorus) were excessive and/or unnecessary, we need to raise questions about the relationship between military advantage and military necessity.

In chapter five, I will explain the meaning of the basic principles of IHL and analyze the relationship between the military necessity and military advantage in order to shed some light on whether what occurred in Fallujah and the damage that was created was excessive and/or unnecessary within the meaning of IHL. The chapter also incorporates Marten Clause and the principle of humanity that problematizes the issue of dealing with the balance between what is humanely acceptable and militarily necessary. The prohibition on indiscriminate attacks and precautionary measures are applicable when environment is

being targeted, therefore, I will address them in order to shed some more light on the possible environmental protection that they might provide.

The chapter six will deal with Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to Have Indiscriminate Effects (CCW) and how this Convention might also help us in determining the legality of the damage caused to civilians and the environment. The Convention incorporates the cardinal principles of IHL and complements them with explicit prohibition on certain conventional weapons. It is also how the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (CWC) functions which will be explained and compared to the facts in Fallujah in chapter seven. Finally, the thesis ends with concluding comments in chapter eight.

#### 1.4 Delimitations

The thesis will focus on the legality or illegality of the damages presumably caused to the environment and that indirectly had an impact on the lives of civilians, due to the weapons that presumably have been used.

Whilst the aim of the paper isn't to speculate on the possibilities of individual criminal responsibility for those alleged facts, I will raise question about individual criminal responsibility in an explanatory manner where this might help understanding the complex interaction between different principles of IHL. The aim is, nevertheless, to point towards legal questions that have arisen in the aftermaths of the battle in Fallujah.

I will concentrate my research to two allegations made by various sources following the attacks in Fallujah and which continue to be made. These allegations claim that the US forces deployed MK 77 against combatants and civilians during the attacks in Fallujah. MK

77 contains white phosphorous (WP) that has certain effects on its own.<sup>12</sup> Other weapons containing WP have also allegedly been deployed against the city.

I am aware that I am handling mostly allegations when it comes to usage of MK 77 and other WP in Fallujah, and that there is very little undisputed facts put to the test. We know that the attacks took place and we see that the situation has developed in a certain way. Whether this can be linked to that specific attack in Fallujah still remains very uncertain. However, I do see a possibility to present my point of view of the attacks and the possible results of these attacks in a broader perspective. If these allegations were true, given the consequences of the attack, in what way is this in compliance with the law? Because of the factual uncertainties surrounding the happenings in Fallujah, I will concern myself with the case of Fallujah as if I were to use a fictional scenario. The way the newspaper sources are used is to help me in managing the jigsaw puzzle of the alleged scenario. They are, strictly speaking, guidelines to better understanding of the possible legal outcome, if the allegations were to be accurate.

There are also certain limitations in scientific uncertainties. The aim is not to establish scientific accuracy of the effects and find out whether these facts can be linked to the means and methods used in Fallujah. I will concentrate on the legal outcome *if* the linkage were to be established.

Lastly, due to the limitations of time and space for this paper, I will not put any emphasis on explaining the international environmental law and the associated conventions for the protection of the environment in peacetime and their possible influence on international humanitarian law.

## 1.5 The alleged facts of the battle in Fallujah

In November 2005 the Italian public television network Rai, broadcasted a controversial documentary called “The hidden massacre” by Sigfrido Ranucci and Mauricio Torrealta.<sup>13</sup>

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<sup>12</sup> International Peace Bureau, Disarmament for development program: <http://ipb.org/i/disarmament-and-development/III-E-01-DADP-ipb-appeal-us-white-phosphorus-use-iraq.html>

The documentary stated that the insurgents and civilians left in the city witnessed that the US forces had used chemicals and poisonous gas during the attacks. This conclusion was drawn due to the esthetics of the corpses they saw. Later on, this description, seemingly supported by individuals in the US military, explained what happens to human flesh when it comes into contact with specific substances from the weapons that contain white phosphorus (WP).<sup>14</sup> On the Fallujah Coverage site of Rai television network, it can be read that the Al- Quds Press who published the allegations had only anonymous sources to rely on.<sup>15</sup> The US State Department denied that the white phosphorus was used for any other than illumination purposes.<sup>16</sup> When the March-April issue of “Field Artillery” magazine suggested that it was used a bit more offensive, the US officials corrected the information admitting that they were used against enemy combatants.<sup>17</sup>

As far as Mark-77 (MK 77) is concerned, it is a part of the incendiary bombs family, a direct evolution of M-47, the napalm bomb used in Vietnam.<sup>18</sup> While the traditional napalm consists of a mixture of gasoline and benzene, the MK 77 contains kerosene-based jet fuel, a smaller concentration of benzene.<sup>19</sup> Therefore, it is referred to as napalm-like incendiary weapon. The usage of this weapon in Iraq was first brought to the world’s attention when the Herald Correspondent Lindsay Murdoch reported from one of the first battles in Iraq suggesting that the napalm-like weapon had been used.<sup>20</sup> Another article

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<sup>13</sup> Fallujah Coverage, RaiNews24:

<http://www.rainews24.rai.it/ran24/inchiesta/en/body.asp>

<sup>14</sup> “A Debate: Did the US Military Attack Iraqi Civilians with white phosphorus bombs in violation of the Geneva Conventions? Democracynow.org, November 8 2005:

[http://www.democracynow.org/2005/11/8/a\\_debate\\_did\\_the\\_u\\_s](http://www.democracynow.org/2005/11/8/a_debate_did_the_u_s)

<sup>15</sup> “Did the U.S Use “Illegal” Weapons In Fallujah”, Fallujah Coverage, RaiNews24:

[http://www.rainews24.rai.it/ran24/inchiesta/en/illegal\\_weapons.asp](http://www.rainews24.rai.it/ran24/inchiesta/en/illegal_weapons.asp)

<sup>16</sup> “US used White Phosphorus in Iraq”, November 16 2005:

<http://news.bbc.co.uk/2/hi/4440664.stm>

Popham, Peter, “US forces used chemical weapons during assault on city of Fallujah”, November 8 2005:

<http://www.independent.co.uk/news/world/middle-east/us-forces-used-chemical-weapons-during-assault-on-city-of-fallujah-514433.html>

“Did the US Use “Illegal” Weapons In Fallujah, Fallujah Coverage, RaiNews24:

[http://www.rainews24.rai.it/ran24/inchiesta/en/illegal\\_weapons.asp](http://www.rainews24.rai.it/ran24/inchiesta/en/illegal_weapons.asp)

<sup>17</sup> Field Artillery, “The Fight for Fallujah”, March-April, 2005.

<sup>18</sup> <http://www.globalsecurity.org/military/systems/munitions/mk77.htm>

<sup>19</sup> Ibid.

<sup>20</sup> Murdoch, Lindsay, “Dead bodies everywhere”, Sydney Morning Herald, March 22 2003:

<http://www.smh.com.au/articles/2003/03/21/1047749944836.html>

from San Diego Union Tribune alleged the same facts.<sup>21</sup> These allegations turned into facts when Adam Ingram, UK defense minister of that time posted a letter where he confirmed that MK 77 had in fact been used in Iraq.<sup>22</sup> Napalm is not prohibited when used against military targets but used against civilians it falls under the CCW Protocol III.

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<sup>21</sup> Crawley, James W., "Officials confirm dropping firebombs on Iraq", San Diego Union-Tribute, August 5 2003: <http://www.globalsecurity.org/org/news/2003/030805-firebombs01.htm>

<sup>22</sup> "US lied to Britain over Use of Napalm in Iraq War", by Colin Brown, The Independent, June 17 2005: <http://www.commondreams.org/headlines05/0617-01.htm>

"The US used chemical weapons in Iraq and then lied about it", by Monbiot, George, The Guardian November 15 2005: <http://www.guardian.co.uk/politics/2005/nov/15/usa.iraq>

Read the letter here: [http://www.rainews24.rai.it/ran24/inchiesta/foto/documento\\_ministero.jpg](http://www.rainews24.rai.it/ran24/inchiesta/foto/documento_ministero.jpg)

## **2 A Short History on Development of Environmental Protection within International Humanitarian Law**

From the first ban on weapons that cause unnecessary suffering in the 1868 Declaration of St Petersburg, IHL has been developing throughout the 20<sup>th</sup> century, trying to meet and cover new emerging needs in the area of war conduct.<sup>23</sup> The application of the IHL consists today of four Geneva Conventions and the two Additional Protocols (AP I and AP II) from 1977, the second came to include IHL for non-international armed conflict. The purpose of the Laws of War is not to completely hinder the damages done to the civilians and civilian objects during armed conflicts. It is not possible to absolutely avoid that those not taking part in hostilities are spared from any harm. Every armed conflict harvests civilian victims and provokes damage to civilian objects. The primary purpose of humanitarian law is to “alleviate as much as possible the calamities of war.”<sup>24</sup> In other words, IHL defines the limitations on the use of violence in armed conflicts.

The “wanton destruction” in times of war has its roots in 1863 provisions of Lieber Code but these are in turn inspired by previous writings on the very new emerging concept of environmental protection in times of war.<sup>25</sup> The importance of environment is by all means, not a new statement. Even the ICJ, In the Advisory Opinion on Nuclear Weapons

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<sup>23</sup> Greenwood, Christopher (in Fleck), *The handbook of International Humanitarian Law*, second edition, 2010, page 23.

<sup>24</sup> Dinstein, Yoram, *The Conduct of Hostilities under the Law of International Armed Conflict*, second edition, Cambridge University Press 2010, page 5, (Taken from the 1868 St. Petersburg Declaration renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight. The same Declaration stated that “the only legitimate object which States should endeavor to accomplish during war is to weaken the military forces of the enemy”).

<sup>25</sup> Hulme, Karen, *War Torn Environment: Interpreting the Legal Threshold*, Martinus Nijhoff Publishers, 2004, page 3.

She explains that both Vattel and Locke have written about military tactics that included destroying food stocks and being harmful to non-combatants, clearly stating an anthropocentric view but it offered an indirect protection for the environment.

case, stated that environment should not be looked upon as something abstract but the very important part of humanity, including generations to come.<sup>26</sup>

Today, there is no doubt that the humans are dependent on the status of their surroundings for their survival. The status of the importance of environment has grown from 1972 Stockholm Declaration to 1992 Rio Declaration creating implications that global environmental responsibility is an *erga omnes* obligation.<sup>27</sup> The nature of attacks of modern warfare highly impact upon the environment that can last for decades. It is not surprising then that the environment as an indispensable component of the wellbeing of humans is targeted in times of armed conflict. Direct and indirect attacks on the environment can form a part of a strategy of a military attack. The 20<sup>th</sup> centuries conflicts have brought the question of inclusion of environmental protection into the International Humanitarian Law. Geneva Conventions also provide some protection both to the environment for the good of humans and environment per se but the threshold seems to be set to high to meet the standards required. Toxic air pollution to slightly radioactive agricultural fields and drinking water dams affect the people's possibilities of livelihood and present challenges for rebuilding peace. In order to address these issues we need to explain and understand what basic principles operate within IHL and indirectly affect the understanding of environmental protection in times of war. Some examples that have been discussed intensely are forest destruction and loss of wildlife in Vietnam and Iraqi Oil-well fires in 1991, causing both air and sea pollution. It illustrated the need for serious considerations on how to protect the fragile environment. Other examples of importance is chemical warfare by Iraq during the 1980ies, the extensive destruction of cattle and farmland following the "ethnic cleansing" of Serbian villages in Croatia and NATO attacks on industrial facilities in Pancevo releasing poisonous gases effecting the inhabitants and causing death of all aquatic life along Danube River.<sup>28</sup>

The handling of Agent Orange and other herbicides during Vietnam War that resulted in immense degradation of forest and its impact on civilians gave rise to inclusion of Art

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<sup>26</sup> Advisory Opinion on the Legality of the Threat or Use of Nuclear Weapons, ICJ 1996, page 241, para 29.

<sup>27</sup> Birnie, Boyle and Redgwell, *International Law & the Environment*, third edition, Oxford University Press 2009, page 131.

<sup>28</sup> Advisory Opinion, ICJ, *supra* n. 26, at p. 241, para 29.

35(3) and Art 55 API as the States agreed that the environment merited more protection than what was previously available.<sup>29</sup> The aftermaths of chemical warfare by Iraq on Kurdish population resulted in the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (CWC) that was adopted during Paris Conference in 1989. Other convention that can be of importance for environmental protection are Biological Weapons Convention from 1972, the Convention on Prohibition or Restrictions on the Use of Certain Conventional Weapons which may be Deemed to be Excessively Injurious or to Have Indiscriminate Effects (CCW) and its five Protocols from 1981, with latest amendments in 2001 and the Landmines Convention which absolutely prohibits possession or use of anti-personnel landmines to which 153 states were party to, on May 2007.<sup>30</sup> As history shows, damage done to the environment can therefore be intentional or may be the expected result of the methods and means chosen.<sup>31</sup> Environment usually suffers extensive destruction and degradation during armed conflicts and in their aftermaths.<sup>32</sup> The rules that are limiting or prohibiting certain weapons and methods of warfare are also influencing the impact the warfare has on the environment, directly and indirectly.

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<sup>29</sup> Hulme, *supra* n. 25, at Chapter 2 and p. 71.

<sup>30</sup> Greenwood, (in Fleck), *supra* n. 23, at p. 33.

<sup>31</sup> See for instance in more detail the case study; Iraqi Oil-Well Fires in Hulme, *supra* n. 25, at p. 163.

<sup>32</sup> Bothe, Bruch, Diamond and Jensen, International law protecting the environment during armed conflicts: gaps and opportunities”, International Review of the Red Cross, Volume 92 Number 879, Cambridge, September 2010, page 570.



### 3 The Understanding of the Concept of Environment and Environmental Damage

#### 3.1 What is Environment?

According to certain dictionary interpretations, environment incorporates both non-living and living environmental elements. Hulme states that there is no single accepted definition of the term “environment”, even within environmental law.<sup>33</sup> The concept of environment, in the legal meaning of International Environmental Law, has been said to incorporate two distinct parts: the human environment and the natural environment.<sup>34</sup> What has been recognized as “natural” environment in treaties protecting the environment, according to Hulme is “flora and fauna, air, soil, water, vegetation, habitat, forests, marine living resources, ecosystems, organisms, climate and agriculture”.<sup>35</sup> The definition included in a specific treaty will be specifically adopted for the functions and objectives of that particular treaty. The generalization of each term is therefore not recommended as a definition. When it comes to interpretation of the environment within the meaning of armed conflicts, Security Council has created a definition in the SC Resolution 678 from 1991, for the specific purpose of interpreting the environmental damage caused by Iraq to Kuwaiti Oil Wells.<sup>36</sup> The Resolution included air, soil, water, flora, fauna and the ecosystem formed by their interaction.<sup>37</sup> Hulme is suggesting that “natural environment” acts upon an organism to the extent that it determines that organism’s fate. The biological interdependence, in

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<sup>33</sup> Hulme, *supra* n. 25, at p. 12.

<sup>34</sup> *Ibid.* at p. 18.

<sup>35</sup> *Ibid.* at p. 12.

<sup>36</sup> Hulme, *supra* n. 25, at p. 13.

<sup>37</sup> *Ibid.*

other words, is of fundamental importance with regard to the severity of environmental damage.<sup>38</sup> This is due to the creation of global mesh of climatic system where the ecosystem in one place can affect the ecosystem in another. ICRC's Commentary offers a similar interpretation:

*“The concept of the natural environment should be understood in the widest sense to cover the biological environment in which the population is living. It does not consist merely of the object indispensable to survival...but also includes forests and other vegetation...as well as fauna, flora and other biological or climatic elements”*<sup>39</sup>

People are also part of the environment and dependent on a healthy environment in which to live. The starting point of human environment is, not surprisingly, human beings. It is the environment that gives the human “his physical sustenance and affords him the opportunity for intellectual, spiritual, moral and social growth”.<sup>40</sup> The concept is also based on inter-generational equity and the rights of future generations to a healthy environment. However, these two concepts are interconnected in the sense that when protecting natural environment, one is also protecting people. The two are indivisible.<sup>41</sup>

### 3.2 What is Environmental Damage?

The assessment of environmental damage is a complex question. There is no strict legal, nor strict scientific concept of what environmental damage is. When it comes to the definition of environmental damage, the word “damage” has a criterion of its own. As Hulme explains it, a damage, harm or injury requires the causation of some negative impact on the environment.<sup>42</sup> The 1988 Convention on the Regulation of Antarctic Mineral

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<sup>38</sup> Ibid.

<sup>39</sup> Koppe, Erik, *The Use of Nuclear Weapons and the Protection of the Environment during International Armed Conflicts*, Hart Publishing 2008, page 156.

<sup>40</sup> 1972 Stockholm Declaration, Preamble, para 1.

<sup>41</sup> Hulme, *supra* n. 25, at p. 16.

<sup>42</sup> Hulme, *supra* n. 25, at p. 23.

She refers to Oxford English Dictionary when interpreting the word “damage” and the wordings “damage”, “harm” and “injury” she uses as synonymous. For the sake of simplifying the meaning of “Damage” in this paper, I will use the same wording as synonyms.

Resource Activities defined damage to the Antarctic environment as “any impact on the living or non-living components of that environment or those ecosystems, including harm to atmospheric, marine or terrestrial life”.<sup>43</sup> The 1992 Framework Convention on Climate Change has an even broader definition of what constitutes environmental damage that includes the effects on socio-economic systems and welfare.<sup>44</sup> This implicates that different wordings are intended only as definitions for the different purpose of each treaty. This is also the base for the meaning of environmental protection, making it predominantly anthropocentric.

The Conventions regulating the laws of armed conflicts are no exceptions as they too provide for their own criteria when assessing environmental damage. What we know today is that damage can be caused by various different changes in ecosystems and can be strictly natural. But they are also caused by human activities, especially when it comes to the effects of waging war. The problem is determining what causation is responsible for which damage. Hulme suggests that first and foremost scientific determinations of damage are generally first made. When this is accomplished, the legal terminology is introduced within which the damage is either reduced or prohibited.<sup>45</sup> Scientific testing can help in measuring the degree of the damage caused to a particular environment or ecosystem by the introduction of a specific substance. As the case is in Fallujah, when white phosphorus was introduced as a substance used in weapons that were deployed in Fallujah, the scientific measuring that would be needed is how much of that specific substance is present in the soil, water and air in Fallujah and what are or what would be the negative effects of such presence. What the outcome would be of such measurements might not be the subject to the same limitations as the legal regulations, on both national and international level. As Hulme points out, the definition of environmental damage found in treaty law and in domestic regulations will differ from a purely scientific assessment of damage in such way that the level of damage required before any legal regulation will be applicable will often be far higher than the actual term utilized by the particular treaty or domestic instrument.<sup>46</sup>

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<sup>43</sup> Birnie, Boyle and Redgwell, *supra* n. 27, at p. 7.

<sup>44</sup> *Ibid.* at p. 6.

<sup>45</sup> Hulme, *supra* n. 25, at p. 17.

<sup>46</sup> *Ibid.*

The various regulations on environmental protection use different kinds of alternative terms such as “effects”, “harm”, “damage”, “pollution, and “injury”. They all can be understood differently and have different legal outcomes, dependent on where and how they are used. This paper will only concern itself with the damage caused to the environment as human causation of harm due to the deployment of specific substance through certain means and methods of warfare.

#### 4 Direct Protection of the Environment applied to Fallujah case

The provisions in API, Art 35(3) and Art 55(1), in my opinion, seem to have been an innovation for the IHL at the time of their adoption. This is of course due to the large-scale destruction that took place in the Vietnam Conflict. There was the recognition by state parties for the need to at least limit environmental damages during warfare.<sup>47</sup> Art 35(3) and Art 55 of the AP I offer limitation to the damage done to the environment both when environment is a direct target in itself and as a part of collateral damage.

The principal concern for international humanitarian law are human beings so the protection of the environment and the interpretation of the existing rules naturally take an anthropocentric point of view, which has been criticized.<sup>48</sup> However, the Art 35(3) AP I suggests that environment in fact has some value *per se*. The article reads:

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

This is one of the basic rules of AP I and does not directly refer to the survival of civilians. The prohibition is repeated in Art 55(1) AP I but has an additional reference to health and survival of the population. The article says:

*“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*

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<sup>47</sup> Ibid. at p. 71.

<sup>48</sup> Dinstein, *supra* n. 24, at p. 204.

For example, it has been stated that the treatment of the environment as a civilian object is too anthropocentric. Dinstein here considers that the criticism in fact misses the point. Dinstein explains; “as long as it is classified as a civilian object, the natural environment must not be the object of an intentional, direct, attack irrespective of the presence of civilians in or around it.” In my opinion, as a civilian object, environment seems to merit protection because it has an importance to civilians, not necessarily because it has a value *per se*. One can imagine that there are certain cases where the environment merits protection for its own sake. This is where I find that the criticism still makes sense.

*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”*

The ICRC Commentary explain that the very essence of these two provisions is the concept of ecosystem (natural environment as opposed to human environment) which merits protection from means and methods of waging war that upset the very balance of the natural living and environmental conditions.<sup>49</sup> In Advisory Opinion on Nuclear Weapons, ICJ reaffirmed that Art 35(3) and Art 55 of AP I embody a general obligation to protect the natural environment against widespread, long-term and severe environmental damage. Such a protection could be achieved by prohibition of methods and means of warfare, which are intended, or may be expected to cause such damage to the natural environment.<sup>50</sup>

The wording of the provisions suggests that the damage is only prohibited above a specified threshold of harm. Indeed, to constitute a breach, damage has to be widespread, long-term *and* severe, which means that the damage done must have a cumulative effect (my emphasis). Although the terms are not specifically defined in the API, there is a general agreement that together, they establish a very high threshold because all three requirements need to be met. But because Art 35 lacks the reference to the human injury, it entails a lower threshold of harm than Art 55.<sup>51</sup> How long-term, widespread and severe the damage has to be in order to fit into the meaning of provisions is highly uncertain. There is even disagreement whether the oil spills and fires caused by Iraq to Kuwaiti oil wells during the 90/91 Gulf War crossed the triple standard requirements in the two provisions.<sup>52</sup> Even though the outcome from those attacks resulted in emissions of several toxic particles that gave rise to acid rain and global warming and even though the smoke screen over Kuwait caused a ten degrees Celsius drop in temperature resulting in the coldest winter on record, there is an uncertainty whether those effects on the environment and harm related to them were “significant”.<sup>53</sup> At least there is still a debate over the significance of that harm.

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<sup>49</sup> ICRC Commentary to the AP I, page 409, para 1444.

<sup>50</sup> Advisory Opinion, ICJ, *supra* n. 26, at p. 242, para 31.

<sup>51</sup> Hulme, *supra* n. 25, at p. 72.

<sup>52</sup> International Criminal Tribunal for the Former Yugoslavia (ICTY): “Final report to the Prosecutor by the Committee Established to Review the NATO bombing Campaign Against the Federal Republic of Yugoslavia, page 7, para 15. <http://www.icty.org/sid/10052>

<sup>53</sup> Hulme, *supra* n. 25, at p. 165.

As far as the wording of the provision is concerned, there is some indication that states considered the term “widespread” to refer to the area greater than several hundred square kilometers.<sup>54</sup> The notion of “severe damage to the natural environment” seems to refer to the intensity of the resulting environmental damage and it incorporates the prejudicial effect of the damage to the civilian population, according to the Hulmes’ interpretation of *travaux préparatoires*.<sup>55</sup> If this means that the environment can’t be severely damaged unless humans are affected, then the Art 35(3) loses its credibility to be protecting the environment for its own value.

Art 55(1) has a wording that points to the protection designed to guarantee the survival or health of human beings. It suggests that if an action is a threat to humans, the Art 55 is applicable even if the human survival is not at stake.<sup>56</sup> By survival, it is understood in terms of both present and future generations. There are opinions that only the long-term consequences are intended by the reference to “health”.<sup>57</sup> A long-term consequence would indicate a standard of very serious harm, which was intended by that wording.<sup>58</sup> Threat is not just meant for the civilians, the provision explicitly states “population”, meaning all humans regardless of their combatant status.<sup>59</sup> This would be a logical explanation as a “long-term” environmental damage is likely to outlast the war.

What is certain is that the damage, besides being widespread and severe, has to last for a period of decades, twenty or thirty years the minimum, for the provision to be effective.<sup>60</sup> If the intention is to hold a party responsible for the environmental damage as a war crime, the damage is more obvious if the outcome quickly reaches the threshold of the provision. But the scenario of responsibility can be much more uncertain as the effects of the damage might take time and a full scale destruction become obvious, first after two

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It is worth mentioning that in the resolution 687 from 91, UN Security Council affirmed Iraq’s responsibility under international law for environmental damage and depletion of natural resources in Kuwait.

<sup>54</sup> Hulme, *supra* n. 25, at p. 98.

<sup>55</sup> *Ibid.*

<sup>56</sup> Dinstein, *supra* n. 24, at p. 203.

<sup>57</sup> Tarasofsky, Richard G., Legal Protection of the Environment during International Armed Conflict, Netherlands Yearbook of International Law, Volume XXIV, 1993, page 51.

<sup>58</sup> Desgagné, Richard, The Prevention of Environmental Damage in Time of Armed Conflict: Proportionality and Precautionary Measures, Yearbook of International Humanitarian Law, Volume 3, 2000, page 112.

<sup>59</sup> Dinstein, *supra* n. 24, at p. 203.

<sup>60</sup> *Ibid.* at p. 94.

decades have passed. When evaluating NATO bombings in Yugoslavia, ICTY Committee stated that the notion of “excessive” environmental destruction from the attack is imprecise and the actual impact is yet unknown and difficult to measure and therefore ICTY refrains from investigating further into the issue.<sup>61</sup> Even if one can think that ICTY erred in coming to such a conclusion, that a difficulty today should mean not investigating at all, they do have a point that the overall environmental harm is too early to tell if one is agreeing with the meaning of the notion “widespread and sever”. As Desgagné concluded in his paper, ICTY based their evaluation on the notion of criminal responsibility. For this to rise, the damage needs to be “clearly” and “manifestly” excessive.<sup>62</sup> He argues further that for state responsibility to rise, it would be enough for the actions to produce excessive environmental damage. It is, however, still very uncertain how this excessiveness is to be measured in order to establish state responsibility for environmental damage. For the applicability of the provisions in API, the destruction and effects of the damage need to clearly indicate that it will last for at least two decades. If it does not make such an indication then there is nothing else to do then to wait for time to tell if the damage will come to fit into the wordings of the provision. If the damage reaches the triple requirement, the damage is considered to be in breach of the two articles, as it would be regarded as excessive. A part from the requirements in the provisions of the articles, the damage needs also to be committed willfully and been foreseeable result of an attack. Hulme considers also the wording of the two provisions as intentional (with a purpose to cause) or expected damage of the means and methods chosen (it was not the purpose but it is known that such damage will occur). Summing up the wording, the needed mens rea would be intent or a foreseeable result of such damage.<sup>63</sup>

In our case, it has been about eight years since the battle in Fallujah. Even though we can see certain evolvement of the effects on the civilian population, it is highly uncertain whether these effects can be expected to last two decades or more. It is also highly uncertain that these effects can be linked to the usage of conventional weapons in the first place without proper scientific evaluation. For such reason, there is a high uncertainty that

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<sup>61</sup> Final Report, ICTY, *supra* n. 52, at p. 23.

<sup>62</sup> Desgagné, *supra* n. 58, at p. 117.

<sup>63</sup> Hulme, *supra* n. 25, at p. 74.



these provisions could be applied in our case. The city of Fallujah is said to measure 30 square kilometers that does not fulfill what is required for widespread damage.<sup>64</sup> Even if the Art 35(3) can be found under the chapter on means and methods of warfare, it is very doubtful that such a threshold can place any constraints on the use of conventional means and methods of warfare.<sup>65</sup> In fact, with such a high threshold, it is doubtful that the provisions offer any significant protection, except in most serious cases. Bothe explains that the major flaw of the two provisions, interpreting the qualifying wordings, is the fact that they are written in an era reflecting considerations for protecting the environment at that specific time in history. Today the needs look different and the wordings are being “more and more considered inappropriate.”<sup>66</sup>

To this day, the environmental damage that fulfills all three requirements of these two provisions, hasn't been acknowledged and we can conclude that it is highly doubtful that the case of Fallujah would be the first to meet the applicable standards for these two provisions. We can only turn towards the basic principles of international humanitarian law in order to find some guidance in qualifications of environmental damage caused in Fallujah and possible establishment of its excessiveness.

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<sup>64</sup> <http://www.globalsecurity.org/military/world/iraq/fallujah.htm>

<sup>65</sup> Desgagné, *supra* n. 58, at p. 113.

<sup>66</sup> Bothe, Michael, The Protection of the Environment in Times of Armed Conflict, German Yearbook of International Law, Volume 34, 1991, page 57.

## 5 The Principles of IHL and their applicability on the Environment

International Humanitarian Law (IHL) is a set of rules that are designed to regulate the combat of war in international and non-international armed conflicts. In Public International Law, IHL is regarded as *lex specialis* as it is concerned with this specific situation of armed conflict. Sometimes, it is referred to as The Law of Armed Conflict. This body of law regulates the treatment of the individual, both civilians and military, in times of armed conflict. It also regulates the treatment of civilian object and military objective. It does so determining restrictions to the use of force against the enemy. These restrictions of *Jus in Bello* involve how the war is conducted, what means are chosen and what methods are best suited for the conduct of war to achieve the military purpose desired.

### 5.1 The Doctrine of Military Necessity

Military necessity can be explained as a necessity to achieve the very purpose of a specific attack, such as the submission of the enemy that will give the military forces definite military advantage. Military necessity means what needs to be done in order to achieve a specific military purpose. It implies identification of certain realistic measures in the course of action that will accomplish the desired military purpose in most efficient way.<sup>67</sup>

Military necessity is also interpreted strictly as an exception where “military necessity exempts a measure from certain specific rules of international humanitarian law prescribing contrary action to the extent that the measure is required for the attainment of a military

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<sup>67</sup> Hayashi, Nobuo, ”Requirements of Military Necessity in International Humanitarian Law and International Criminal Law”, Boston University International Law Journal, Vol. 28:39, 2010, page 44.

purpose and otherwise in conformity with that law”.<sup>68</sup> The rules that prohibit a certain action do so independent of military necessity *if* the rule does not explicitly state that exception due to military necessity is allowed. For instance, the IHL prohibits direct attacks against civilians and civilian objects. Such attacks are prohibited at all times and no military necessity can allow for any exception from that rule. On the other hand, when destruction of a civilian object is necessary to achieve a military purpose, the object could be considered to change into being military objective. In the Hostage Case, judge Carter remarked:

*“The destruction of property to be lawful must be imperatively demanded by the necessities of war. Destruction as an end in itself is a violation of international law”*<sup>69</sup>

This is just another way of saying that military necessity needs to be established in order to make destruction of property lawful. Such necessity needs to be proven inevitable in order for its destruction to be justified. The word “imperatively” is taken from Hague Convention IV, Art 23(g).<sup>70</sup> What it exactly implies is uncertain, especially when words such as “urgent”, “absolute” or “unavoidable” have been used as synonyms.<sup>71</sup> However, we can understand that it is some sort of justification for the damage done. The Fourth Geneva Convention expresses the same prohibition in Art 53 but here the destruction refers only to the Occupying power, other belligerents are not mentioned. The provision of Hague Convention still remains valid for the destruction not carried out by the Occupying power and can be used in a much more broader sense.<sup>72</sup>

It is important to point out that Hague Convention codifies the laws and customs of war more as guidelines to the military. The Fourth Geneva Conventions’ primary aim is

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<sup>68</sup> Ibid. at p. 59.

<sup>69</sup> Hostage case (USA v. List et al.) American Military Tribunal Nuremberg, 1948, passage 1253 <http://werle.rewi.hu-berlin.de/Hostage%20Case090901mit%20deckblatt.pdf>

<sup>70</sup> It says; *“It is especially forbidden...to destroy or seize the enemy’s property, unless such a destruction or seizure be imperatively demanded by the necessities of war”*.

<sup>71</sup> Dinstein, *supra* n. 24, at p. 7.

<sup>72</sup> ICRC, 1949 Conventions and Additional Protocols and their Commentaries; Convention IV Relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949, Part IV: Execution of the Convention #Section II: Final Provisions, Article 154-relation with the Hague Convention.

first and foremost the protection of civilians. Hague Convention is considered the written embodiment of customary international law.<sup>73</sup> Whatever the meaning of the word “imperatively”, it gives a clear understanding that destruction just for the sake of it, in certain cases, can hold the military party liable for the violation of IHL. It gives us an idea that there is a difference between civilized and uncivilized way to wage war and IHL points out the limits, which are not to be crossed. Criminal liability for the destruction of the enemy’s property is stated in Art 8(2)(b)(xiii) of the Rome Statute and has a reference to the word ”imperatively” in its *travaux préparatoires* but was then replaced by “military necessity”.<sup>74</sup> As far as the Rome Statute is concerned, no other destruction of property but the “enemy’s property” includes the reference to the military necessity.

When the military necessity is established, in order to proceed further in the planning of the military action, military forces need to know how to make a distinction between objects that are prohibited to target directly and objects that are considered to be military objectives.

## 5.2 Principle of Distinction

A rule of paramount importance in *Jus in Bello* is the principle of distinction between military objectives and civilian objects. Additional Protocol I (AP I) to the Geneva Convention Art 48 states;

*“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 civilian population and civilian and combatants and between civilian objects and military objectives and accordingly shall direct their operations only against military objectives”*

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<sup>73</sup> Ibid.

<sup>74</sup> Dörmann Knut, ”Elements of War Crimes under the Rome Statute of the International Criminal Court, Sources and Commentary”, Art 8(2)(b)(xiii), page 249.

The objects in wartime are either civilian objects or military objectives. In order to respect the provision of IHL that only military objectives can be attacked we need to know how to make such a distinction. Art 52(2) AP I sheds some light on the issue stating that military objectives are limited to those objectives, “which by their nature, purpose, location or use make an *effective* contribution to the military action and whose total or partial destruction, capture or neutralization offer a *definite* military advantage” (my emphasis). Military objectives refer particularly to armed forces personnel of the adversary (apart from when they are *hors de combat*),<sup>75</sup> military transports, buildings used for military purposes but they can even be commercial objectives that contribute to military action, such as industrial plants.<sup>76</sup> Apart from this, there is no specific list on what constitutes a military objective and it is mostly up to the commander’s discretion to interpret and decide. The clause, even though having tremendous importance is just formulated in general terms.<sup>77</sup> Even when assessing cases from latest decade, we can find the generalization of this norm.<sup>78</sup>

The status of an object in wartime depends on the context in those particular circumstances and can change during the course of events. Even an object that is normally considered to be civilian object can become military objective if the object, by its use or purpose, would make an effective contribution to the definite military advantage. Professor Dinstein gave the example of a church that would normally be protected as it makes part of the civilian object but if the church, during the time of the attack, becomes a hiding place for the adversary party, than the church becomes a lawful military objective.<sup>79</sup> In the same sense are civilians not protected if they are present in buildings that constitute a lawful military objective. For the sake of protection of the civilian population and civilian objects, an attack is legitimate only when directed towards a military objective. If the object is not considered to be a military objective then the object is considered civilian and protected

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<sup>75</sup> Referring to those “out of combat”, i.e. wounded and sick or prisoners of war.

See Kolb and Hyde, *An Introduction to the International Law of Armed Conflict*, Hart Publishing 2008, page 15.

<sup>76</sup> Oeter, (in Fleck), *supra* n. 23, at p. 181.

<sup>77</sup> Bothe, Michael, *Legal Restraints on Targeting: Protection of Civilian Population and the Changing Faces of Modern Conflicts*, *Israel Yearbook of Human Rights* 2002, page 39.

<sup>78</sup> *Prosecutor v. Blaskić*, Judgment of 2000, ICTY Trial Chamber, para 180, it is stated that “*Civilian property covers any property that could not be legitimately considered a military objective*”. Unfortunately the Chamber did not elaborate further on what is legitimately considered to be a military objective.

<sup>79</sup> Dinstein, *supra* n. 24, at p. 98.

under international humanitarian law. An attack that is directed at civilians or civilian objects constitutes an unlawful attack.<sup>80</sup>

The principle of distinction is a norm of customary international law and it is applicable in both international and internal armed conflicts.<sup>81</sup> This general principle of IHL is also applicable to the natural environment.<sup>82</sup> Even in this aspect, the environment is seen as part of customary international law and supported by states military manuals.<sup>83</sup> Natural environment may not be attacked unless it is a military objective and whose destruction is imperatively required by military necessity.

It is possible to imagine that environment in itself could constitute a military objective if it by its use, purpose or location becomes the only way to gain definite military advantage.<sup>84</sup> A certain military action might be necessary to achieve the military advantage desired. For instance, during Vietnam War the forest was targeted as a military objective and it was broken down so that the enemies would be more exposed in their hiding places. This required usage of herbicides that had disastrous consequences for the environment. The environment is still recovering from the aftermaths of that degradation.

Another provision in Art 54 AP I contains a prohibition on attacking, destroying or rendering useless “objects that are indispensable to the survival of the civilian population” and there is a high risk to leave the civilian population without adequate food and water “as to cause its starvation or force movement”. This prohibition appears also as Rule 54 in ICRC Customary rules and is explained to be of a customary character.<sup>85</sup> However, this prohibition is not absolute. As already mentioned, civilian object can in certain circumstances become military objectives and this is also applicable to objects indispensable to the survival of the civilian population, if and for such time the object

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<sup>80</sup> Art 51(2) AP I states: “*The civilian population as such, as well as individual civilians, shall not be the object of attack*” see also Art 52(1).

<sup>81</sup> Henckaerts and Doswald-Beck, Customary International Humanitarian Law, Volume I: Rules, ICRC, 2005, page 25.

<sup>82</sup> Ibid. at Rule 43, p. 144.

<sup>83</sup> Ibid.

<sup>84</sup> Art 52(2) AP I.

<sup>85</sup> Henckaerts and Doswald-Beck, *supra* n. 81, at Rule 54, p. 189.

offers direct support or sustains solely armed forces.<sup>86</sup> But if destruction of such object would result in starvation of the population, the attack against such an object is prohibited regardless of the support to the enemy forces, given starvation as a method of warfare is prohibited.<sup>87</sup> Equally, natural resources, cattle, agricultural fields and drinking water dams could very much be referred to as objects of such a basic importance that they become indispensable to the human survival and fall under the meaning of Art 54 AP I.<sup>88</sup>

The qualification of an object as military objective usually requires a link to the military action and to the circumstances ruling at the time. According to the provisions of IHL, military objective needs to make effective contribution to military action. Further, the total or partial destruction of such an objective needs to offer a definite military advantage. In other words, one could argue that there is no point in destroying an object if it really does not fulfill a military purpose for the adversary. There simply could not be any advantage gained from the destruction.

In our case, the city of Fallujah could contain several military targets whose partial or entire destruction would give the US forces desired military advantage, such as submission of the enemy. This would mean that the US forces need to evaluate which objects in the city would contribute to the overall purpose of the attack in order to make them lawful targets. It could also be argued that Fallujah as a city creates a military objective *per se*. If the insurgents are scattered over the entire city area and hide in various buildings and the circumstances at that time are such that its destruction is unavoidable to fulfill the military purpose, according to the provision of IHL, Fallujah might be considered a lawful target. It could be argued that the entire city could lawfully become military objective if it is the only way to neutralize the enemy. The other scenario is that Fallujah as a city is destroyed because lawful military objectives within the city were targeted and such targeting resulted in the complete destruction of the city. Of course, both scenarios would require that other equally important provisions of IHL protecting civilians and civilian objects have been assessed and are not breached. Under such circumstances where no other provisions of IHL

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<sup>86</sup> Art 54(3)(a) and (b).

<sup>87</sup> Art 54(1).

See also Henckaerts and Doswald-Beck, *supra* n. 81, at Rule 53.

<sup>88</sup> UNEP, 2009, *supra* n. 11, at p. 17.

have been breached, the civilian casualties and damage to the civilian objects, as well as environment, become collateral damage.

Nothing in the facts about this case suggests that environment was targeted directly as a military objective. What the facts suggest is that the US forces were interested in capturing and/or disabling the terrorist leader al-Zarqawi and about 6000 insurgents that were accompanying him. This could make for two individual military objectives, the capturing of a leader and disabling his troops. But it could also be treated as a single military objective as the leader and his insurgents usually operate side by side. When the insurgents establish hiding places in one or several buildings, the buildings are then targeted as military objectives. Nevertheless, such targeting would require that other equally important provisions of IHL protecting civilians and civilian objects have been assessed and are not breached. Under such circumstances where no other provisions of IHL have been breached, the civilian casualties and damage to the civilian objects, as well as environment, could constitute collateral damage.

### 5.3 The understanding of Collateral Damage

Civilians and civilian objects are protected under the wordings of IHL from being directly attacked. However, the damage or injury to the civilians and civilian objects can very well be unavoidable and incidental casualties as a result of a lawful attack. The damage that is not purposely caused but occurs as a result of the attack is called collateral damage. It is incidental. And it is lawful if the overall military attack is lawful.

Military necessity, proportionality assessment and military advantage go hand in hand. What military advantage is seeking to achieve is crucial in deciding upon what can constitute a military objective.<sup>89</sup> The military advantage can be explained as being tied to the qualification of the military objective in those particular circumstances prevailing at the time. If there is no military advantage gained from destruction of a particular object then it

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<sup>89</sup> Program on Humanitarian Policy and Conflict Research (HPCR), Commentary on Manual on International Law Applicable to Air and Missile Warfare, Harvard University 2009, Section A: Military Advantage.



cannot be considered as a military objective. Further on, what is necessary to do to fulfill a military purpose needs to be in proportion with the damage that the attack is expected to cause during the military operation. When it comes to environment and collateral damage, as it is with all other civilian objects, the harm caused to the environment must not be excessive in relation to the military purpose. Advisory Opinion on Nuclear Weapons case, ICJ explains:

*“States must take environmental considerations into account when assessing what is necessary and proportionate in the pursuit of legitimate military objective. Respect 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>90</sup>

What ICJ is suggesting is that the environment needs to be taken into account when calculating collateral damage. When a military objective is under attack, the environment should already be included in the calculation of the excessive damage v. definite military advantage. In their review of the NATO bombing campaign, even the ICTY Committee stated that the “military objectives should not be targeted if the attack is likely to cause collateral environmental damage which would be excessive in relation to the direct military advantage which the attack is expected to produce”.<sup>91</sup> How this could be achieved is up to every military force to decide respecting the given provisions on laws of war.

The principle of proportionality is part of customary international law and equally applicable in relation to the environment.<sup>92</sup> It is there to balance what is necessary damage in a military action and what is humanly acceptable.<sup>93</sup> Here, the advantage anticipated is weight against the level of losses and damage done to the civilian objects. This status makes military advantage central to the proportionality assessment. Even though civilian lives will be lost during the military attack, it is legally acceptable if this loss is in

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<sup>90</sup> Advisory Opinion, ICJ, *supra* n. 26, at p. 30.

<sup>91</sup> Final Report, ICTY, *supra* n. 52, at p 8, para 18.

<sup>92</sup> Holland, Joseph ”Military objectives and collateral damage: Their relationship and dynamics, Yearbook of International Humanitarian Law, Volume 7 2004, page 51

See also Henckaerts and Doswald-Beck, *supra* n. 79, at Rule 43, p 146.

<sup>93</sup> Holland, *supra* n. 92, at p. 46.

proportion to the expected military advantage.<sup>94</sup> The same can be applied to the environmental damage assessment. If the destruction of a cornfield (which by all means can be seen as indispensable to the human survival as it is expected to provide food for the inhabitants) is necessary for a military force to gain military advantage, the destruction can be justified on the basis of military necessity. However, if the destruction of a cornfield is necessary to gain just one battle (the rest of the events are, tentatively, very uncertain) and the destruction affects survival of 300 000 inhabitants then the military necessity assessment becomes more difficult. The advantage gained from the attack needs to be weight against the expected damage/injury it may create. This is the basic concept of collateral damage. According to the Art 54(2), objects that are indispensable to the human survival are not to be attacked unless they are directly supporting enemy operations and its destruction is a military necessity.<sup>95</sup> However, if this destruction would result in possible starvation of the civilian population or force the civilian population to move, the destruction is prohibited.<sup>96</sup>

In other words, if the environmental damage is a foreseeable result of a lawful attack, it is referred to as collateral damage. Environmental damage here encompasses both environment per se and environment as a part of a civilian object. Collateral damage has to be in proportion with the military advantage anticipated and needs not to be excessive. When the damage is excessive the attack becomes unlawful even if it is directed towards a military objective.

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<sup>94</sup> Advisory Opinion, ICJ, *supra* n. 26, Dissenting opinion of Judge Higgins, para 20.

<sup>95</sup> See Svensk manual i humanitär rätt m.m (Swedish Manual of Humanitarian Law) SOU 2010:72, Bilaga 7, 341, page 72.

See also Joint Service Publication (JSP 383): THE JOINT SERVICE MANUAL OF THE LAW OF ARMED CONFLICT, UK, 2004 Edition, 5.19, page 65.

<sup>96</sup> Art 54(3) and (4).

## 5.4 Military Advantage

When military forces are about to launch an attack, the military objective chosen for that attack, with its total or partial destruction, needs to offer definite military advantage, with or without collateral damage.

The definition of military advantage can be understood as an advantage from one specific attack, an advantage from one artillery round in one specific attack or advantage from the whole operation, the specific attack being just one part of the operation. The definition of an attack in Art 49(1) API seems to point to an isolated event as the notion is linked to the military objective.<sup>97</sup> It could be understood as assessment of “one attack at the time” and each attack must fulfill the requirement for military advantage. The lawful military objective is chosen because it gives a desired military advantage at that specific point in time and therefore the needed advantage from that attack would constitute one specific event. But this interpretation is also understood as too narrow and several countries have expressed different opinion towards the meaning of military advantage and made reservations to the API.<sup>98</sup> In accordance with the view of some states, Fleck also explains that military advantage is “advantage which can be expected from an attack as a whole and not only from isolated or specific parts of the attack”.<sup>99</sup> In the UK Joint Service Publication of the Law of Armed Conflict (UK JSP), it has even been said that military advantage does not need to be immediate in order to count as military advantage.<sup>100</sup> Countries like Australia, New Zealand and USA have also stated that according to their view, military advantage also “includes the security of attacking forces”.<sup>101</sup> Further on, when several states are combining a military operation, such as NATO strikes, the military advantage “may

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<sup>97</sup> Oeter, (in Fleck), *supra* n. 23, at p 185.

The Art 49(1) defines “attacks” as “acts of violence against the adversary, whether in offence or in defense”.

<sup>98</sup> Joint Service Publication (UK JSP 383): THE JOINT SERVICE MANUAL OF THE LAW OF ARMED CONFLICT, UK, 2004 Edition, page 56.

<sup>99</sup> Oeter, (in Fleck), *supra* n. 23, at p 185.

<sup>100</sup> UK JSP 383, *supra* n. 98, at p 56.

<sup>101</sup> Dinstein, *supra* n. 24, at p 93.

Meaning that military objectives may constitute objects not traditionally seen as military objectives if they are important for the security of the enemy.

accrue to the benefit of an allied country or the coalition in general”.<sup>102</sup> It could be argued that this perhaps is to go too far in the interpretation of the military advantage but, nevertheless, such point of view seems to exist among the states.

My understanding of what allegedly happened in Fallujah derives from material that not necessarily provides the most certain factual analysis. In the light of this material I will need to make a number of presumptions for the purpose of identifying what constitutes military advantage in this particular case that I am concerned with. For the purpose of this paper and because the factual evidence to rely upon is insufficient, I will not concern myself with military advantage as per each individual attack. Instead, I will approach a matter as a battle in Fallujah, an entire operation whose surrender would have an effect on the continuation of the further operation in Iraq. If we were to apply this notion to Fallujah, then the attack on Fallujah could be seen as an attack whose military advantage may be linked to the Iraqi war as a whole. It would be a separate action within the ultimate operation and the definite military advantage of that attack would mirror the definite military advantage, strategically important in further evolution of military operations. In my opinion, definite military advantage is perhaps the advantage that takes the military forces at least one step closer to the fulfillment of the very purpose of waging war and therefore it has to be seen in the light of this purpose and not just as an independent and isolated event. According to some alleged facts, Fallujah was seen as the epicenter of the Iraqi insurgency and such a case would create an idea that the attack to neutralize the enemy may be considered to give the desired military advantage to the US forces, not only in Fallujah but perhaps to the Iraqi operation as a whole. Would this mean that the military advantage in such a case would not be restricted only to the attack on Fallujah but would apply to the overall contribution to the entire Iraqi operation?

Relying on proportionality on the basis of these two adjectives describing military advantage is not to be seen as an easy task. What is “concrete” and “direct” in an objective assessment of military advantage of a commander in charge? Perhaps a better understanding of the relationship between military advantage and proportionality principle offers a further insight.

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<sup>102</sup> Dinstein, *supra* n. 24, at p 93.

#### 5.4.1 Military Advantage in relation to Proportionality

Finding the balance between military considerations and the principle of humanity is probably one of the hardest tasks when planning a battle and when decisions are taken during a battle.<sup>103</sup> The question of what constitutes military advantage at that particular assessment of the situation is perhaps equally important as what constitutes excessive loss of lives and damage to the civilian objects. This requires that those who are in charge of planning a battle inform themselves as much as possible, or at least as much as it is feasible to expect from them to obtain information necessary in order to make the right decision.<sup>104</sup> The embodiment of the proportionality principle is found in Art 51(5)(b) AP I:

*“An attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated”*<sup>105</sup>

The word “definite” (that is found in Art 52(2)) has been explained in the UK JSP as “concrete and perceptible military advantage rather than a hypothetical and speculative one”.<sup>106</sup> However, if there is collateral damage involved, or at least if it is obvious that civilians or civilian objects (or a combination thereof) will be in danger of being harmed, the military advantage needs to be “concrete” and “direct” in order to justify such harm. In other words, the concrete and direct military advantage anticipated needs to be in proportion to the collateral damage it is expected to cause. The adjectives “concrete” and “direct” in Art 51(5)(b) might be a higher requirement to fulfill than the adjective “definite” as in definite military advantage as Holland finds in his argumentation.<sup>107</sup> But, as pointed by UK JSP, there is a tendency to use the word “concrete” when analyzing military objectives for the “definite” military advantage and when comparing the amount of

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<sup>103</sup> Gasser, (in Fleck), *supra* n. 23, at p 249.

<sup>104</sup> Art 57 2(a)(i) AP I.

<sup>105</sup> See also the same wording of precautionary rules in Art 57(2)(a)(iii) and Art 57(2)(b).

<sup>106</sup> UK JSP 383, *supra* n. 98, at p 56.

<sup>107</sup> Holland, *supra* n. 92, at p. 52 and p. 53.

collateral damage to the “concrete” military advantage. This of course might be one way of simplifying the task of assessment for those planning the attack, using the same criteria for assessment of military advantage for both military objectives and collateral damage.

Which value is more important, human lives or the definite military advantage? As Lieutenant-Colonel J. Holland finds, “collateral civilian losses are often concrete, dramatic and emotive....the contrasting value, military advantage is usually very abstract”.<sup>108</sup> Perhaps, this is why the media chose to project the picture of a complete destruction of Fallujah rather than praise the successful US military operation, according to the US forces.<sup>109</sup> There is indeed little emotional impact from military advantage. Yet, it can be justified over human lives.<sup>110</sup>

Lieutenant-Colonel Holland points out the relationship between military objectives and proportionality and their common term “military advantage”.<sup>111</sup> He finds; “the more military advantage associated with an object the more collateral damage is legally permissible in an attack”.<sup>112</sup> From this the logical conclusion is that the higher the collateral damage, the higher the demand of military advantage from the attack. This is also the opinion of ICTY Committee that recognized the importance of the target in relation to the incidental damage expected: “if the target is sufficiently important, a greater degree of risk to the environment may be justified”.<sup>113</sup> How big or important military advantage is, in those particular circumstances, will effect the amount of damage accepted for that specific advantage. Anticipation of such importance is what makes the damage accepted. As stated in HPCR Commentary: “the actual results of an attack are irrelevant to the reasonableness of the assessment of the military advantage at the time when the attack was planned or

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<sup>108</sup> Holland, *supra* n. 92, at p. 47.

<sup>109</sup> Field Artillery, *supra* n. 16, at p. 46.

See also “US forces used 'chemical weapon' in Iraq”, 16<sup>th</sup> of November 2005:

<http://www.independent.co.uk/news/world/americas/us-forces-used-chemical-weapon-in-iraq-515551.html>

<sup>110</sup> Here I want to point out one of the obvious difficulties dealing with value of human lives v. advantages of a combat, but I will not elaborate further on this subject. For further insights on philosophical approach towards this subject I can recommend the book from Sella Amnon “The value of human life in Soviet warfare” from 1992.

<sup>111</sup> Holland, *supra* n. 92, at p. 52.

<sup>112</sup> *Ibid.* at p. 53.

<sup>113</sup> Final Report, ICTY, *supra* n. 52, at p. 8, para 19.

executed”.<sup>114</sup> Accordingly, if there is no military advantage to be gained from the attack there could be no civilian losses because any civilian loss equated to no military advantage would, in the light of IHL principles, constitute a disproportionate damage.

#### 5.4.2 Military Advantage in relation to Military Necessity

Considering the possible factual scenarios from the battle in Fallujah, one could ask what kind of military advantage could be gained from the partial or complete destruction of that city? Or in other words, what kind of military advantage is necessary for the overall purpose of the military attack? In the Hostage Case, judge Carter stated:

*“Military necessity permits a belligerent, subject to the laws of war, to apply any amount and kind of force to compel the complete submission of the enemy with the least possible expenditure of time, life, and money. In general, it sanctions measures by an occupant necessary to protect the safety of his forces and to facilitate the success of his operations. It permits the destruction of life of armed enemies and other persons whose destruction is incidentally unavoidable by the armed conflicts of the war; it allows the capturing of armed enemies and others of peculiar danger, but it does not permit the killing of innocent inhabitants of purposes of revenge or the satisfaction of a lust to kill.”*<sup>115</sup>

What it refers to is that a military force may use all means necessary (and for that time being available) to bring the enemy to surrender as long as the action really is necessary to fulfill the mission. In my opinion, this incorporates the term “military advantage”. The advantage sought is necessary because it will help a commander reach the goal of submission of the enemy “at the earliest possible moment with the least possible expenditure of men and resources”.<sup>116</sup> For such reason, the advantage is a necessity for

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<sup>114</sup> HPCR, *supra* n. 89, at Section A: Military Advantage, p. 2.

<sup>115</sup> USA v. List et al., *supra* n. 69, at passage 1253.

<sup>116</sup> Neuman, Noam, Applying the rule of Proportionality: Forge protection and cumulative assessment in International Law and Morality, Yearbook of International Humanitarian Law, Volume 7, 2004, page 91.

reaching that ultimate goal. Ensuring submission of the enemy means, not only the usage of cheapest means possible, but also assessing the possible exposure to the risks to commanders own soldiers. Naturally, fewer soldiers to fight can mean risk of not gaining military advantage in future battles.<sup>117</sup>

The statement of judge Carter can be criticized of being too permissive and implying that any necessity is permissible if it will result in a military advantage.<sup>118</sup> Of course, this would be to imply that even the prohibited actions in a war are to be considered permissible if they result in a military advantage. This is, however, not the case. The actions that are absolutely prohibited under IHL, such as direct attacks on civilian objects, etc. will never be justified under the doctrine of military necessity. Military necessity and military advantage need to be in compliance with the rules of engagement at all times.

Military advantage may be seen as a necessity to win the battle in the short run and to win the war in the long run. In other words, the advantage that a belligerent seeks must be necessary to fulfill the purpose of the belligerents' actions, whichever of the two possibilities it might be. The advantage sought must be necessary for the purpose of winning the war. The purpose here can be either a purpose for which the military advantage is sought or the purpose can be military advantage in itself. If the damage is unavoidable because the purpose of destruction is a military necessity, then the damage can also be seen in proportion to that necessity.

Perhaps it would be illogical to consider an attack that has no military necessity provide a military advantage in the light of IHL provisions. It is perhaps a question for discussion whether an unnecessary attack could result in a military advantage. Indeed, it could be military advantageous to kill the adversary for preventive reasons even if necessity wasn't the case at that time. However, the legality of that action would perhaps be questioned on the bases of necessity and not on the basis of advantage as the discussion was in Hostage case.

In the Fallujah case, if the purpose of this attack was in fact to win the war in Iraq, then military advantage anticipated must include the calculation of the "concrete and

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<sup>117</sup> Neuman, *supra* n. 116, at p. 91.

<sup>118</sup> Dinstein, *supra* n. 24, at p. 4.



direct” possibility to win Iraqi war. It must show a tangible possibility or even probability that such an attack on Fallujah could result in winning the Iraqi war. However, nothing in the circumstances ruling at that time suggested that with the neutralization of the enemy in Fallujah, the US forces could celebrate their victory and return home. On the contrary, according to the circumstances ruling at the time, along with other uncertainties circulating around the given reasons for this attack to happen in the first place, it was not even certain whether the terrorist leader, whose capture was of paramount importance according to the US forces, was residing in Fallujah at the time of the attack.<sup>119</sup> An attack on Fallujah would be military advantageous when enemy has been neutralized because such a neutralization of the enemy may have a desired effect at that specific time and place under the ruling circumstances. Whether that effect would echo positively on the further development of Iraqi war would be highly speculative. In my opinion, the possible concrete and direct military advantage anticipated following the attack on Fallujah is the neutralization of the enemy in Fallujah at the circumstances ruling at the time. For such reason, an attack on Fallujah is a military necessity to achieve military advantage anticipated.

The way I understand the relationship between military necessity and military advantage is that the military advantage is an inherent part of military necessity in the way that any necessary attack is also military advantageous otherwise there would not be a need to undertake that act unless there were any advantage resulting from it. Indeed, disabling the enemy is axiomatically advantageous. In such case, military advantage has already been included in the considerations of military necessity. What creates military necessity is usually the very purpose of the military action. This does not mean that all means and methods are allowed in order to achieve that purpose. As stated earlier, international humanitarian law defines the limitations on the use of violence in armed conflicts in certain situations and prohibits them in others. Whether the unavoidable destruction of the entire city to neutralize the enemy is in proportion to that advantage is perhaps the next question to be answered. For that reason, it seems reasonable to explain further the meaning of military necessity in order to understand better the advantage sought and the damage it may create.

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<sup>119</sup> <http://militaryhistory.about.com/od/conflictiniraq/p/fallujah.htm>

### 5.4.3 Military Necessity in relation to Proportionality

An attack that creates incidental damage to its surroundings, may it be civilians or civilian objects, that is in proportion to the military advantage anticipated can be a lawful attack in the light of IHL provisions. Excessive collateral damage is one of those important limits where the damage needs to be in proportion to the purpose of launching the attack. In cases where the incidental damage created by an attack is not in proportion with the military advantage sought, the damage is said to be excessive which makes the attack unnecessary and unlawful. Hayashi treats military necessity by breaking it down into four requirements where all four requirements need to be fulfilled for the necessity to really state a military necessity. Provided that the purpose sought to be achieved (like military advantage) and the measure chosen for achieving that purpose (an attack) is in conformity with international humanitarian law, the measure needs to be taken for some specific military purpose and the attack needs to be required for the attainment of the military purpose. If this is not the case, then the measure taken is “militarily unnecessary”.<sup>120</sup> This would suggest that if the measure chosen creates a damage that is considered disproportionate to the purpose, it would mean that the damage is not in accordance with IHL. In that case and according to Hayashi’s findings, such disproportionate damage would make the claiming of military necessity void.

When it comes to collateral damage, Hayashi explains that “proportionality weights the injury that the measure would cause to protected persons, objects and interests vis-à-vis the value of the military purpose that the measure would achieve”.<sup>121</sup> Supposing that a lawful military objective is under attack, the proportionality principle offers evaluation of collateral damage v. military purpose of that attack. If the damage is proportionate for the military purpose sought, the attack constitutes a lawful attack. If the damage is disproportionate to the military purpose sought then the attack is unlawful even if military necessity could be claimed to exist. On the other hand, unnecessary attacks are unlawful, no matter what the proportionality assessment might conclude. In the end, all four subjects

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<sup>120</sup> Hayashi *supra* n. 67, at p. 62.

<sup>121</sup> *Ibid.* at p. 76.

must be in accordance with the provisions of IHL, otherwise the military necessity cannot be established and rendered void. In the same sense, if an attack is found to be militarily unnecessary than there are good reasons to claim that it also becomes unlawful. Perhaps my point of view on what military necessity ought to be is too idealistic compared to the realities of war. But I would like to believe that just because it is hard to obtain a situation where all parts of the attack are militarily necessary (as it is a question of proof and what information was available at the time) doesn't mean that it should not be strived for. In the same sense, just because it is highly doubtful that any assessment of the military operation planning done by a commander would be a completely objective assessment, it does not mean that objectivity is not worth to be included in the provisions of IHL.

In my point of view, military necessity and proportionality are interconnected in such a manner that military necessity dictates the amount of proportion of injury accepted for the purpose to the extent that the higher the importance of purpose sought, the higher is the acceptance of the amount of collateral damage. It is so until the injury falls over the line, becomes excessive and dismisses the claim of military necessity. One can be of the view that necessity has nothing to do with the proportionality as far as it concerns the amount of injury expected. It has to do with the principle of humanity. What is humanly acceptable in a situation that claims collateral damage is what creates proportion. I do agree with the part where humanity appeals to us as humans not to commit acts that can be avoided. The way I see it, what is humanly acceptable is also what is militarily necessary otherwise we would not be in the situation where we need to assess proportionality. Because, in my view, when the attack is launched, the proportion of injury the attack creates also becomes necessary for the purpose to be achieved.

However, the establishment that an attack constitutes an unlawful attack does not automatically mean criminal liability for that attack. Art 85(3) points that a grave breach of the Protocol is at hand when the act is committed *willfully*, in violation of the relevant provisions and *in the knowledge* that such attack will cause excessive loss of life, injury to civilians or damage to civilian objects (my emphasis). In Blaskić Judgment, ICTY Trial Chamber commentary explanation is that the destruction unjustified by military necessity,

to constitute a grave breach, it must be “extensive”, “unlawful” and “wanton”.<sup>122</sup> As pointed out by Trial Chamber, each situation merits its own evaluation when it comes to evaluating extensiveness. Even a single act can be enough to constitute a grave breach of Geneva Conventions if the expected loss of lives and expected damages to civilian objects is excessive in relation to the military advantage anticipated. Dinstein is arguing that this confusion between “extensive” and “excessive”, also committed by ICRC Commentary, needs to be clarified on the basis that even the extensive collateral damage need not to be excessive in light of the concrete and direct military advantage anticipated.<sup>123</sup>

In my view, there are four subjects that can be assessed from the meaning of military necessity when planning a military operation:

- Military advantage (purpose of that operation) – a necessity in accordance with IHL
- Military objective (target of that operation) – a necessity in accordance with IHL
- Means (measure of that operation) – a necessity in accordance with IHL
- Collateral damage (injury resulting from that operation) – in proportion to a necessity in accordance with IHL

If the purpose is to disable the enemy from future battles and the enemy is hiding in various buildings in the city, as the case is with Fallujah, then the US army chooses the city as a military objective. Suppose that this is a lawful decision, that such an objective renders the attack lawful, we can say that attacking Fallujah is a military necessity because disabling enemy from future battles is a military necessity. If such an advantage cannot be achieved by targeting the entire city then there is no military necessity emerging from that attack. Further, it would not be enough to make just these two assessments to make the attack lawful. What measures the US army chooses for obtaining the advantage sought must also be a military necessity. Here, it can be said that the choice of weapons has to be in accordance with the achievement of that purpose, nothing more nothing less. If it is less than required for the achievement of the purpose, the purpose would not be achieved and no military advantage can be obtained. Such an attack would be unnecessary because the

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<sup>122</sup> Prosecutor v. Blaskić, *supra* n. 78, at para 157.

<sup>123</sup> Dinstein, *supra* n. 24, at p. 131.

injury created by that attack would not be in proportion to the advantage anticipated.<sup>124</sup> On the other hand, if the weapon chosen is more than required for the destruction then the attack may create injury that is not in proportion to the purpose sought and will be unnecessary for that reason. If the army chooses a weapon that will achieve the purpose of the attack but that creates injury that is disproportionate to the attack then such an attack would be militarily unnecessary.

Even if it is hard to reflect over the need to consider between the collateral damage and the military advantage, there is indeed some element of equation in the assessment of disproportionality. The case of Fallujah is no exception. What we have at hand is the fact that about 60 000 civilians were left in the city and US force had allegedly targeted two military objectives (or just considered them as one) that would give them military advantage anticipated. The first assessment is that between the first military objective, the terrorist leader weight against 60 000 civilians. The second assessment is between the 6000 insurgents weight against 60 000 civilians.

Based on previous suggestions, when it comes to means and methods chosen for the attack, the principle of necessity offers evaluation if those in charge of planning and executing attack have done everything in their power to verify that the attack being launched really is necessary. One question could be; is there any other way to gain same military advantage with less collateral damage? If there is, does the law require that such measure be chosen?

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<sup>124</sup> For the sake of clarification of this statement I would like to point to the fact that if a commander chooses to launch an attack against a military objective that is obviously not going to succeed, then it would be in order to ask "what objective is the commander directing attack against in the first place?" In such a situation, the commander is under obligation to take precautionary measures because an attack that is launched against an objective whose expected destruction will not be achieved loses the point of military advantage and in addition creates disproportionate damage. If the commander still chooses to launch such an attack, the risk is high that the attack will breach Art 51(4)(a) and/or (b) of AP I.

#### 5.4.4 Precautionary measures as a part of Military Necessity Assessment

The precautionary measures can be found in two provisions of AP I. Art 57 states precautions in attacks, and Art 58 precautions against the effects of attacks. It has been said that its purpose is twofold.<sup>125</sup> It ensures the respect for the identification of the already mentioned principles of distinction and proportionality but also contains autonomous obligation to minimize adverse effects on civilians. For instance, those who plan the attack must pay attention to Art 57(2)(a)(i) of AP I and do everything feasible to make sure that objectives chosen for the attack really are military objectives within the meaning provided in Art 52 AP I. They must also be certain that the military advantage anticipated really is definite. Art 57(2)(ii) AP I is concerned with evaluation of different choices of means and methods that are offered to those who plan a military operation. It states:

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

The provision includes the evaluation of which weapons are being used, their range and overall effect as well as the time and place chosen for that specific attack.<sup>126</sup> To be legally bound by precautionary measures means to ensure that the choice of weapons and ammunition used in an attack do not cause unnecessary suffering and superfluous injuries to both civilians and military staff. It means that all other effects not intended but can be avoided, should be avoided. In that case, it can be said that precautionary principle also creates an obligation to minimize collateral damage.<sup>127</sup> What the word “feasible” implies is that all circumstances, practically possible at the actual time, need to be taken into

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<sup>125</sup> McDonald, Kleffner and Toebes, Depleted Uranium Weapons and International Law- a precautionary approach, Cambridge University Press 2008, page 150.

See also Borrman, Robin, The use of depleted uranium ammunition under contemporary international law: is there a need for a treaty-based ban on DU weapons?, *Medicine, Conflict and Survival*, Vol. 26, No. 4, October-December 2010, page 273.

<sup>126</sup> ICRC Commentary, *supra* n. 49, at p. 680, para 2200.

<sup>127</sup> McDonald, Kleffner and Toebes, *supra* n. 125, at p. 151.

consideration, including humanitarian as well as military considerations.<sup>128</sup> The feasible precautions to avoid, or at least minimize incidental damage to the environment is included in this principle.<sup>129</sup> Military commanders can thus be said to have an obligation to select type of weapons and method of deploying those weapons that are best suited for the attack, of course, together with assessing expected effects on civilian lives and objects. As ICRC Commentary remarks “when a well-placed 500 kg projectile is sufficient to render a military objective useless, there is no reason to use a 10 ton bomb or a series of projectiles aimed without sufficient precision”.<sup>130</sup> Such a case would be militarily unnecessary and the damage would be disproportionate to the overall goal. But we can also imagine situations where even a 500 kg projectile deployed in an urban area creates damage that could be seen as excessive in comparison with the purpose to be achieved. In such a case, would the choice of a 500 kg bomb, being the lesser of two evils, mean that it is a lawful choice because there still exists a military necessity for the purpose to be achieved? According to Hayashi, even if the measure chosen is the least injurious of all alternatives that are reasonably available and materially relevant to the purpose, the military necessity is still inadmissible if the result is disproportionate for the purpose sought.<sup>131</sup> Such a case would require the commander to abort military operation.

There is also another provision in Art 57(3) AP I that illustrates the question of choice:

*“When a choice is possible between several military objectives for obtaining a similar military advantage, the objective to be selected shall be that the attack on which may be expected to cause least danger to civilian lives and to civilian objects”*

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<sup>128</sup> Borrman, Robin, The use of depleted uranium ammunition under contemporary international law: is there a need for a treaty-based ban on DU weapons? *Medicine, Conflict and Survival*, Vol. 26, No. 4, October-December 2010, page 273.

<sup>129</sup> Henckaerts and Doswald-Beck, *supra* n. 81, at p. 147.

Even if one is not agreeing with ICRC Commentary, the wording of the Art 57 neither excludes nor includes environmental considerations. It is a question of choice for argumentation.

<sup>130</sup> ICRC Commentary, *supra* n. 49, at p. 680, para 2200.

<sup>131</sup> Hayashi, *supra* n. 67, at p. 76.

An attack can have concrete and direct military advantage and create collateral damage that is in proportion to that advantage at the same time where another solution was available offering the same military advantage but with less collateral damage. If there is another choice with less collateral damage, then the attack that creates more collateral damage can be assumed to be unnecessary. To choose such an attack may perhaps constitute a breach of IHL because precautionary measures clearly state, that the attack with less collateral damage, in such case, needs to be chosen. If one comes to a conclusion that there was no military necessity because another less severe solution was possible then there is no need to discuss proportionality because the attack is proclaimed unlawful already on the basis of no military necessity. This still requires that the means and methods chosen do not breach other principles of IHL. The evaluation of what kind of choices were at hand in that particular situation can be easier to objectively evaluate than to objectively evaluate if civilian casualties from the chosen attack really were excessive. It can be more obvious if it can be established that there were other means and methods at a commander's disposal to choose from to accomplish same definite military advantage.

The task of a military commander includes the successful execution of a military mission as well as compliance with the laws of armed conflict. Commanders are very seldom also humanitarian lawyers, nor should that be expected of them. The way they assess what is necessary to target to achieve military advantage perhaps differs from what a humanitarian lawyer would find, assessing the same situation. Especially when the commander includes the risk to his own soldiers in the assessment of military necessity and advantage and IHL does not offer any provisions dealing with this specific issue.<sup>132</sup> There is no obligation for commanders to expose their forces to greater danger in order to limit civilian casualties.<sup>133</sup> In fact, ICTY in NATO bombing case made a statement where it was concluded that there was “nothing inherently unlawful about flying at such heights in order to avoid attack by enemy air defenses“ even though it made it much more difficult to distinguish between military and civilians on the ground and there was only one person

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<sup>132</sup> Neuman, *supra* n. 116, at p. 92.

<sup>133</sup> *Ibid.* at p. 95.



making up the military crew in a F16<sup>134</sup>. Indeed, military necessity would suggest that it is in order to fly at such a high altitude in order to avoid being targeted by adversary. If such a choice is justified by military necessity and collateral damage created was in proportion with the advantage anticipated then I might also agree with the conclusion of ICTY. But in this case before ICTY, the refugee convoy of over thousand civilians (majority of women, children and elderly) on Djakovica road, was targeted resulting in around 70-75 killed and around 100 wounded.<sup>135</sup> There are clear indications that point to the insufficient precautions taken in this attack, including the fact that NATO did not have sufficient information in order to make the correct decision that resulted in civilian losses. Even if there were reports that Serb military did use civilian vehicles, the difference between civilians and military personnel could not have been spotted from the height NATO chose to maintain.

The purpose of IHL is to protect the civilians and in case of a doubt whether an object is civilian or military, the object shall be considered civilian.<sup>136</sup> In case such a difference cannot be spotted then the attack stands no chance in being launched on a specific military objective. If the military forces were intermixed with civilians, as the case was on Djakovica road, and the civilians outnumbered the military then the assessment of precautionary measures would show that launching an attack under those circumstances might be excessive to the military advantage anticipated (the destruction of Serb military). Later in Galić case, ICTY Trial chamber explained that determination of proportionality depends on “whether a reasonably well-informed person...making reasonable use of the information available to him/her, could have expected excessive civilian casualties to result from the attack”.<sup>137</sup> The civilian casualties might have been avoided or at least minimized if NATO selected a lower altitude for the operation. The precautionary measures clearly

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<sup>134</sup> Final Report, ICTY, *supra* n. 52, at p. 27, para 69.

Surprisingly, neither NATO nor ICTY pointed out (at least not officially) what was quite obvious to me; the choice to adopt 15,000 feet (4570 meter) minimum altitude for part of the campaign didn't necessarily had to do with only ensuring the survival of the F16 pilot, but the total money value invested in the training of the pilot and the value of the airplane even though the attack breached the cardinal rule of IHL, that of distinction.

<sup>135</sup> *Ibid.* at para 63.

<sup>136</sup> Art 50(1) AP I.

<sup>137</sup> Prosecutor v. Galić, ICTY Trial Chamber, 2003, para 58.

states that if another choice was available then the lesser of two evils should have been chosen, provided that it does not create disproportionate results. After all, isn't the risk of being killed in a combat an inherent part of what it means to be a soldier? Or is this risk presented to the soldiers suddenly above and beyond the risk assessment of civilian casualties?<sup>138</sup> Even though in different context, the Galić case can serve as an example where it is concluded that it is not the real number of casualties in comparison to the military casualties that make an attack disproportionate. It is on the basis of the fact that under certain circumstances, an attack on a crowd of around thousand people can be expected to cause injuries to civilians that clearly outweighs the military advantage anticipated.<sup>139</sup> It is this *expectation* of the result, not the result *per se* that makes attack disproportionate. It is in my opinion pure luck that NATO operation didn't result in more civilian casualties. The fact that it didn't does not make the attack less unlawful. The NATO attack on Djakovica road was found not to "display the degree of recklessness in failing to take precautionary measures which would sustain criminal charges" while the attack in Galić case was declared unlawful by majority of the trial chamber.<sup>140</sup> Even if the civilians weren't intentionally attacked in NATO case, in my opinion, what ICTY failed to assess in NATO case, it did assess in Galić case presenting inconsistencies in their legal approach of the two similar situations.

Nevertheless, it is difficult to predict the exact impact of an attack. There is no crystal ball to rely on. We can just assume that those in charge possess that kind of expertise to spot a situation where civilian casualties clearly outweigh military gains. Even though commanders have great margin of discretion assessing that risks, they do have the obligation to ensure that the military operation complies with the duty to take precautionary approach as stated in Art 57 of AP I.<sup>141</sup> Because of their duty as commanders, the presumption can be made that those who are in charge of planning and making decisions in

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<sup>138</sup> Prosecutor v. Erdemović, ICTY, Appeals Chamber, 1997, para 19.

Although Erdemović case was about duress, it contains a notion suggesting that being a soldier may indeed require to put the lives of civilians before your own. However, judge Cassese had a strong dissenting opinion on this matter, see especially para 16 and para 47-51.

<sup>139</sup> Hayashi, *supra* n. 67, at p. 97.

<sup>140</sup> Final Report, ICTY, *supra* n. 52, at p. 27, para 70.

<sup>141</sup> Kolb and Hyde, *An Introduction to the International Law of Armed Conflict*, Hart Publishing 2008, page 180

a battle have taken military necessity into consideration before going further with engaging into military action. It is easier to spot a difference between the meaning of bombardment of a military building stating military necessity and the bombardment of a Red Cross medical unit stating military necessity.<sup>142</sup> The middle road is something of a grey area. Especially when it is overshadowed by the difficulties presented in the assessment of what constitutes a military objective, all the way to the assessment of necessity and proportionality.

## 5.5 Martens Clause – Principle of Humanity and the Environment

Another underlying ground to the principle of precaution of paramount importance is to spare civilians from unnecessary suffering.<sup>143</sup> This is also another reason why there are limitations to means and methods to wage war. Because this notion in the law is generic, it can be referred to both civilians as well as combatants. Perhaps, it would not make sense to state that the damage that is prohibited to cause against combatants would be seen as perfectly legal to be caused to civilians. What is considered to be inhumane treatment of combatants cannot be anything but inhumane treatment of civilians.

The law cannot regulate every detail in a war or in a combat. Where there is no specific prohibition in written law or where the laws' customary qualification is uncertain, Martens Clause can be invoked. Martens Clause refers to "the principles of humanity" and "the dictates of public conscience".<sup>144</sup> It is a moral principle of conduct of war. It can be found in the preamble of Hague Convention IV and reads:

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<sup>142</sup> The belligerents have an obligation to respect objects protected by the Geneva Conventions and if intentionally attacked, it may constitute a war crime under the ICC Rome Statute Art. 8(2)(b)(xxiv).

<sup>143</sup> (1907) Hague Convention IV, Art 23(e).

<sup>144</sup> Dinstein, *supra* n. 24, at p. 9.

Further, it can be said that Martens Clause is so called after Friedrich von Martens, the Russian delegate who chaired the 11th meeting of the Second Committee of the Second Commission of the First Hague Peace Conference of 1899.

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

The Clause is also introduced in the Art 1(2) AP I. Certain conduct can still be prohibited even if it's not explicitly prohibited by law. Such a case would be if the conduct were not compatible with the principle of humanity.<sup>145</sup> The Martens Clause is basically there to fill in the gaps of IHL. It is important especially when means and methods of waging war are constantly developing and where new technology and science are being introduced. Some have suggested that it is regrettable that it is not invoked as often as it could and should.<sup>146</sup> Nevertheless it continues to be important as affirmed in Advisory Opinion on Nuclear Weapons case.<sup>147</sup>

The expansion of Martens Clause to include environmental considerations is not impossible, as it has been suggested by the International Union for Conservation of Nature (IUNC).<sup>148</sup> They further find that the Clause gives IHL a dynamic dimension not limited by time and fundamental principles beyond written law. In today's context of environmental concerns and climate change issues, environment has become a part of the “dictates of public conscience”.<sup>149</sup> This can include some protection to the environment if, by environmental destruction, civilians would be submitted to unnecessary suffering. The limitations of “unnecessary suffering” can be said to also apply to the environment.<sup>150</sup> Indeed, why should unnecessary suffering only refer to human beings? The entire ecosystem can suffer from means and methods of warfare under specific circumstances. Giving this much importance to the natural environment in times of armed conflicts could

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<sup>145</sup> Kolb and Hyde, *supra* n. 141, at p. 63.

<sup>146</sup> *Ibid.* at p. 64.

<sup>147</sup> Advisory Opinion, ICJ, *supra* n. 26, at p. 260, para 87 states: “Finally, the Court points to the Martens Clause, whose continuing existence and applicability is not to be doubted...”.

<sup>148</sup> UNEP, 2009, *supra* n. 11, at p. 13.

<sup>149</sup> Desgagné, *supra* n. 58, at p. 114.

<sup>150</sup> Hulme, *supra* n. 25, at p. 78.

perhaps be considered provocative to some scholars and military personnel but one could also be provoked by the idea that unnecessary suffering is something imperatively reserved for human kind and excludes everything else.

W.D. Verwey proposes that “the dictates of public conscience” “should be interpreted so as to include the requirement of avoiding (at least unnecessary) damage to the environment, by reference to today’s widespread awareness and concern through society.”<sup>151</sup> Environmental protection during armed conflicts includes only a few principles and is in process of constant development. The Clause can serve to fill in even those gaps. It invites States to apply international minimum standard from principles of international law such as the duty to prevent environmental harm and the precautionary measures. If modern weaponry development and new military strategies pose a new emerging threat to the natural environment, the Clause can serve to address this rapid evolution of military technology. In such way, it invites States to adjust their conduct during hostilities to ensure human survival against the environmental consequences of destructive human activities.<sup>152</sup> However, the Clause as an independent source of law is not considered as a proper interpretation and binding by all States. For example, USA considers it to apply only to help interpreting existing international law.<sup>153</sup>

## 5.6 “Measuring” Excessiveness – is there a way?

Basically, when the military necessity is established, in a battle ordeal, one could argue that there is very little that could not be justified on the basis of military necessity to fulfill the mission of the military advantage, if that advantage is of fundamental importance. But, as I have concluded earlier, even with military necessity established, there can still exist attacks

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<sup>151</sup> Wil D. Verwey, Wil D., Observations on the Legal Protection of the Environment in Times of International Armed Conflict, Hague Yearbook of International Law, Volume 7, 1994, page 44.

<sup>152</sup> Shelton, Dina and Kiss, Alexander, “Martens Clause for Environmental Protection”, Environmental Policy and Law, 30/6 (2000), page 286.

see link here: <http://iospress.metapress.com/content/perb914yf1trq4vc/fulltext.pdf> .

<sup>153</sup> Wexler, Lesley, Limiting the Precautionary Principle: Weapons Regulation in the Face of Scientific Uncertainty, University of California, Davis Law Review, Vol. 39 No. 2, page 480.

that result in damage excessive for the military advantage anticipated. Such a case would be if the commander didn't calculate the risks accordingly. This outcome would constitute an unlawful attack in the meaning of IHL provisions.

How do we measure excessiveness then? Are the impacts of destruction measured for a day or month to come? Or in other words, when is the loss of civilian lives due to the destruction of environment disproportionate to the military advantage anticipated? There is no obvious answer to this question. Just as there is no quantitative measurement for the collateral damage based on objective evaluation in calculation of military advantage.<sup>154</sup> In the Nuclear Weapons case, ICJ explained that it could not conclude whether it would be legal or illegal to use nuclear weapons by a State where its survival as a state would be at stake.<sup>155</sup> This opens up for the possibility that even the usage of nuclear weapons can be justified on the basis of military necessity, if for instance, a mere existence of a state is threatened.<sup>156</sup> The possible disastrous effects of nuclear weapons have been established by bombings of Hiroshima and Nagasaki during WWII. It is not hard to imagine that if any means and methods of waging war could create disproportionate damage that would be nuclear weapons. Even in this case the question could be asked whether the complete destruction of the two cities was, in fact, in proportion to the military advantage anticipated, the capitulation of Japan.

Professor Dinstein points out that the view that collateral damage applies “only when the disproportion is unbearably large” it to go too far.<sup>157</sup> On the other hand, excessive collateral damage is not any collateral damage. He gives also example of a situation where there would be an obvious breach of the principle of proportionality. He states that the destruction of a whole village, with hundreds of civilian casualties, in order to eliminate a single enemy sniper would be such an obvious breach.<sup>158</sup> The question is if the damage caused in Fallujah has been excessive to the military advantage anticipated? If it is in fact a

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<sup>154</sup> Holland, *supra* n. 92, at p. 54.

<sup>155</sup> Advisory Opinion, ICJ, *supra* n. 26, at p. 263, para 97.

<sup>156</sup> Although ICJ is discussing usage of such weapons under the extreme circumstances of self-defense, it is not impossible to make a reference to military necessity. For more discussion on military necessity on the basis of self-defense, I would suggest Hayashi, *supra* n. 67, at p. 55.

<sup>157</sup> Dinstein, *supra* n. 24, at p. 131 (quoting Randelzhofer).

<sup>158</sup> *Ibid.* at p. 134.

matter of destruction of entire city for capturing one terrorist leader then Professor Dinstein's evaluation of the equation one person against 60 000 possible losses of civilian lives makes the expected damage excessive. But is the equation 6000 insurgents against 60 000 possible civilian losses a damage excessive?

For criminal liability, according to the ICTY, it is necessary that the damage done “*have been perpetrated intentionally or have been the foreseeable consequence of the acts of the accused*”.<sup>159</sup> In other words, if the damage is committed willfully or in the knowledge that the attack will cause excessive loss, it is a grave breach of the AP I that also implies criminal liability.<sup>160</sup> This is of course a question of proof. Did the commander launch the attack in the knowledge of that the damage would be excessive or did he count on less damage? If the latter, should the commander have known that the damage would be excessive?

As Professor Hampson points out, the “judgments of a commander balancing military necessity is rarely, if ever, subject to legal challenge, let alone criminal sanction”.<sup>161</sup> This might be the result of the fact that military commanders cannot rely on the *lex scripta* to tell them what exact degree of collateral damage is prohibited. They are at the mercy of their own mind to find a balance between goals and values on the battlefield. Even though military necessity should not be used to justify excessive collateral damage, the objectivity (or perhaps even subjectivity) of a commander is given a high profile.<sup>162</sup> This means that with military necessity established, collateral damage is then assumed to be legal until proven to be excessive. Military actions with no military necessity do not create collateral damage. They are simply unlawful under IHL.

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<sup>159</sup> Prosecutor v. Blaskić, *supra* n. 78, at para 183.

<sup>160</sup> Art 85 (3) AP I.

<sup>161</sup> Hampson, Françoise, “Military Necessity”, The Crimes of War Education Project. Find the link here: <http://www.crimesofwar.org/a-z-guide/military-necessity/>

<sup>162</sup> Holland, *supra* n. 92, at p. 49 (He further quotes Rogers and Dinstein).

## 5.7 Indiscriminate attacks

Indiscriminate attacks are stated in Art 51(4) AP I and target attacks that are not directed at a specific military objective or employ methods or means of combat that cannot be directed at a specific military objective. For example, to fire blindly without a clear idea of the nature of the target would constitute an indiscriminate attack.<sup>163</sup> They also include those means or methods of combat whose effects cannot be limited as required by API. These attacks are of such nature that they strike military objectives and civilians or civilian objects *without distinction* (my emphasis).<sup>164</sup> Such attacks can be conducted during nights, in bad weather or extreme heights, where the vision would be too limited to safely target military objectives.

From the point of view of IHL, indiscriminate attacks are no better than those directly pointed against civilians and civilian objects (which are absolutely prohibited according to Art 51 and 52 API) as civilian injuries, in both situations, really are not a matter of concern to the attacker.<sup>165</sup> One can say that, when executing indiscriminate attacks, the attacker is indifferent to the damage the attack is causing to civilians and civilian objects. According to ICRC Commentary, an attack which may be expected to cause incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination thereof, which would be excessive in relation to the concrete and direct military advantage anticipated, are also part of the notion of what constitutes an indiscriminate attack.<sup>166</sup> An attack that is launched indiscriminately and destroys civilian objects, such as the MK 77 bomb, deployed by air would be an attack without military necessity.<sup>167</sup>

In the provisions of Art 51(4) AP I there is no reference that the attack must create certain results for the attack to be seen as unlawful. The attack is unlawful when it fulfills the wording of the article as indiscriminate attack, with or without certain effects. In Kordić case, the ICTY Appeals Chamber held that no particular results were needed for the attack

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<sup>163</sup> Dinstein, *supra* n. 24, at p. 127.

<sup>164</sup> Art 51(4)(c) AP I.

<sup>165</sup> Dinstein, *supra* n. 24, at p. 127.

<sup>166</sup> ICRC Commentary, *supra* n. 49, at p. 618, para 1953.

<sup>167</sup> Hayashi, *supra* n. 67, at p. 115.



to constitute a breach but results of injuries to civilians and civilian objects were necessary for the act to constitute a grave breach. ICTY Appeals Chamber explains further:

*“Punishment of an unlawful attack on civilians or civilian objects itself, regardless of the result, would be based on the concrete endangerment of civilian life and/or property, as the perpetrator can no longer control the result of an unlawful attack once launched; thus the mere undertaking of such an” in corecto or “in abstracto” extremely dangerous attack would be penalized for good reasons”*<sup>168</sup>

One can conclude from this statement that the unlawfulness in the attack lays in the fact that the civilian objects were put under the risk of being targeted independently of the outcome of that attack. But in order to be prosecuted for the deed on the individual level, the risk needs to be turned into a fact. In other words, for the attack to constitute a grave breach of AP I, it needs to be committed willfully, but also in the knowledge of that such an attack will cause excessive loss of life or damage to civilian objects.<sup>169</sup> The prohibition against indiscriminate attacks can be said to indirectly provide a protection for the environment when the environment makes part of civilian object. In analogy with the findings of ICTY Appeals Chamber in Kordić case, it can be said that there is no grave breach of this provision unless the attack produces the results of the excessive damage to the environment as part of civilian object.

Art 51(5)(a) AP I is especially interesting for Fallujah case if one is accepting the fact that Fallujah might have been considered as a lawful military objective per se because lawful military objectives were scattered throughout the city. The article states that an indiscriminate attack is also *“an attack by bombardment by any methods or means which treats as a single military objective a number of clearly separated and distinct military objectives located in a city, town, village or other area containing similar concentration of civilians or civilian objects”*. Considering the already mentioned possibility that Fallujah

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<sup>168</sup> Prosecutor v. Kordić et al., ICTY, Appeals Chamber, 2004, para 62. Of course, this interpretation is better suited for the underlying purpose of Geneva Convention IV; to ensure the protection of civilians whenever possible.

<sup>169</sup> Art 85(3)(b).

was treated as a single military objective, the issue arises whether the means and methods chosen make such an attack lawful. According to the meaning of this provision, an attack on the city by bombardment would constitute an unlawful attack considering the equation of civilians against the number of insurgents.

The decision to employ indiscriminate weapons or attacks is usually a result from failure to apply previous provision of AP I such as to take necessary precautions before and during the attack by failure to seek precise information on the objects to be attacked. In the case of Fallujah, the methods of deployment of munitions containing WP seemed to be done indiscriminately breaching one of the cardinal provisions of IHL. Even with the purpose to neutralize or disable the enemy, the collateral damage WP produced seems to have been in disproportion to the military advantage anticipated when the attack was delivered indiscriminately. Such an attack produces excessive damage and it cannot be justified on the basis of military necessity. The fact that weapons containing WP were used indiscriminately, including the MK 77 bomb delivered by air, the conclusion is that the damage inflicted on Fallujah was excessive and militarily unnecessary. Therefore, it is a violation of a cardinal principle in IHL, that of distinction *at all times* between civilian objects and military objectives (my emphasis). According to the Rome Statute, such sequence of events is enough to establish the required *mens rea* for a war crime.<sup>170</sup>

## 5.8 Environment and Precautions

The environmental effects as well as effects on human health from certain means and methods of warfare and the scientific uncertainty that surrounds the subject, make this principle highly important from the environmental point of view. In the customary law study of ICRC, Rule 44 indicates that means and methods chosen “must be employed with due regard to the protection and preservation of the natural environment”.<sup>171</sup> This is a

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<sup>170</sup> Dörmann *supra* n. 74 at Art 8(2)(b)(i), p.132.

Not to elaborate further on this topic, it is interesting though, that there is an obvious difference between how ICC and ICTY interpret when such an attack should constitute a war crime.

<sup>171</sup> Henckaerts and Doswald-Beck, *supra* n. 81, at p. 147.

reflection of Art 35(3). It is also an implication that there may exist “an obligation to minimize environmental damage while planning or carrying out military operations”.<sup>172</sup>

Professor Lesley Wexler suggests that the precautionary principle shifts the burden of proof of harm away from those likely to suffer from it and onto those that can cause harm with their actions.<sup>173</sup> This would mean that those, whose military forces are engaged in a battle, would need to disprove the likelihood of environmental harm and health problems before launching attacks. Wexler also suggests that the principle adds an extra layer of protection by being an alternative to risk assessment and other frameworks with scientific uncertainty and hidden scientific presumptions. Being “better off safe than sorry” adds an extra margin of safety from potential environmental and health risks from certain weapons.<sup>174</sup> This is, of course, a certain observation if those in charge respect the fact that scientific uncertainty does not absolve them from taking precautionary measures. There is also a disagreement between States whether some principles of environmental law in peacetime are applicable during armed conflicts when there is no such reference made in the treaties.<sup>175</sup> In Nuclear Weapon Case, the emphasis has been made that “international law recognizes the importance of the protection of the environment during armed conflicts, and they did not limit themselves to the requirement of treaties specifically applicable to armed conflict”.<sup>176</sup> There are tendencies also from scholars to suggest that applicable treaties in peacetime very much are applicable in wartime as long as they do not represent inconsistencies with the laws of armed conflicts.<sup>177</sup> The principle of prohibition of transboundary harm is one of those important principles. This is related to the notion of a “third state”, not involved in the armed conflict. The peacetime concept of sovereignty governs the inviolability of a states territory. During armed conflicts, the state that is not part of the conflict is still protected by the basis of sovereignty and its territory is not to be harmed by the effects of armed conflict between other states.<sup>178</sup> If precautions are not

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<sup>172</sup> Desgagné, *supra* n. 58, at p. 117.

<sup>173</sup> Wexler, *supra* n. 153, at p. 464.

<sup>174</sup> *Ibid.*

<sup>175</sup> Henckaerts and Doswald-Beck, *supra* n. 81, at p. 151.

<sup>176</sup> *Ibid.* at p. 148.

<sup>177</sup> *Ibid.*

<sup>178</sup> Hulme, *supra* n. 25, at p. 132.

taken, the environmental pollution caused from war destruction can spread into the neutral states territory and cause damage. I will not elaborate further on the notion of peacetime treaties during time of war, as it is not the main concern of this paper. However, it is important to acknowledge the significance of peacetime instruments that may not be automatically extinguished just because some countries decide to wage war against one another.<sup>179</sup>

The starting point for a military commander assessing precautionary principle means that he/she chooses from the weapons arsenal at his/hers disposal. Perhaps, it would not mean that it is commanders' responsibility to decide whether a certain weapon should or should not be deployed because its effects are scientifically uncertain. I would suggest that it is a responsibility of the State to inform and update its military leadership when such precautionary measures need to be taken due to scientific uncertainty. For example, a commander can be informed that weapons with WP ammunition need not to be used in urban areas *if* it can be avoided accomplishing same military advantage with another type of munitions. In that case the military commander would know that potential short- as well as long-term risk of WP munitions are uncertain and that risk assessment on bases of protection of environment and human health needs to be included in the assessment of military necessity.

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<sup>179</sup> For further analysis about basis of liability for harm caused to another state I would recommend Corfu Channel Case (United Kingdom v. Albania), ICJ, and Trail Smelter Arbitration (United States v. Canada).

## 6 CCW in relation to means and methods used in Fallujah

As already mentioned, the choice of means and methods in warfare are not unlimited and as complementary to the IHL principles there are certain convention in this sphere of law that also regulate the usage of some weapons and prohibit others. One of these important restrictions to means and methods of warfare is CCW. The purpose of the CCW is to ban or restrict the use of specific types of weapons that are considered to cause unnecessary or unjustifiable suffering to combatants or to affect civilians indiscriminately.<sup>180</sup> The *chapeau* of this convention makes a reference to Art 35(3) AP I recalling the prohibition of widespread, long-term and severe damage to the environment. Of course, this is not a possibility in the case of Fallujah as the threshold is too high for the damage to meet these requirements. Nonetheless, the CCW also confirms the States' determination that "*in cases not covered by this Convention and its annexed Protocols or by other international agreements, the civilian population and the combatants shall at all times 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*". Here, the Convention is referring to the importance of Martens Clause.

The protocol of this Convention that is interesting for our case is the Protocol on Prohibitions or Restrictions on the Use of Incendiary weapons, hereafter CCW Protocol III. White phosphorus (WP) is used by the military in various types of ammunition and enables the army to produce smoke for concealing troop movements. It is also used as help for identifying targets due to the WPs illuminating characteristics.<sup>181</sup> It is not disputed whether the WP has been used in Fallujah. As the state officials confirm, weapons containing white

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<sup>180</sup> The United Nations Office at Geneva, Disarmament Information.

[http://www.unog.ch/80256EE600585943/\(httpPages\)/4F0DEF093B4860B4C1257180004B1B30](http://www.unog.ch/80256EE600585943/(httpPages)/4F0DEF093B4860B4C1257180004B1B30)

<sup>181</sup> U.S. Department of Health and Human Services, Agency for Toxic Substances and Disease Registry (ATSDR), Fact Sheet on White Phosphorus, CAS # 7723-14-0, September 1997.

phosphorus have been used in Fallujah. Such weapons are munitions type M110 and M825, with point-detonating delay fuzes.<sup>182</sup> What is disputed though, is how or in what way these munitions have been used and if such usage has breached the principles of IHL.

Art 1 of CCW Protocol III states:

*“Incendiary weapon means any weapon or munitions which is primarily designed to set fire to objects or to cause burn injury to persons through the action of flame, heat, or combination thereof, produced by a chemical reaction of a substance delivered on the target. (a) Incendiary weapons can take the form of, for example, flame throwers, fougasses, shells, rockets, grenades, mines, bombs and other containers of incendiary substances”*

The prohibition does not seem to include munitions used for illumination purposes. In fact, CCW Protocol III says that “munitions which may have incidental incendiary effects, such as illuminants, tracers, smoke or signaling systems” are not included in the Protocol III. This is the main argument why WP falls out of the Protocol III. Thus, it is not *primarily designed* to set fire on objects or to cause burn injury to persons (my emphasis).

The interpretation of what an incendiary weapon is, according to the notion of this Protocol, perhaps reads too narrow. What the weapon is primarily designed to do, i.e. its purpose of use, is not the same thing as what other possibilities of usage are present and what effects it may cause. The fact that a weapon is not primarily designed to cause burn injury to persons does not mean that it cannot be used in the same way as the weapons whose primary design is to cause burn injuries to persons, such as napalm-like bombs. This is where WP escapes the Conventions regulation and creates a problem because the historical usage of WP has been of dual nature.<sup>183</sup> The incendiary effects of WP have been both primary when used as weapon and “incidental” when used for illuminating purposes.

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<sup>182</sup> Field Artillery, *supra* n. 16, at p. 26.

<sup>183</sup> Memorandum to CCW Delegates, The need to re-visit Protocol III on Incendiary Weapons, Human Rights Watch and Harvard Law School International Human Rights Clinic, November 2010, page 7.

“Incidental incendiary effects” is another eye-catching phrase in the CCW Protocol III. WP is highly flammable substance. It reacts rapidly with oxygen and catches fire easily in room temperature. In fact, there is a risk for spontaneous ignition according to the division of NBC-defense at the Swedish Defense Research Agency (FOI).<sup>184</sup> This may suggest that “incidental incendiary effect” in the case of WP, is substantially high. One can also argue that it is not even logical to suggest that a substance whose primary purpose is to kindle can be regarded as potentially having an incidental incendiary effect. The handling of WP demands that it is treated as if it were to react with oxygen at any time during the process of its handling. The word “incidental” in the Protocol may not mean that WP is not burning when used for illuminating purposes. What it means is that the burning effect is not used as weapon.

The problem with the “incidental incendiary effects”, i.e. the secondary effect, of WP is created when the surface-launched M825 artillery rounds are deployed in an urban area or near an area where the presence of civilian population is apparent. What written Memorandum to CCW Delegates suggests is that WP munitions could be used in populated areas for their “incidental” incendiary effects “under the guise of being used primarily as an obscurant or illuminant”<sup>185</sup>. When used by Israeli military in Gaza, the M825 rounds spread “WP wedges to a radius of about 125 meters (410 feet), burning civilians and setting fire to civilian buildings”.<sup>186</sup>

Exposure to WP causes thermal and chemical burns, even down to the bone. Because it reacts to oxygen, wounds heal very slowly. WP is highly liposoluble and penetrates quickly further into the body after it has penetrated into the skin. Once inside the body, white phosphorus can cause damage to the heart, liver and kidneys.<sup>187</sup> In other words, the

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<sup>184</sup> Berglind, Rune and Henriksson, Christina, “Obscurant smoke shells”, Document ref. No. ISRN: FOA-R-00-01569-222—SE, Project requested by Swedish Armed Forces, Project No. E4980, Division of NBC-defense, Swedish Defense Research Agency (FOI), page 3.

<sup>185</sup> Memorandum to CCW Delegates, *supra* n. 183, at p. 5.

<sup>186</sup> *Ibid.* at p. 7.

<sup>187</sup> Karlsson, Britt, Lind, Per, Lindblad, Anders and Tunemalm, Anna-Karin, “Vit fosfor-en kortfattad översikt” (White Phosphorus—a brief overview (my interpretation)), Swedish Defense Research Agency (FOI) Memo 2879, Project requested by Swedish Ministry for Foreign Affairs, Project No. A4953, page 4.

exposure may result in multiple organ failure and death with only 10% of body burns.<sup>188</sup> If the person survives, there is a high probability to get infections because of the slow healing process and WP poisoning when it enters into bloodstream or the bone. In other words, WP as a chemical substance has all the perfect ingredients to cause superfluous injury or/and unnecessary suffering and it does precisely that. According to the ICRC Commentary, this prohibition is one of the “cardinal principles” of IHL.<sup>189</sup> The prohibition is complicated by the fact that the countries are not agreeing on how a certain weapon becomes included in this prohibition. For instance, in the Nuclear Weapons case when the legality of nuclear weapons was discussed on the basis of this principle, France and Russia were of the opinion that a weapon can only be prohibited “by virtue of this rule if States choose to prohibit the weapon by treaty.”<sup>190</sup> Other States assessed the legality of the effects of nuclear weapons “on the basis of the rule itself”.<sup>191</sup>

The rule is clear on this point. Incendiary weapons are prohibited for the reasons that they cause injury prohibited by the rule. It has been confirmed by US State officials that WP has been used as a weapon against Iraqi insurgents.<sup>192</sup> The Field Artillery magazine article read: “*We used it...as a potent psychological weapon against the insurgents in trench lines and spider holes when we could not get effects on them with HE (high explosive). We fired “shake and bake” missions at the insurgents, using WP to flush them out and HE to take them out*”<sup>193</sup>

The WP was used to “flush out” closed spaces causing anyone inside to flee the smoke and fire by going outside where they were then attacked by high explosives. This would suggest that persons have in fact been directly exposed to WP and, perhaps, that it was used as an incendiary weapon. It is a controversial statement since the prohibition to cause unnecessary suffering and superfluous injuries includes belligerents as well as civilians.

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<sup>188</sup>Memorandum to CCW Delegates, *supra* n. 183, at p. 3 (quoting information from [globalsecurity.org](http://www.globalsecurity.org) reports).

<sup>189</sup> Henckaerts and Doswald-Beck, *supra* n. 81, at Rule 70, p. 239.

<sup>190</sup> *Ibid.* p. 243.

<sup>191</sup> *Ibid.*

<sup>192</sup> Field Artillery, *supra* n. 16.

<sup>193</sup> *Ibid.* p. 26.

See also “US forces used 'chemical weapon' in Iraq”, 16<sup>th</sup> of November 2005:

<http://www.independent.co.uk/news/world/americas/us-forces-used-chemical-weapon-in-iraq-515551.html>



The prohibition can be found in Art 23(e) of Hague Conventions and embodies custom. Thus, the lawfulness of these actions by US forces, in this specific scenario can, in fact, be questioned. Another issue arises if the usage of WP to “flush out” insurgents also affected civilians present in same spaces together with insurgents. Since there were allegedly 60 000 civilians and 6000 insurgents in the city, there is a high risk that in many such spaces, houses and other buildings in the city, civilians might have outnumbered the insurgents. Statistics would suggest that such scenario might have been possible in some circumstances. The problem that would emerge is the presence of children and old persons. Children and elderly are much more sensitive to the toxic elements of WP than fit and healthy soldiers.<sup>194</sup> Especially children do not survive a high concentration of toxic WP vapor due to carbon monoxide poisoning and the deprivation of oxygen, something that is created when WP smoke grenades are deployed in a closed area.<sup>195</sup>

In my opinion, even if the Protocol restricts its inclusion, when directed against persons and civilian objects, WP is to be regarded as an incendiary weapon. If the Protocol III rejects the inclusion, the prohibition is still applicable on the basis of customary nature of the rule prohibiting unnecessary suffering, a suffering which is deemed to happen due to the effects of WP, regardless of its original purpose of use. In the Memorandum to CCW Delegates, it has been suggested that the revision is required to include the effects-based definition of incendiary weapons since the Protocol III has failed to live up to its promise of protecting civilians from *the effects* of incendiary weapons (my emphasis).<sup>196</sup>

## 6.1 The legality of MK 77 as allegedly used in Fallujah

Whatever the uncertainty about WP munitions used as incendiary weapon, there is no doubt that MK 77 belongs to the incendiary weapon family. It is a napalm-like bomb and even if the MK 77 does not have the same composition as napalm, it has very similar destructive characteristics. Because the bomb contains polystyrene, it creates a very sticky

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<sup>194</sup> Karlsson, Lind, Lindblad, and Tunemalm, *supra* n. 187, at p. 4.

<sup>195</sup> Referring to a telephone interview with Sten-Åke Fredriksson on the 9th of May 2012.

<sup>196</sup> Memorandum to CCW Delegates, *supra* n. 183, at p. 9.

substance that highly facilitates its spreading. WP can be added to this bomb to cause even more difficulty to put out once the object is on fire because it keeps burning until deprived of oxygen. The MK 77 is also known as “dumb” bomb, not a precision-guided weapon. As it lacks built-in control system, it scatters over a wide area.<sup>197</sup> These characteristics suggest that the effects of MK 77 cannot be limited as required by IHL, once it has been deployed. The indiscriminate nature of this bomb would breach the principle of distinction. The other is already mentioned in the notion on unnecessary suffering and superfluous injury.

As ICRC Commentary points out “incendiary weapons are subject to restrictions on their use when the military objective is situated in an inhabited area. In particular, they should never be delivered by aircraft in these circumstances”<sup>198</sup>. Aircraft in fact, delivers the MK 77 bomb. If the alleged facts were true, that the bomb was dropped over Fallujah where 60 000 civilians found shelter, such action might be in breach of CCW Protocol III.

The issue here is that USA has made reservation to this protocol and claims “*the right to use incendiary weapons against military objectives located in concentrations of civilians where it is judged that such use would cause fewer casualties and/or less collateral damage than alternative weapons....*”<sup>199</sup> This brings us back to the notion of commanders’ discretion when planning and executing an attack. The reservation of this kind opens up for the possibilities that the incendiary weapons can be used in urban areas whenever the military necessity so requires, on the contrary to what CCW Protocol III prescribes.<sup>200</sup> Because the reservation, in fact, is contrary to the wording of AP I, criticism can be raised against the reservation. Even if less collateral damage perhaps is possible with the choice of this kind of weapon, does this extinguish the prohibition on unnecessary suffering and superfluous injury? Does this choice of weapon that would perhaps create less collateral damage, under specific circumstances ruling at the time, extinguish the prohibition of indiscriminate attacks? I would argue that it does not. According to Oeter, this prohibition probably constitutes the most important expression of the principle of “limited warfare”.

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<sup>197</sup> <http://www.globalsecurity.org/military/systems/munitions/mk77.htm>

<sup>198</sup> ICRC Commentary, *supra* n. 49, at p. 409, para 1437.

<http://www.icrc.org/ihl.nsf/b466ed681ddfcfd241256739003e6368/2f157a9c651f8b1dc12563cd0043256c1OpenDocument>

<sup>199</sup> Memorandum to CCW Delegates, *supra* n. 183, at p. 8.

<sup>200</sup> Art 2(3) CCW Protocol III.

Oeter continues to explain that the principle of distinction is “both greatest consequence of and a modification of the fundamental orientation of warfare towards the requirements of “military necessity”.<sup>201</sup> If we recall the discussion on military necessity, it does not exempt from rules that are cardinal norms of IHL, such as prohibition on targeting civilians. In cases where the cardinal rules of IHL would be violated, the military necessity cannot be invoked. Unnecessary suffering is prohibited whether or not the collateral damage would be proportional to the military advantage anticipated. Indiscriminate attacks are prohibited at all times because they do not distinguish between civilian and military targets.

Recalling the Art 51(5)(a) AP I but also Rule 13 in ICRC Commentary, the bombardment of military objectives located in the city, town, village or other area containing similar concentration of civilians or civilian objects are prohibited on the basis that such attacks are indiscriminate attacks. Indiscriminate attacks are in fact disproportionate attacks. Even if less collateral damage would be created by the deployment of an incendiary weapon, the collateral damage created would still be excessive to the military advantage anticipated on the basis that indiscriminate attacks are prohibited. Such an attack would therefore also be a militarily unnecessary attack. Even though USA is not party to the AP I, ICRC Commentary suggests, among others, that the prohibition is a norm of customary international law and therefore, I would argue, applicable to the actions of the US forces.<sup>202</sup>

When it comes to environmental damage of these kind of weapons, Art 2(4) CCW Protocol III states that “it is prohibited to make forests or other kinds of plant cover the object of attack by incendiary weapons except when such natural elements are used to cover, conceal or camouflage combatants or other military objectives, or are themselves military objectives”. The military manuals and official statements which consider that an area of land may be a military objective if it meets the required conditions also reflect when it would be in order to use incendiary weapons against natural environment.<sup>203</sup> When it is a military necessity for the specific purpose of the attack to make natural environment

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<sup>201</sup> Oeter, (in Fleck), *supra* n. 23, at p. 134

<sup>202</sup> Henckaerts and Doswald-Beck, *supra* n. 81, at Rule 13, page 43.

See also Hulme, *supra* n. 25, with Reference to Commentary provided by Bothe, Partsch and Solf, p. 121.

<sup>203</sup> *Ibid.* at p. 143.

military objective, natural environment is considered to be military objective. According to the principle of proportionality, the destruction of natural environment is not to cross the line of excessiveness. In theory, proportionality principle does protect the environment. The environment is also protected if, as a military objective, it is situated in the vicinity of concentration of civilians, and whose destruction would be in disproportion to the military advantage anticipated. In such case, the natural environment is not to be targeted and is therefore protected because the damage created might be excessive.

There could exist a difference in assessment of the excessiveness between the environmental damage *per se* and the damage done to civilians because of the destruction of the natural environment. However, we could only speculate in how this difference emerges and how to make such an assessment. We do know, in fact, that the higher the military advantage anticipated, the higher is the threshold for measuring excessive damage. This is applicable to environmental damage as well as civilian casualties.

In the case of Fallujah, environment was not directly attacked but the effects of the usage of weapons containing WP, such as MK 77, and as an incendiary weapon, have had an impact on cattle and other farm animals that civilian population rely on as food supply. Along with the overall destruction of the city, the important sources of food stocks were also destroyed.<sup>204</sup> Such objects can be part of what is known as “objects indispensable to the survival of the civilian population”. With 60 000 civilians left in the city compared to 6000 insurgents, the livestock can assumed to be used *not solely* as sustenance of the enemy armed forces, contrary to what is demanded by Art 54(3) in order to legitimize its destruction. With such destruction, one could argue that adequate levels of food perhaps did not remain for the benefit of the civilian population. Its destruction, even if unintentional, endangered the survival of the civilian population. Of course, criticism can be raised against my point of view in question of uncertainties whether this kind of destruction really endangered the survival of the population. Nevertheless, the deployment of MK 77 could render such scenario possible because of the wanton destruction that this

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<sup>204</sup> Fallujah Coverage, *supra* n. 12.

The effect on animals was shown in several footages in the documentary. Whether the death of animals is to be prescribed to WP or other sort of weapons is uncertain.

type of bomb creates. Whether or not such scenario would emerge after the deployment of MK 77 does not extinguish this bombs' indiscriminate effect when deployed over urban area where population density is expected to be high. After all, if we recall the outcome in Galić case, it is the expectations of the result and not the result *per se* that constitutes a disproportionate attack.

What can be understood is that deploying a dumb bomb over an urban area, which may result in an indiscriminate attack *and* unnecessary suffering and superfluous injury to civilians and civilian objects, is a militarily unnecessary attack. In such case, a commander is obliged to take all feasible precautions and perhaps choose another method of warfare that does not breach the principles of IHL. This would create an obligation to abort the attack if MK 77 is about to be used in urban area. Proceeding with an attack that violates peremptory norms of IHL has, in my opinion, enough qualifications to constitute an unlawful attack.

## 7 CWC in relation to means and methods used in Fallujah

The incendiary effects of WP are perhaps not the only concern when it comes to its impact on the environment and on civilians. Besides being very unstable when exposed to oxygen, the reaction also produces toxic smoke. In fact, when used as a smokescreen munitions by Swedish Armed Forces, it is treated as a toxic chemical agent.<sup>205</sup> Most smokes caused by smokescreen munitions are not hazardous unless there is excessive concentration or prolonged exposure to it but high concentrations of smoke generated in closed spaces are extremely dangerous. During the simulation of military operations with WP, the soldiers of Swedish Armed Forces are equipped with personal protective equipment to avoid being affected by pulmonary edema, a consequence that occurs when person is exposed to high concentrations of WP smoke.<sup>206</sup> Even other military forces are clear about the fact that exposure to heavy smoke concentrations for extended periods can result in casualties as well as physical and psychological injury and illness.<sup>207</sup> The fact that a military force can take advantage of its chemical properties raises the question if WP could fall under the Chemical Weapons Convention (CWC)?

According to Sten-Åke Fredriksson, a research scientist from Swedish Defense Research Agency and fellow participant in the Organization for the Prohibition of Chemical Weapons (OPCW) central analytical database validation group, there is no doubt

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<sup>205</sup> Referring to the email correspondence with Per Olof Persson, committee member at the Swedish Chemical, Biological, Radiological and Nuclear (CBRN) – Association, 7th of May 2012.

<sup>206</sup> Ibid.

<sup>207</sup> "MULTISERVICE TACTICS, TECHNIQUES AND PROCEDURES FOR TREATMENT OF CHEMICAL AGENT CASUALTIES AND CONVENTIONAL MILITARY CHEMICAL INJURIES", (Multiservice Tactics), Headquarters, Department of the Army Washington, DC, Marine Corps Combat Development Command Quantico, Virginia, Navy Warfare Development Command Newport, Rhode Island Headquarters, Air Force Doctrine Center Maxwell Air Force Base, Alabama: FM 4-02.285 (FM 8-285), MCRP 4-11.1A, NTRP 4-02.22, AFTTP (I) 3-2.69, CHAPTER VIII, Subchapter 7.

that WP is, scientifically speaking, a toxic chemical.<sup>208</sup> However, legally speaking, is WP considered to be a toxic chemical according to the definition of the CWC?

In the Art II (2) of CWC the definition of toxic chemical is:

*“any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans and animals”*

The wording of CWC Convention describes chemical weapons as munitions and devices, *specifically designed* to cause death or other harm through the toxic properties of the chemicals<sup>209</sup> (my emphasis). The primary design of WP is not to be used in this manner. The normal and legal use of WP under correct circumstances is as illuminant or obscurant. This is one of the arguments against the inclusion of WP in the CWC. Nevertheless, WP has proven to be of versatile nature. The main argument of the USA is that WP is classified as an incendiary weapon and therefore does not fall under CWC.<sup>210</sup> However, there is nothing in the provisions of the CWC that states that once classified as a certain sort of weapon, it cannot also be classified as a chemical weapon. One classification does not exclude the other if the substance in question shows that its effects fit more than one classification. The CWC states that all chemicals defined in the Art II (2) are included in the scope of the Convention *“regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere”*. Perhaps this opens up for the possibility to include substances that are not primarily used for their toxic abilities. In my opinion, WP can become incendiary weapon if chosen for its incendiary characteristics. In the same way, if the usage is chosen for its toxic chemical abilities, it can easily become a chemical weapon.

The usage of WP to “smoke out” the combatants, as allegedly happened in Fallujah, may be considered as usage of WP for its toxic properties. However, it is a question of proof whether the chemical abilities of WP was the primary purpose for its deployment

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<sup>208</sup> Referring to a telephone interview with Sten-Åke Fredriksson on the 9th of May 2012.

<sup>209</sup> Art II(1)(b) CWC Convention.

<sup>210</sup> Reynolds, Paul, “White Phosphorus: weapon on the edge”, BBC News website, 16 November 2005. <http://news.bbc.co.uk/2/hi/americas/4442988.stm>

against the combatants. It can also be suggested that the ability of WP to produce fast and strong heat was the main purpose of its usage in Fallujah. The toxic smoke produced was just a secondary effect. In this sense, WP would not be prohibited under CWC because its “*military purposes are not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare*”.<sup>211</sup>

However, I would argue that when WP is chosen because its toxic abilities create an agonizing pain that disables the enemy, and perhaps another living creatures along with the enemy, it is chosen primarily for its toxic characteristics even if it was not specifically designed to cause such harm. Once again, the fact that it wasn’t designed to do so does not mean that it cannot do so. In the end, it is not what it is designed to do but what it is chosen to be used for that should be the main criteria on how to qualify WP. The qualification for the inclusion of WP in the CWC Convention should be based on the chosen usage of this substance regardless of the original purpose of its creation. Because of the fact that many states are using WP in their military artillery, it seems so that the political resistance against the inclusion of WP in the CWC Convention will remain strong.

## 7.1 Is WP toxic to the Environment?

According to the US Army document, in an artillery projectile, WP wedges ignite immediately upon exposure to air and fall to the ground. Up to 15 percent of the WP remains within the charred wedge and can reignite if the felt is crushed and the unburned WP is exposed to the atmosphere.<sup>212</sup> The Swedish Defense Research Agency (FOI), in the report published in 2000, has addressed this issue. FOI has assessed the environmental effects in a long-term perspectives caused by left obscurant ammunition focusing on WP. When used as smoke screens, the maximum of 92% of WP oxidizes during combustion, and substantial amounts of WP may remain unreacted on the ground.<sup>213</sup> They came to a conclusion that “*small particles of WP are the modification presenting the main hazard to*

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<sup>211</sup> Art II (9)(c) CWC Convention.

<sup>212</sup> Multiservice Tactics, *supra* n. 207.

<sup>213</sup> Berglind and Henriksson, *supra* n. 184, p. 5.



*the environment*” and “*the presence of particulate elemental white phosphorus at Swedish artillery ranges must therefore be investigated and the hazard put in relation to the number of fired shells and remaining duds*”.<sup>214</sup> Even if examined on the basis of usage by Swedish Armed Forces, this would suggest that similar effects on the environment could be expected at other places where significant amount of WP munitions have been used. In fact, one of the biggest causes of seabird death in and around US military training areas in Alaska is attributed to WP.<sup>215</sup> Birds such as ducks, swans and various wading birds confuse particles of phosphorus with food. Damaged and poisoned birds fall easily as prey to various predators such as eagles, hawks, foxes, and raccoons. There is further risk that WP as part of a food chain intoxicates other animals. As a consequence of the high birth mortality in that area, it is now prohibited to conduct military training with WP in the wetlands in the USA.<sup>216</sup>

The effects of WP have also been tested on mammals, such as rats and dogs. WP is one among the most toxic inorganic substances where the lethal dose is found to be below 1mg/kg of body weight.<sup>217</sup> The rat that was injected with 0,05mg/kg of WP detected changes in bone tissue. Dogs that were subcutaneously exposed to WP with the dosage of 0,2mg to 0,4mg/kg body weight died within days. A dog that was chronically exposed to WP with 0,1mg/kg per day developed permanent liver damage. The FOI study concluded that WP is highly toxic for mammals, birds, fish and crustaceans.<sup>218</sup> WP is also classified as environmentally hazardous substance. FOI does not present any effects on humans but Agency for Toxic Substances and Disease Registry (ATSDR) has stated that humans can be exposed to WP by breathing contaminated air, eating contaminated fish or game birds from sites containing WP and drinking or swimming in water that has been contaminated with WP.<sup>219</sup> They further highlight that exposure to WP may cause the already mentioned burn and irritation of the skin but also liver, kidney, heart, lung, or bone damage and death. Environmental Protection Agency (EPA) has listed WP as a Hazardous

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<sup>214</sup> Berglind and Henriksson, *supra* n. 184, p. 3.

<sup>215</sup> *Ibid.* at p.8, With reference to Roebuck et al. 1998.

<sup>216</sup> Karlsson, Lind, Lindblad, and Tunemalm, *supra* n. 187, at p. 6, Referring to Spanghold et. al.(1985).

<sup>217</sup> Berglind, and Henriksson, *supra* n. 184, at p. 8.

<sup>218</sup> *Ibid.* at p. 11.

<sup>219</sup> ATSDR, *supra* n. 181.

Air Pollutant and the agency requires reports when 1 pound or more of WP has been spilled or accidentally released into the environment. Swedish Chemical Agency (Kemikalieinspektionen) has classified WP as environmentally hazardous substance.<sup>220</sup>

## 7.2 Legal aspects of the environmental damage allegedly caused by WP toxicity

The damage or injury caused to the environment from WP may be caused by its incendiary effect or/and its toxic characteristics. When burn injury is created, WP can easily enter the blood system and intoxicate persons and animals. According to the CWC Art II (2) a toxic chemical includes those chemicals that cause death or permanent harm to humans *or animals* (my emphasis). This may suggest that some account is also given to animals, a part from humans. However, the usage of WP in times of armed conflict seems not to be primarily for its toxic abilities, which makes its inclusion in CWC somewhat uncertain. Nevertheless, its toxic abilities will effect the environment whatever the primary purpose for its original usage might be. When WP enters the soil and water, it affects the living organisms negatively. The effects may spread to other living organisms and also affect people where such living organisms are included in the human food chain. Where the WP has entered drinking water system, it may spread to neighboring surroundings and affect other parts of the population than just those directly affected by the attacks.

It is interesting how, on the national level (at least for Sweden, USA and UK), certain documented qualification of WP are both thorough and the usage is monitored.<sup>221</sup> However, the hazardous impact on the environment where WP has been released seems to be completely ignored in times of armed conflict. This is even more interesting since there is no doubt that WP continues to be present in the area even after the armed conflict has ended, especially if it enters the water whose chemical formula keeps it intact for longer period of time than when exposed to oxygen. With its continuing presence it poses imminent risk to the environmental surroundings and humans. There are some

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<sup>220</sup> Berglind, and Henriksson, *supra* n. 184, at p. 11.

<sup>221</sup> UK Health Protection Agency: [http://www.hpa.org.uk/webc/HPAwebFile/HPAweb\\_C/1203084373261](http://www.hpa.org.uk/webc/HPAwebFile/HPAweb_C/1203084373261)

uncertainties, though, on how much WP needs to be released into the environment in order to make an overall negative impact on the ecosystems. As FOI suggests for Sweden, the presence of WP in the environment need to be put in relation to the number of fired shells and remaining duds. This assessment would require thorough scientific investigations in post war territories. Nevertheless, in Fallujah, where the health of population has been deteriorating for the last decade, such investigation, in my opinion, may be of significant importance. Scientific uncertainties should not be used as an excuse to continue using an environmentally hazardous substance and pollutant. The meaning of protection and preservation of the environment require that the precautions be taken when deploying weapons containing WP. As Wexler pointed out earlier, the liability of the damage caused in such a case falls on the polluter. This is also in accordance with the principle of international law stated in ICIJ, Chorzów Factory Case<sup>222</sup> and repeated in the Draft Articles on Responsibility of States for Internationally Wrongful Acts.<sup>223</sup>

The two national reports about the effects of WP on the environment that I have addressed, present the possibility to further demand higher precautions when deploying weapons containing WP, based on the suggestions of the reports. In every case, environment needs to be included in the assessment of excessiveness when WP is chosen as a mean of warfare. The assessment of excessiveness needs to include the impacts of choice of means and methods deployed even after the battle has ended. Continuation of the usage of WP in different weapons and the assessment of excessiveness needs to be understood in the light of the planned decontamination and remediation work. If no decontamination is planned after the battle has ended, the impacts on the environment will be higher because the hazardous substance, such as WP, will inflict injury over longer period of time. If there is neither cleaning of the area planned nor the responsibility

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<sup>222</sup> Is says: *"it is a principle of international law, and even a general conception of law, that any breach of an engagement involves an obligation to make reparation"*.  
Case Concerning the Factory at Chorzów, 13 Sept. 1928, Publications of the Permanent Court of International Justice, found in Koppe, *supra* n. 39, p. 311.

<sup>223</sup> Art 31(1) provides that *"the responsible State is under an obligation to make full reparation for the injury caused by the internationally wrongful act"*.

Draft Articles, adopted by the International Law Commission at its fifty-third session, Nov 2001.

<http://www.un.org/law/ilc/>

demanded from those who deploy contaminating weapons, the proportionality test must be adapted to these circumstances. In such case the threshold for the damage expected needs to be lower when counting disproportionate damage. Whether the use of WP in Fallujah was excessive is hard to establish, as there are no safe parameters to calculate the proportion of damage in relation to the military advantage anticipated. A comprehensive review of the environmental effects of WP in Fallujah needs to be undertaken in order to come closer to answering this question.

## 8 Conclusions

People cannot survive outside of a healthy environment. In spite of the fact that one can be of a view that environment merits protection *per se* even in times of war, IHL is only concerned with the anthropocentric basis of the environmental protection. Even though the environmental protection is somewhat recognized in times of armed conflicts, the provisions that directly protect the environment stated in AP I are not applicable in the case of Fallujah. The means and methods that were used in Fallujah have not inflicted the level of the damage that is required for the damage to be unlawful, according to the provisions of Art 35(3) and Art 55(1) of AP I. Serious damage, however, can still be inflicted without reaching the requirement of triple threshold presented in these two provisions.

With this conclusion, the problem still remains that the environment, both *per se* and as part of civilian objects, together with civilians, is targeted in times of armed conflicts. Protection of the environment in times of armed conflicts does not fall outside the scope of IHL just because the Art 35 (3) and Art 55(1) are not directly applicable. The damage inflicted upon environment must still pass the military criteria for requirements and practicalities on the battlefield such as military necessity, military advantage and the proportionality test.

In the case of Fallujah, the environment does not seem to have been directly targeted as a military objective. What was targeted are the belligerents located in the city. The military advantage anticipated from that attack constitutes the neutralization of the enemy under those particular circumstances presented under that specific time in Fallujah. It was a military necessity to neutralize the enemy in Fallujah. In order to neutralize the enemy, certain military objectives were chosen in the city. Following the attack on those military objectives, the collateral damage created was a near destruction of the city. Even though it is hard to establish whether such destruction was excessive to the military advantage

anticipated, it might be established that the US forces could in fact envisage that the attack launched would, in fact, provoke near destruction of the city.

If one is of the opinion that the usage of incendiary weapons is not illegal even in urban areas if such means can be expected to create less collateral damage than any other means of warfare, such as the opinion (and argument for reservation to the CCW Protocol III) of the USA, then one can possibly come to a conclusion that the damage created is in proportion to the military advantage anticipated. However, if one is of the opinion, such as myself, that the usage of incendiary weapons in the way they were used in Fallujah, had an indiscriminate effect on the environment and population, and on the basis of the prohibition of this rule, are illegal, they cannot be considered in proportion to the military advantage anticipated. Indiscriminate attacks are always disproportionate and for that reason militarily unnecessary. Further more, the additional alleged usage of MK 77 creates indiscriminate effects on its own, regardless of other munitions containing WP. This is so because it is delivered by air and directly breaches the provisions of AP I. As customary international law, the principle is applicable whether or not the AP I has been signed.

Nevertheless, other important damage assessment of this possible destruction may not be included. This being the possible long-term damages caused by the toxic effects of the means and methods chosen. Even if the conclusion may be that the chosen means and methods were not breaching any IHL provisions at the time when they were deployed, the long-term damages to the environment can mean that they in fact breach IHL provisions, should such long-term damages be included from the beginning. This seems to be an obvious problem with the environmental damage where the infliction can be immediate but also may appear for some time afterwards. Analyzing the case of Fallujah, the latter does not seem to have been included in the notion of collateral damage. Instead, the long-term risk posed to environment seems to have been completely ignored. If the long-term effects to the environment were calculated in the assessment of collateral damage, one could have come to a conclusion that the attack might perhaps be disproportionate on the basis of the conclusion of the long-term damage done to the environment. If the long-term effects to the environment do affect the health of the population for the generations to come, it is

obviously an aspect that needs to be included in the assessment of the collateral damage. In Fallujah, this does not seem to have been the case.

The assessment of excessiveness of the damage is based on the damage or injury that is expected by the means and methods chosen, regardless of what the usage of WP weapons were primarily made for. The exclusion of WP from the CWC and CCW on the basis of their primary use does not extinguish the fact that they create secondary effect. Secondary effect, which, according to the scientific research available, may create devastating toxic effects on their own. Thus, the toxic abilities and their effects on the environment can be both excessive and/or military unnecessary. If this is the case in Fallujah, it needs to be examined on the basis of the effects that attack allegedly produced. In the end, it's the sum of all means chosen containing WP that creates disproportionate attacks. The fact that the disproportion is already a fact on the basis of incendiary weapons containing WP and the deployment of MK 77 should not preclude the long-term effects the toxic abilities may have on the environment.

The principles of IHL need to develop the definition of what constitutes an environmental damage that is closer to the definition offered by science. In such case, the damage may be avoided before it becomes irreversible and permanent. The lack of a clearer definition of environmental damage in the provisions of IHL may result in the lack of accountability and responsibility for the damage caused. Such damage, neither investigated nor decontaminated may affect negatively the social as well as economic stability as people are prevented to actively participate in the society due to the grave health issue they might face. Indeed, the scientific investigation in post-war areas may be necessary and needed step towards rebuilding peace and security in such places, an equation that includes a healthy and protected environment.

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