

In light of the controversial use of white phosphorus, should Protocol III of the Convention on Certain Conventional Weapons be amended to take an effect based approach rather than a design based approach?

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CONTENTS

1.....	Introduction
1.1.....	Aims of the thesis
1.2.....	Defining an effects and design based approach
1.3.....	Principles of IHL
1.4.....	The CCW and the CWC
1.5.....	Structure of the thesis
2.....	The use of white phosphorus
2.1.....	Use of white phosphorus in Iraq
2.2.....	Use of white phosphorus in Gaza
2.3.....	Use of white phosphorus in Bosnia
2.4.....	Review of the literature
3.....	Zyklon B
3.1.....	What is expanding liability?
3.2.....	The Zyklon B case
3.3.....	Relevance of Zyklon B and support of states
3.4.....	How would liability be expanded?
3.5.....	Why liability should not be expanded
4.....	The Chemical Weapons Convention
4.1.....	The history of the CWC
4.2.....	Is white phosphorus a chemical weapon?
4.3.....	Peaceful Uses of Chemicals
4.4.....	Toxicity
5.....	Convention on Certain Conventional Weapons
5.1.....	The history of the CCW
5.2.....	Protocol III needs to be amended
5.3.....	How Protocol III should be amended
5.4.....	What would change?
5.5.....	Reasons not to amend Protocol III
5.6.....	Conclusion
6.....	Conclusion
6.1.....	Overview

6.2.....	Concluding thoughts
7.....	Appendix
7.1.....	What is white phosphorus?
7.2.....	The history of white Phosphorus
7.3.....	Zyklon B
7.4.....	The CWC Articles
7.5.....	The CWC Schedules
7.6.....	The CCW Articles
8.....	Bibliography
8.1.....	Cases
8.2.....	Legislation, Treaties and Customary Law
8.3.....	Books, Articles and Newspapers
8.4.....	Government and Non-Governmental Organisations Reviews and Reports
8.5.....	Other

1. INTRODUCTION

1.1. AIMS OF THE THESIS

This thesis focuses on Protocol III to the Convention on Certain Conventional Weapons (CCW). It will be argued that Protocol III should be amended to take an effects based approach rather than a design based approach. There will be particular attention to the use of white phosphorus as a munition in contemporary warfare to reach this conclusion. Currently states are able to exploit the ambiguity in the law. By doing so, the principles and values of international humanitarian law (IHL) are threatened. IHL regulates the conduct of war and when doing this, there is an aim to minimise human suffering. To offer humanitarian protection, a set of rules are applied to limit the effects of armed conflict as much as possible. These principles are proportionality, necessity and the prohibition of unnecessary suffering. The principles are upheld by treaties, conventions, customary law and general principles.¹ Like many aspects of law, there is legal ambiguity in the interpretation of some elements of IHL. When there is ambiguity, the basic principles of IHL can help. By looking at the core values of IHL, a certain direction is offered, and an interpretation can be made to follow these principles as much as possible. The concept of stigma will also play a role throughout the thesis. Stigma can greatly impact how IHL deals with a munition and it will be shown that there are high levels of stigma related to white phosphorus. Because of this the best time to make an amendment would be now. There will be parallels made to other munitions which have had stigma and have resulted in IHL dealing with the munition.

To reach this conclusion, many other possibilities will be explored to see if another change would be more suitable. There will be an exploration to see whether liability concerning white phosphorus needs to be expanded. Comparisons will be made to the case of Zyklon B.² Drawing similarities and connections between white phosphorus and Zyklon B will help prove that Protocol III should be amended. It will be observed to see if the use of white phosphorus is stigmatised. The benefits of potentially expanding liability when white phosphorus is used in armed conflict will be assessed and it will be questioned to see if this is the best approach. In addition to this, the Chemical Weapons Convention (CWC) will also be explored and it will be assessed to see if white phosphorus should fit within the scope of the convention. As white phosphorus is not classed as a chemical weapon, there will be consideration to see if any amendments to the CWC could strengthen the law surrounding white phosphorus.

It should be noted that Protocol III of the CCW is an instrument of law that is based on incendiary weapons with which there is a strong stigma.³ One of the most recognisable images associated with armed conflict is the image of a girl named Phan Thị Kim Phúc running from a napalm strike on June 8th 1972 during the Vietnam War.⁴ The Pulitzer Prize-winning photograph captured the moment of the young girl running across a road naked, after being severely burned by the attack. Her clothes had been burned off, and it was later reported that she was ‘screaming and screaming’ as she ran.⁵ This image circulated the world and bought great media attention to incendiary weapons.

This media attention bought a strong outcry with regards to incendiary weapons, and Protocol III is the instrument of IHL that deals with incendiary munitions. However this thesis will observe Protocol III only with regards to the white phosphorus munition. There will not be any focus on other multi-purpose munitions or dual-use chemicals apart from white phosphorus and Zyklon B. White

¹ Statute of the International Court of Justice, Art 38(1)

² re Tesch Zyklon B Case [1946] 1 Law Rep of Trials of War criminals

³ Thomas Nash, ‘Statement by Article 36 to the Convention on Certain Conventional Weapons’ [2011] Article 36, 7

⁴ Nick Ut, ‘The Terror of War’ Associated Press Photographer [1972]

⁵ Michael Zhang, Interview with Nick Ut, Peta Pixel, 19th September 2012 <<http://petapixel.com/2012/09/19/interview-with-nick-ut-the-photojournalist-who-shot-the-iconic-photo-napalm-girl/>> accessed 6th October 2016

phosphorus will be the focus as it greatly illustrates how the protocol's interpretation is capable of being exploited and how this exploitation leads to the use of the munition going against the principles of IHL.

The concluding argument will aim to show a resolution to this issue. There will be an objective to offer an alternative that limits the chance for exploitation by states. The issues that will be presented will be shown to be alleviated if Protocol III is to change and have an effects based approach. Raising attention to Protocol III also offers the opportunity for others to comment and debate. After showing how Protocol III allows for states to exploit the law, and how changes would prevent this from happening, it will be demonstrated why an amendment would be beneficial.

1.2. WHAT IS MEANT BY EFFECTS BASED APPROACH AND A DESIGN BASED APPROACH?

It is important to show what will be defined as being 'design based' and 'effects based.' Looking simply at the dictionary definition of each word is not sufficient, but it is useful. It offers a good understanding of the words when they are isolated before they are observed in the context of Protocol III. Even though both are simple words, understanding completely the true definition is a good starting point. Effect is defined as a:

‘Change which is a result or consequence of an action or cause.’⁶

This shows that there is need for a variation in the status quo that occurs because of a certain action. Design is defined as a:

‘Purpose or planning that exists behind an action, fact or object.’⁷

This leads to the need for a reason in which something is being created. But to truly define these phrases, attention to context will need to be made. This is important to do, as James Fry states:

‘Historical lessons illustrate the principal need to evaluate the legality of weapons or methods of warfare in the context in which they are being applied rather than in abstract isolation.’⁸

The Vienna Convention on the Law of Treaties (VCLT) states the need for context and was drafted by the International Law Commission. The treaty deals with the international law on treaties between states. Article 31, under the heading 'general rule of interpretation' pays attention to the context of treaties. It states:

‘A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.’

The case of Kasikili/Sedudu Island (Botswana/Namibia) deemed that Article 31 of the VCLT would be regarded as international customary law.⁹ This means that application of Article 31 is not dependant on whether a state is party to the treaty and it is binding to all. The importance of Article 31 is highlighted and illustrates that the overall context of the treaty must be observed when interpreting parts of it at all times. Consequently, the interpretation of specific words such as design and effect must be done so in a way that fits within the purpose of the treaty. With this in mind, looking at where design and effect are found in treaties and conventions is useful. Protocol III of the CCW states an incendiary weapon needs to be:

⁶ The Oxford Popular Dictionary and Thesaurus [3rd edn, 1995] OUP 98

⁷ ibid 82

⁸ James D Fry, 'Contextualised Legal Reviews for the Methods and Means of Warfare: Cave Combat and International Humanitarian Law' [2006] 44 Columbia Journal of Transnational Law

⁹ The Kasikili/Sedudu Island (Botswana/Namibia) Case [1999] paras 18-20

‘Primarily designed to set fire to objects or to cause burn injury to persons through the action of flame, heat or a combination thereof.’¹⁰

Similarly, Article 2 of the CWC comments on munitions that are:

‘Specifically designed to cause death or other harm through the toxic properties of those toxic chemicals.’¹¹

With regards to effect, Protocol I of the CCW states it is:

‘Prohibited to use any weapon the primary effect of which is to injure by fragments which in the human body escape detection by X-rays.’¹²

By showing in what context design and effect are used, a clearer understanding of what the words are meant to be interpreted as can be seen. Following this, when design is to be used in this thesis it will look into:

- The manufacture of the munition and the reason why it was manufactured and originally made. It does not specifically look into how the munition is actually being used and what the consequences of the munition are

When the definition of an effects based munition is to be used, the following are being considered:

- The consequences of the munition once the weapon has been used
- The nature of damage caused to any military object or civilian objects such as buildings, schools or hospitals
- The damage that is caused to a person, where factors such as the severity of harm and the type of injury are deliberated

Whenever effect or design is used in the context of Protocol III of the CCW or other conventions found in IHL this is what will be meant by them. There has been a consideration to areas of IHL that use these two words and they will be used in the same way for the remainder of the thesis.

Effect and design have been defined and the thesis will argue that an effects based approach is best for this area of IHL. The damage and destruction that is probable from the use of white phosphorus is too great and outweighs the benefits that come from using the weapon. The objectives of IHL aim to limit the effects of war. This thesis will deem that armed conflict that involves white phosphorus can be regulated in a way that will limit these effects better. An effects based approach will focus on the consequences of the munition. There will be advancement from simply looking at the design, as this method does not regulate ‘incidental incendiary effects’ so does not offer sufficient protection.

1.3. PRINCIPLES OF IHL

The use of white phosphorus and its legality is a complex issue. It cannot simply be argued that white phosphorus kills people and therefore should be illegal. The status of IHL offers justifications and rationales for weapons and their use in armed conflict. It is important to first explain this legal framework so it can be shown how IHL works and how it applies to white phosphorus. A starting point would be to look at proportionality in attack. This principle can be found in many treaties in IHL. The Geneva Convention has four treaties with an additional three protocols. Together they

¹⁰Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 1(1)

¹¹Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Art 2

¹² Protocol I to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects

establish the standards of international law and what the parties to the conflict must adhere to in war. Additional Protocol I to the Geneva Convention prohibits:

‘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.’¹³

Article 85 of the same protocol prohibits an indiscriminate attack that would affect:

‘Civilian population or objects in the knowledge that such attack will cause excessive loss of life, injury to civilians or damage to civilian objects.’¹⁴

Additionally, the principle can be found pursuant to Article 8 of the 1998 International Criminal Court (ICC) Statute in which it states a war crime is committed when:

‘Intentionally launching an attack in the knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated.’¹⁵

The International Committee of the Red Cross (ICRC) has drafted a set of rules of customary laws for IHL. Each rule deals with a different specific issue. The principle of proportionality is regarded as customary international law through Rule 14 of the rules drafted by the ICRC.¹⁶ It applies to both international and non-international armed conflicts. Simply, an attack is regarded as illegal if it is launched when there is knowledge that there will be loss of life to civilians which is ‘clearly excessive’ in comparison to the overall military advantage gained from the attack. The principle itself offers a clear rationale, but its interpretation can be very complex. For example differing states view the notion of ‘military advantage’ in different ways.¹⁷ It is not explicitly stated whether this refers to the isolated attack itself, or at the larger picture which could refer to the outcome of the conflict as a whole.

The United States dropping nuclear weapons on Japan shows how military advantage can be interpreted differently. In 1945 and the final stages of World War II, the Japanese cities Hiroshima and Nagasaki were bombed resulting in a great number of casualties. Before discussing military advantage, the number of casualties will be shown by a set of tables. It will show the different causes of the deaths and from what distance away from the blasts people died. This will illustrate how the definition of effects is considered and it will help to create a clear understanding of what occurred as a result of the atomic bombs being deployed. Consequently, when the concept of military advantage is discussed, a clear picture of the effects that caused loss of life and injury to civilians will have been already noted. It will then be possible to balance this against the military advantage that was considered to be gained. There is great difficulty in attaining the exact number of casualties from the atomic bombings as there are not accurate figures of the population of the two cities prior to the attack. Consequently, the numbers that will be presented are only estimates. However they are figures estimated by the Manhattan Project which was a research and development project that produced the nuclear weapons that were used.

¹³Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, Art 51(5)(b)

¹⁴Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, Art 85(3)(b)

¹⁵The Rome Statute of the International Criminal Court [1998] Art 8(2)(b)(iv)

¹⁶ International Committee of the Red Cross, Customary IHL Database, Rule 14 <https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_cha_chapter4_rule14> accessed 6th October 2016

¹⁷ibid

Table A shows the number of casualties that occurred as a result of the atomic bombs being dropped on Hiroshima and Nagasaki. It reports that over half of the population of Hiroshima either died or were injured as a result of the atomic bomb and just under a third of the population of Nagasaki were either killed or injured.

Table A¹⁸

	Hiroshima	Nagasaki
Population before bombings	255,000	195,000
Dead	66,000	39,000
Injured	69,000	25,000
Total Casualties	135,000	64,000

Table B shows the different causes for the immediate deaths that happened as a result of the bombs. Because of the high level of effects of the weapon many of the deaths were a result of more than one specific effect and this can be seen by the percentages. It shows that the majority of deaths in both cities were a result of the victims being burned. Whilst there was an ample amount of deaths due to other factors, most died from being burned.

Table B¹⁹

Hiroshima	
Cause of Death	Percentage of total died
Burns	60%
Falling debris	30%
Other	10%

Nagasaki	
Cause of Death	Percentage of total died
Burns	95%
Falling debris	9%
Flying glass	7%
Other	7%

Table C shows the amount of people that died in relevance to how far away from the initial blast they were. This helps illustrate the magnitude of the effects of the weapon as it could reach and affect people that were thousands of feet away.

Table C²⁰

Distance from X, feet	Killed	Injured	Missing	Total Casualties	Killed per square mile
0 - 1,640	7,505	960	1,127	9,592	24,700
1,640 - 3,300	3,688	1,478	1,799	6,965	4,040
3,300 - 4,900	8,678	17,137	3,597	29,412	5,710
4,900 - 6,550	221	11,958	28	12,207	125
6,550 - 9,850	112	9,460	17	9,589	20

¹⁸ The Manhattan Engineer District, 'The Atomic Bombings of Hiroshima and Nagasaki' [1946] Trinity Atomic Website, accessed 6th October 2016 <http://www.abomb1.org/hiroshim/hiro_med.html> ; atmoicarchive.com, 'The Atomic Bombings of Hiroshima and Nagasaki' National Science Digital Library, accessed 6th October 2016 <http://www.atomicarchive.com/Docs/MED/med_chp10.shtml>

¹⁹ ibid

²⁰ ibid

The effects of the nuclear bombs have been shown and these attacks remain the only use of nuclear weapons in armed conflict. August 6th is when the United States dropped the atomic bomb over Hiroshima, and three days later the other bomb was dropped on Nagasaki. By August 15th, Japan announced that they were surrendering to the Allies which effectively signified the end of the Second World War. This series of events is an important illustration to the argument that views 'military advantage' in a way that refers to the conflict as a whole. Even though the weapon had devastating effects as shown by Tables A, B and C, that killed a lot of people and reached people that were thousands of feet away, there is still a legitimate argument that this was not excessive. There is no definitive answer as to what is considered to be military advantage and J. Samuel Walker states 'the controversy over the use of the bomb seems certain to continue.'²¹

There is an assertion that using the atomic bombs caused Japan to surrender which prevented casualties on both sides of the conflict on a bigger scale compared to what was reported. There was a planned invasion of Japan, and the bombings showed the potential of 'prompt and utter destruction' if Japan was not to surrender.²² Without the bombings, the invasion would have taken place.

Winston Churchill, the leader of the Opposition in August 1945 stated:

'There are voices which assert that the bomb should never have been used at all. I cannot associate myself with such ideas. I am surprised that very worthy people - but people who in most cases had no intention of proceeding to the Japanese front themselves - should adopt the position that rather than throw this bomb, we should have sacrificed a million American and a quarter of a million British lives.'²³

Churchill argues that dropping atomic bombs prevented a higher number of human casualties. The principle of proportionality prohibits an attack that is 'excessive.' On the surface, an attack with the magnitude of a nuclear weapon that had the effects that have been already noted would appear to be excessive. But this argument contends that the attack ended the war and stopped the need to wait for Japan to surrender. In addition, both cities had strategic significance. Hiroshima contained the headquarters of the Second General Army and Fifth Division. Nagasaki had wide-ranging industrial activity that provided the production of military equipment and warships. The use of nuclear weapons is argued to have had concrete and direct military advantage which stopped the war early. Philippine Justice Delfin Jaranilla, member of the Tokyo tribunal, wrote:

'If a means is justified by an end, the use of the atomic bomb was justified for it brought Japan to her knees and ended the horrible war. If the war had gone longer, without the use of the atomic bomb, how many thousands and thousands of helpless men, women and children would have needlessly died and suffered?'²⁴

This shows how the principle of proportionality is still ambiguous even though it is international customary law. This concept will further be explored later in regards to the use of white phosphorus. There are two sides to the argument. One side highlights the enormity of casualties that occur as a result of one weapon whereas the other believes that ending a war early will ensure that less people die as a whole. It will be considered to see if the use of white phosphorus could shorten a conflict and therefore limit the overall loss of civilian life and injury to civilians. The effects of white phosphorus are on a much smaller scale compared to the use of nuclear weapons but the concept of

²¹ J Samuel Walker, *Recent Literature on Truman's Atomic Bomb Decision: A Search for Middle Ground* [2005] *Diplomatic History*, 334

²² Potsdam Declaration, Proclamation Defining Terms for Japanese Surrender [1945] *Birth of the Constitution of Japan*, accessed 5th October 2016 <<http://www.ndl.go.jp/constitution/e/etc/c06.html>>

²³ Winston Churchill, 'Why Should We Fear for our Future?' *House of Commons Debate* [1945] 70-133

²⁴ John W Dower, *Embracing Defeat: Japan in the Wake of World War I* [1st edn, W W Norton & Company, 1999] 473

proportionality still applies. This principle will play a major role in the thesis and is one of the principles that will be argued that white phosphorus violates.

Another principle that can be found in IHL is the prohibition of superfluous injury or unnecessary suffering. This prohibition has remained a key element of IHL and the principle can be dated back to the 1863 Lieber Code, where it was said that:

‘Military necessity does not admit of cruelty – that is, the infliction of suffering for the sake of suffering.’²⁵

The 1868 St. Petersburg Declaration states:

‘That the progress of civilisation should have the effect of alleviating as much as possible the calamities of war and the only legitimate object which states should endeavour to accomplish during war is to weaken the military forces of the enemy.’²⁶

The 1899 Hague Convention that adopted the Hague Declaration concerning Expanding Bullets shows how this particular prohibition has been applied in IHL. It stated:

‘The Contracting Parties agree to abstain from the use of bullets which expand or flatten easily in the human body, such as bullets with a hard envelope which does not entirely cover the core or is pierced with incisions.’²⁷

The Hague Declaration concerning Expanding Bullets was a response to a rifle bullet that was adopted by British troops. The bullets were used in armed conflict against the Indian Empire. The specific bullet used was called the ‘dum-dum’ bullet which was named after the town near Calcutta in which the bullets were manufactured. Dum-dum bullets were designed to expand on impact. This would generate a much larger wound to the body of a person. Whilst the British army deemed the bullets effective in fighting against the ‘active and brave barbarian foes,’²⁸ the ICRC was in agreement that the bullets caused unnecessary suffering.²⁹

This led to the Hague Declaration concerning Expanding Bullets being adopted. Its significance is important, as it shows how the principles of unnecessary suffering and superfluous injury have directly prohibited a munition. Rule 70 drafted by the ICRC states that incendiary weapons are one of the types of weapon that have been cited in practice to cause unnecessary suffering if used in certain or all contexts.³⁰ As Protocol III of the CCW deals with incendiary weapons, this thesis will consider the principles of unnecessary suffering and superfluous injury throughout to see if these principles are violated. Even though dum-dum bullets were created with the intention of causing of harm and white phosphorus is not, it does not mean that the principle cannot be applied to white phosphorus as well.

The principle is considered as customary international law and is applicable to both international and non-international armed conflicts. However there are differing views on the interpretation of what is considered as superfluous injury or unnecessary suffering. If a weapon causes suffering that has no military purpose, then it is deemed to violate the rule. However, many states interpret military purpose differently. For example, it could be argued that a munition that does not have a sufficient available alternative should be considered differently. If there is no other available weapon, then the suffering does not become unnecessary; it becomes the only available possibility and therefore a military

²⁵ Instructions for the Government of Armies of the United States in the Field (Lieber Code), [1863] Art 16

²⁶ Saint Petersburg Declaration Renouncing the Use, in Time of War, of certain Explosive Projectiles [1868]

²⁷ The Hague Declaration concerning Expanding Bullets [1899] Declaration (IV)

²⁸ Alan Ogston, ‘Continental criticism of English rifle bullets’ [1st edn, British Medical Journal, 1899] 752-757

²⁹ International Committee of the Red Cross, Customary IHL Database, Rule 77 <https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule77> accessed 6th October 2016

³⁰ International Committee of the Red Cross, Customary IHL Database, Rule 70 <https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule70> accessed 6th October 2016

necessity. There would need to be a balance between military necessity and the superfluous injury that could be caused. Kalshoven and Zegveld agree and say that the principle is too abstract as there is no clear distinction of what constitutes unnecessary suffering.³¹ As a result, this principle will be considered and observed in the following chapters and it will be determined that using white phosphorus causes superfluous injury and unnecessary suffering.

Currently, the law of military necessity cannot override any aspect of IHL unless it is expressly stated that it may do so.³² When any treaty, convention or law of IHL is drafted, it is done so taking into account military necessity. An illustration of such a statement can be seen by Article 23(g) of the Hague Regulations. It states that it is prohibited to:

‘Destroy or seize the enemy’s property, unless such destruction or seizure be imperatively demanded by the necessities of war.’³³

The principle of superfluous injury and unnecessary suffering needs to be considered as it plays a major role in IHL. The 1907 Hague Convention is an international treaty and declaration that was negotiated at international peace conferences at The Hague in the Netherlands. The Hague Conventions was one of the first formal statements of the laws of war in regards to international law and helps show the development of the principle. The Hague Regulations state:

‘It is especially prohibited to employ arms, projectiles, or material of a nature to cause superfluous injury.’ And that ‘the rights of belligerents to adopt means of injuring the enemy, is not unlimited.’³⁴

Article 23(e) of the same Regulation adds that it is prohibited for:

‘Arms, projectiles, or material calculated to cause unnecessary suffering.’³⁵

The International Court of Justice (ICJ) has too commented on the cardinal principles that constitute the fabric of humanitarian law.³⁶ Regarding unnecessary suffering, the ICJ has added that states ‘do not have unlimited freedom of choice of means in the weapons they use.’³⁷ The ICJ states that this fundamental rule must be observed by all states regardless of if they have ratified the conventions that directly contain the principles. Judge Higgins’ dissenting opinion from the case concerning Legality of the Threat or Use of Nuclear Weapons also reiterated that a weapon that causes unnecessary suffering or rendered death inevitable would not be permitted. She added ‘a military target may not be attacked if collateral civilian casualties would be excessive in relation to the military advantage.’³⁸ This all further reinforces the strength of the principle as it can constantly be found within IHL.

Article 3 of the 1993 International Criminal Tribunal for the former Yugoslavia (ICTY) Statute also states that the International Tribunal has the power to prosecute those that employ weapons which cause unnecessary suffering.³⁹ With there being potential repercussions, any violation of the principle needs to be recognised. These principles are an important part of IHL, and the values all need to be

³¹Frits Kalshoven and Liesbeth Zegveld, *Constraints on the Waging of War: An Introduction to International Humanitarian Law* [4th edn, CUP, 2011]

³²Jasmine Moussa, *Can jus ad bellum override jus in bello? Reaffirming the separation of the two bodies of law* [2008]

³³The Hague Convention (IV) respecting the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land [1907] Art 23(g)

³⁴The Hague Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land [1899] Art 22

³⁵The Hague Convention (II) with Respect to the Laws and Customs of War on Land and its annex: Regulations concerning the Laws and Customs of War on Land [1899] Art 23(e)

³⁶The International Court of Justice advisory opinion on the Legality of the Threat or Use of Nuclear Weapons [1996]

³⁷*ibid*

³⁸The International Court of Justice advisory opinion on the Legality of the Threat or Use of Nuclear Weapons [1996] 588 accessed 17th October 2016 <<http://www.icj-cij.org/docket/files/95/7525.pdf>>

³⁹Statute of the International Criminal Tribunal for the Former Yugoslavia, Violations of the laws or customs of war [2009] Art 3

upheld together. Unnecessary suffering to enemy combatants can weaken enemy forces and it is understood that war will have calamities, but this does not mean that a war can be won by any means possible.

1.4. THE CCW AND THE CWC

The general law of IHL that is relevant has been briefly discussed. By introducing it, a larger review of how the law operates is shown. This is vital, as it demonstrates that there are limits in contemporary warfare and states are not unlimited in what they are able to do. Doing so enables us to look at more specific treaties and conventions and there will now be focus briefly on the CCW and the CWC. These two conventions will play a major role in the upcoming chapters and will be introduced now and analysed in the relevant chapters later.

In December 1983 the CCW entered into force. It aims to protect civilians from weapons that can cause injury and also to protect combatants from suffering unnecessarily from weapons. The convention deals with both international and non-international armed conflicts. Originally it was annexed with three protocols with two additional protocols later added. The convention itself contains only general provisions and it does not specifically prohibit weapons. Protocol III of the CCW contains just two articles with the first solely being definitions. An incendiary weapon is defined as:

'Any weapon or munition 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.'⁴⁰

It also defines what is not to be classed as an incendiary weapon by stating:

'Munitions which may have incidental incendiary effects, such as illuminants, tracers, smoke or signalling systems are not to be regarded as incendiary weapons.'⁴¹

The noteworthy part of the Protocol is what is not to be regarded under the convention as an incendiary weapon. A munition such as a tracer is a bullet that has a pyrotechnic charge that burns extremely brightly. This makes the projectile trajectory of the bullet visible to the naked eye during the day or night. The benefit of this is that it enables the shooter of the tracer to make aiming corrections by monitoring the trajectory of the weapon. Though it offers these qualities, the tracer could then hit a target and through a chemical reaction could burn a person or cause a fire. This effect however under the CCW is regarded as an 'incidental incendiary effect.' The effect of the chemical reaction is only a consequence of the primary objective of the munition. Only a weapon that is primarily used to cause injury or set fire to objects is to be prohibited. This is controversial, as a weapon could cause devastating effects but not fit within the CCW's regulation.

Protocol III is therefore inadequate in preventing humanitarian harm with weapons that have incendiary effects. A munition such as white phosphorus that can cause incidental incendiary effects is able to escape the regulation of Protocol III. Even though the munition may cause severe pain as it burns the flesh of a victim, the nature of impact by the weapon is not taken into account. This will further be explored in the chapters to come, as it will be argued that the current definition of Protocol III is too narrow, as it allows for multi-purpose munitions such as white phosphorus to escape regulation.

Even though this thesis will conclude by showing the need for Protocol III to be amended, other areas of IHL need to be discussed. Discussion of white phosphorus is not limited to that of Protocol III of the CCW. For example white phosphorus could be regarded as a chemical weapon and fall within the

⁴⁰ Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 1(1)

⁴¹ *ibid*, Art 1(1)(b)(i)

scope of the CWC. If this was to happen then the use of white phosphorus would be prohibited under the CWC. The CWC contains 24 articles and 3 annexes, and its aim is to completely eliminate the development, acquisition, retention, production, stockpiling, transfer or use of chemical weapons.⁴²

The CWC is promoted and verified by the Organisation for the Prohibition of Chemical Weapons (OPCW). The organisation ensures that the prohibition of chemical weapons is upheld and also ensures that any chemical weapons are destroyed. As of October 2015, approximately 90% of the world's declared stockpile of chemical weapons had been destroyed.⁴³ States party to the convention have also agreed to an inspection procedure by the OPCW at any given time without refusal. Similar to the CCW, the CWC has an article that defines what falls within the scope of the convention. A chemical weapon is defined as a:

- ‘(a) Toxic chemical and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;
- (b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph (a).⁴⁴

A toxic chemical is further defined to mean:

- ‘Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals.⁴⁵

Different interpretations of the CWC understand the convention in different ways. There is ambiguity in what fits within the scope of the convention. A chemical weapon needs to be specifically designed to cause death meaning it needs to be manufactured with the purpose of causing death. And the death caused needs to be a consequence of the toxic properties of toxic chemicals. Only then will a chemical fall within the scope of the CWC.

It is difficult to gauge what a weapon is specifically designed to be used for. For example, even though white phosphorus is not a chemical weapon, it would be difficult to say what the purpose of the weapon is when being designed. It could be for illumination or its incendiary qualities. The munition has the capability to effectively deliver both jobs, but there will never be a clear definite reason for its design. As the thesis will argue that it should be the CCW that is amended to take an effects based approach, it is important to express why having a design based approach for the CWC is beneficial. Doing this will counter the argument that the CWC should also cover white phosphorus.

Equally, when a toxic chemical is defined, it is not said what constitutes ‘temporary incapacitation.’ Temporary could range from just a couple seconds to a few hours with there being no clear distinction. For this reason, it will be observed to see what constitutes incapacitation and whether white phosphorus would fall within this definition and what is required for substances to fit in the category. Determining whether dual use chemicals are chemical weapons is not straightforward. Chemicals such as chlorine, phosgene and hydrogen cyanide were all used during the First World War as chemical weapons. However, they are also key ingredients in numerous commercial products. Because of the chemicals various uses, even though it could be used as a weapon, a complete ban would not be possible. There are legal uses of the chemicals. A balance needs to be made, and this balance will be considered to see if white phosphorus should be considered as a chemical weapon. It will also be discussed to see if the CWC should be amended to fit white phosphorus within its scope.

⁴²Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Art I

⁴³ Organisation for the Prohibition of Chemical Weapons, accessed 7th October 2016 <<https://www.opcw.org/>>

⁴⁴Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Art II (1a)

⁴⁵ *ibid*, Art II (2)

Additionally, the definition of toxicity will further be explored and the different ways to measure effects will be assessed. When exploring the CWC and its potential relevance to white phosphorus, it will conclude that the CWC should not be amended to fit white phosphorus within its scope. After looking at how white phosphorus does not currently fit within its definition of a chemical weapon, there will be a conclusion that any changes to the CWC would be detrimental to the convention as a whole.

1.5. STRUCTURE OF THE THESIS

To summarise before the next chapter, the key legal problems will be reiterated. This thesis will conclude with the notion that Protocol III of the CCW should be amended to take an effects based approach rather than a design based approach.

With this exploitation, the principles and values of IHL are undermined. The principle of proportionality prohibits an attack that causes incidental loss of life that is excessive in relation to the direct military advantage anticipated. In accordance with this principle, it will be argued that using white phosphorus undermines this and it will be shown how it does so.

As the legal framework of the study has been set, and the context of the thesis introduced, the means to reaching the conclusion can begin. The format for the rest of the thesis will be set out in dividing chapters. There will be five more chapters and they will be under the following headings:

Chapter 2 - Use of white phosphorus

Chapter 3 - Zyklon B

Chapter 4 - The Chemical Weapons Convention

Chapter 5 - The Convention on Certain Conventional Weapons

Chapter 6 - Conclusion

The second chapter will look at the effects of white phosphorus in armed conflicts and these effects will be considered against the principles of IHL. These arguments together will show why there is need for change in IHL when dealing with the use of white phosphorus. It will show that an amendment needs to be made to strengthen the law surrounding white phosphorus.

Chapter 3 will be the first look in to how to strengthen the law of white phosphorus and offer better protection. Potentially expanding liability for violating the law will be considered. The Zyklon B case will also play a role to help determine whether liability concerning white phosphorus needs to be expanded. By expanding liability, not only will the users of white phosphorus that exploit the law face prosecution, but also those who aided them.

The CWC in Chapter 4 will also be assessed to see if there can be a change to the convention that will strengthen the law for white phosphorus. It will conclude by stating that any amendment to the CWC would be detrimental to the convention. It will also dismiss the notion that white phosphorus should be regarded as a chemical weapon under its current state. Further exploration will be done to the scope of the CWC with how a toxic chemical is defined and how it would be possible to measure effects if the CWC was to be amended to take an effects based approach.

Chapter 5 will be the chapter where it is confirmed that Protocol III of the CCW should be amended to take an effects based approach. By this stage, other possibilities will have been considered and dismissed. The specific amendments that would need to be made to have an effects based approach will also be set out. There will also be consideration to see if there are benefits to not amending Protocol III at all.

Chapter 6 will conclude the thesis. It will act as an overview for the entire thesis and it will consider any follow up questions that arise as a result of the conclusion.

As noted, the following chapter will primarily deal with the white phosphorus munition itself and cases of its use in modern warfare. This is vital as it is then possible to see the justifications given by states for using white phosphorus. By combining the justifications with the effects of the weapon, it sets up a discussion in the further chapters to see whether the justifications and effects are balanced. The case studies for this chapter will be Fallujah, Gaza and Bosnia. They have been chosen because each case study presents a different argument as to why there is an issue with using white phosphorus in armed conflicts and how the current law fails to deal with the issues. The use of white phosphorus in Fallujah particularly shows the justifications given by states when they use the munition. Gaza has been chosen to highlight the stigma surrounding the weapon and how stigma affects conflicts that involve white phosphorus. Bosnia will be able to highlight the growing change in perception to white phosphorus as the use of white phosphorus during this conflict was not commented on as much as the other two examples.

2. THE USE OF WHITE PHOSPHORUS

2.1. USE OF WHITE PHOSPHORUS IN IRAQ

For a detailed explanation on what white phosphorus is, how it works and its history refer to Appendix A. The first case study that will be looked at here is the United States' use of white phosphorus in Fallujah, Iraq. This particular study is to show justifications given by the United States when using the munition.

Operation Al-Fajr, Phantom Fury and the Second Battle of Fallujah are all names associated with the armed conflict that occurred in Fallujah during the Iraq war. The United States military described the conflict as 'some of the heaviest urban combat since the Battle of Hue City'⁴⁶ and it involved American, British and Iraqi military forces.

The United States fought and conducted an operation so that they could take control of Fallujah. This was because of a previous operation in the city that took place that will be referred to as the first battle of Fallujah. On the 4th April 2004, the first battle of Fallujah had begun and the intervention lasted nearly four weeks. It reported to have led to around 211-255 combatants being killed⁴⁷ with 572-616 civilians also being killed⁴⁸. The United States consequently withdrew from Fallujah on May 1st 2004. The first battle of Fallujah resulted in four United States contractors being burned, beheaded and hung from a bridge. This was a catalyst that prompted control of the city to begin once again, and a second battle was later to later commence. Brigadier General Mark Kimmitt after the death of the contractors stated there would be an 'overwhelming' response and said 'we will pacify that city'⁴⁹.

The second battle of Fallujah began on November 7th 2004 and ended on 23rd December 2004. The second battle of Fallujah has given rise to an intense debate over the legality of the use of white phosphorus on the modern battlefield⁵⁰ and will be the battle that will be primarily focused on due to its relevance to white phosphorus.

Prior to the second battle of Fallujah, the majority of the civilian population had evacuated the city. It has been estimated that 70-90% of the civilian population fled prior to the attack.⁵¹ Notably, this means that the number of potential civilian casualties would have lowered. The operation began with an attempt to capture the Fallujah General Hospital. This was intended as a diversion, so that the primary operation could commence to overtake the insurgents holding the city.

The United States have confirmed they used white phosphorus during the second battle of Fallujah. The United States explicitly stated however that they did not use the weapon against civilians. Under IHL, a civilian is regarded as a person who is not a member of the armed forces and the civilian population comprises all persons who are civilians⁵². A civilian may not be directly targeted, and therefore the use of white phosphorus against civilians would be illegal. The United States stated that

⁴⁶ Thomas E Ricks, *Fiasco: The American Military Adventure in Iraq* [1st edn, Penguin, 2007] 399

⁴⁷ Iraq Coalition Casualties: Military Fatalities, icasualties.org, accessed 11th October 2016
<<http://icasualties.org/Iraq/Fatalities.aspx>>

⁴⁸ John Sloboda and Hamit Dardagan, 'No Longer Unknowable: Falluja's April Civilian Toll is 600' accessed 7th October 2016 <<https://www.iraqbodycount.org/analysis/reference/press-releases/9/>>

⁴⁹ Rory McCarthy, 'Uneasy truce in the city of ghosts', *The Guardian* [London, 24th April 2004]

⁵⁰ Mark Sappenfield, 'Arms Controversy in Iraq'. [2005] accessed 10th October 2016
<<http://www.csmonitor.com/2005/1118/pO3sO1-usmi.html>>

⁵¹ Dexter Filkins and James Glanz, 'With Airpower and Armor, Troops Enter Rebel-Held City' *The New York Times* [2004]

⁵² International Committee of the Red Cross, Customary IHL Database, Rule 5 <https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule5> accessed 6th October 2016

they only used the weapon against enemy combatants and only used it so that they could produce smoke and illuminate the battlefield.⁵³ Regardless, their use of white phosphorus is controversial.

It is estimated that the number of insurgent casualties range between 1,200 and 1,500 with an additional 1,500 insurgents captured.⁵⁴ The ICRC has estimated that there were around 800 civilian deaths as a result of the battle.⁵⁵ Even though there is no figure to say how many deaths white phosphorus contributed to, it helps create a picture of the consequences of the battle. Prior to the civilians fleeing Fallujah, there were around 300,000 civilians that resided in the city. Using the estimated 70-90% fleeing, around 210,000-270,000 people left the city prior to the attack with 30,000-90,000 staying behind. Just around 0.3%-3% of the civilians who remained died. This appears to be a relatively low number and the concept of proportionality introduced in Chapter 1 can be applied here. The relatively low number of civilian deaths from the second battle of Fallujah could be because white phosphorus was used. The munition could have been used legally and prevented the armed conflict going on for a longer period of time and prevented more civilians dying.

White phosphorus was reportedly used in a tactic known as 'shake and bake' by the United States during the battle. This tactic uses the incendiary and smoke properties of white phosphorus. Its purpose is to remove enemy combatants from their location to a more desirable location so that they then can be either killed or captured. The entrenched positions from which the combatants are from make it easier for the attackers and white phosphorus is only being used as an irritant. When the United States used white phosphorus they stated:

'White phosphorus proved to be an effective and versatile munition. We used it for screening missions at two breaches and later in the fight, as a potent psychological weapon against the insurgents in trench lines and spider holes where we could not get effects on them with high explosives. We fired 'shake and bake' missions at the insurgents, using white phosphorus to flush them out and high explosives to take them out.'⁵⁶

This tactic is not without controversy, and it is shown by the United States needing to justify their use of white phosphorus. General Peter Pace argued that white phosphorus:

'Is not a chemical weapon, it is an incendiary. And it is well within the law of war to use those weapons as they're being used, for marking and for screening.'⁵⁷

Even though the argument of proportionality is there to be used, when it was used white phosphorus was described as 'a shower of fire.'⁵⁸ A documentary was produced titled *Fallujah: The Hidden Massacre*.⁵⁹ The documentary film was produced by Sigfrido Ranucci and Maurizio Torrealta who are Italian journalists. It was aired for the first time on Italy's RAI state television network and there are interviews with United States soldiers, Iraqi doctors and international journalists. The journalists themselves however do not hold much validity. Another documentary produced by the two did not hold any technical explanation and was not regarded to have had any legitimate claims.⁶⁰ Likewise, *Fallujah: The Hidden Massacre* even though gained attention, was faced with criticism.

⁵³ BBC News interview with Lt Col Barry, BBC News, 16th November 2005

<http://news.bbc.co.uk/1/hi/world/middle_east/4440664.stm> accessed 3rd February 2017

⁵⁴ Charles Recknagel and Kathleen Ridolfo, 'From Fallujah to Qaim' [2005] accessed 5th October 2016

<http://www.atimes.com/atimes/Middle_East/GE13Ak03.html>

⁵⁵ Jesse Singal and others, 'November 2004: Fight in Fallujah - Seven Years in Iraq: An Iraq War Timeline' [2010] accessed 8th October 2016 <http://content.time.com/time/specials/packages/article/0,28804,1967340_1967350_1967530,00.html>

⁵⁶ Paul Reynolds, 'White Phosphorus: weapon on the edge' *BBC News*, [London, 16 November 2005]

⁵⁷ 'US general defends phosphorus use' BBC News [London, 30th November 2005] accessed 6th October 2016 <<http://news.bbc.co.uk/1/hi/4483690.stm>>

⁵⁸ Lynn Montross, 'United States Marine Operations In Korea 1950-1953'[1957]

⁵⁹ Sigfrido Ranucci and Maurizio Torrealta, 'Fallujah: The Hidden Massacre'[Film, RAI-TV, 2005]

⁶⁰ Sigfrido Ranucci and Maurizio Torrealta, 'Star Wars in Iraq' [Film, RAI-TV]

Many of the arguments presented by the documentary were on the basis that white phosphorus is a chemical weapon and banned under the CWC. The debate on whether white phosphorus should be classed as a chemical weapon will come in later chapters, but the documentary itself shows the growing attention to white phosphorus when used in armed conflict. It had put in context the effects that white phosphorus can cause, and showed them to viewers. It brought even more widespread attention to the United States and its use of white phosphorus in Fallujah. The stigma of white phosphorus was growing and it was becoming a topic that was being discussed more and more. It may have prevented more people from dying in the second battle of Fallujah, but this did not prevent the stigma of the munition increasing.

2.2. USE OF WHITE PHOSPHORUS IN GAZA

With growing attention, naturally there is an increase in stigma and this usually leads to pressure for laws to change. The increase in stigma has not halted, and the involvement of white phosphorus in the war in Gaza shows how such stigma can affect proceedings. By showing the levels of stigma surrounding the weapon, it will prove that even if in some scenarios using white phosphorus may help, as a whole it is an unfavourable munition that needs to be controlled in a better way. This would dismiss the argument in support of the munition being able to help wars as in many cases it can have a central role with devastating effects.

The Gaza war, also known as 'Operation Cast Lead' and 'Battle of al-Furqan' began on the 27th December 2008 and ended on the 18th January 2009. The war was between Hamas and Israel and it was located in the Gaza Strip. Hamas is a Palestinian Sunni-Islamic organisation that has been the governing authority of the Gaza Strip. Israel fought to prevent indiscriminate Palestinian rocket fire into Israel and to stop weapons being smuggled into the Gaza strip⁶¹. During this armed conflict, it was reported that white phosphorus had been used.

By 12th January 2009, it had been reported that more than 50 victims in Nasser Hospital suffered from white phosphorus burns and that the United Nations Relief and Works Agency for Palestine Refugees headquarters had also been hit with white phosphorus. The headquarters was consequently set afire. The number of human casualties during the war varies and there is no clear information that states how much white phosphorus contributed. Nonetheless, based on extensive field research by non-governmental organisations the number of people killed ranges between 1,387 and 1,417.⁶² Gaza authorities themselves report the number being 1,444 fatalities⁶³ whilst the Israeli Government reports a figure of 1,166.⁶⁴

During the Gaza war, the United Nations Human Rights Council brought together a team to work as an independent international fact finding investigation. Its goal was to establish if any violations under IHL and international human rights law had taken place. The mission was referred to as the United Nations Fact Finding Mission on the Gaza Conflict and is more commonly known as the Goldstone Report. The Goldstone Report is a 74-page report led by Richard Goldstone, a South African jurist. It was released on the 15th September 2009 and concluded with stating that the Israel Defence Forces (IDF) and Palestinian militant groups had committed war crimes. It added that they possibly also committed crimes against humanity. The purpose of the reports was to:

‘Dispatch an urgent independent international fact-finding mission to investigate all violations of international human rights law and international humanitarian law by the occupying power

⁶¹ Q&A: Gaza conflict, *BBC News*, [London, 18th January 2009] accessed 12th October 2016 <http://news.bbc.co.uk/1/hi/world/middle_east/7818022.stm>

⁶² United Nations General Assembly, *Report of the United Nations Fact-Finding Mission on the Gaza Conflict* [25th September 2009] para 30

⁶³ *ibid*

⁶⁴ *ibid*

Israel, against the Palestinian people throughout the Occupied Palestinian Territory, particularly in the occupied Gaza Strip, due to the current aggression.⁶⁵

The government of Israel rejected the report stating that it was full of errors and that they did not deliberately target civilians. Militant Islamic group Hamas also rejected aspects of the report.⁶⁶ It must be noted however, that the findings are not to a standard of a judicial investigation and there was not a criminal standard of proof met. Goldstone stated that the case was a prima facie case that was 'reasonable on weighing the evidence.'⁶⁷ The evidence collected would not be admissible in a criminal court. For this reason, the inclusion of the Goldstone Report and the Gaza war is not to only show the effects of using white phosphorus, but highlight the stigma that comes with the munition.

The Goldstone Report claims that during the Gaza war, Israeli armed forces were systematically reckless in determining to use white phosphorus in built up areas. The report highlighted Israel's use of white phosphorus and scrutinised it increasing the negative perception of the munition. Originally, Israel held the stance that 'certainty white phosphorus was absolutely not being used.'⁶⁸ They first dismissed the use of white phosphorus, before changing their stance to only using white phosphorus for its obscurant qualities. This sudden change highlights how the stigma surrounding the weapon has an impact on states. As shown, currently under IHL white phosphorus is legally able to be used for its obscurant qualities. So if Israel had used the weapon in this way, there would be no reason to hide the fact that they used the munition. Nonetheless, initially Israel wanted to be distanced from the munition and not be associated with it. As armed conflicts around the world occur, the perception of white phosphorus also changes. The United States reiterated that their use of white phosphorus was legal, and held this view compared to Israel initially dismissing the use of white phosphorus all together before then confirming they had used the munition.

In July 2009, the Israeli government stated that the primary rationale for firing white phosphorus was to produce a smokescreen.⁶⁹ Though this remained their official stance, it still does not appear to be likely. It is strongly suggested that the IDF were using white phosphorus for its incendiary effects. White phosphorus does offer extra qualities that other smoke projectiles do not possess, however these qualities would prove to be ineffective. There were some attacks that had no Israeli forces on the ground making the obscurant qualities ineffective.⁷⁰ The obscurant qualities would not have been needed when white phosphorus was being used. This strongly suggests that white phosphorus was used for a different reason. Once again, the current law is shown to be potentially exploited. Having law that focuses on the reason why a munition is being used rather than its effects allows for states to find loopholes and use them for their own gain.

There were reports that white phosphorus was fired in densely populated areas, and this regardless would be a breach of IHL by being an indiscriminate attack.⁷¹ Under pressure and in a crowded environment would make it so it was impossible to not make mistakes and not cause civilian harm. Even specialists who are expertly trained and are aware of what sort of damage the munition can do, would not be able to constantly avoid areas they were not trying to hit. If this was the case, then

⁶⁵ UNHCR, *Report of the Human Rights Council on its Ninth Special Session* [27th February 2009]

⁶⁶ Fares Akram, *Hamas drafts responses to its accusations in Goldstone report* [2009] accessed 3rd February 2017 <http://news.xinhuanet.com/english/2009-10/08/content_12195495.htm>

⁶⁷ United Nations General Assembly, *Report of the United Nations Fact-Finding Mission on the Gaza Conflict* [25th September 2009] para 1429

⁶⁸ Human Rights Watch, Interview with IDF spokesman, Israel [January 7th 2009] accessed 10th October 2016 <<https://www.hrw.org/news/2009/01/07/gaza-israeli-attack-school-needs-full-un-investigation>>

⁶⁹ Israel Ministry of Foreign Affairs, 'The Operation in Gaza, Factual And Legal Aspects' [18th January 2009] accessed 11th October 2016 <www.mfa.gov.il/NR/rdonlyres/E89E699D-A435-491B-B2D0-017675DAFEF7/0/GazaOperation.pdf>

⁷⁰ Human Rights Watch, *Israel's Unlawful Use of White Phosphorus in Gaza* [March 25th 2009] accessed 9th October 2016 <<https://www.hrw.org/report/2009/03/25/rain-fire/israels-unlawful-use-white-phosphorus-gaza>>

⁷¹ Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, Art 51(4)(a)

regardless of if Protocol III is amended, this attack would be regarded as illegal. White phosphorus did not have any benefit when the IDF decided to use the munition. If smoke-screening was the objective, then there were other equal alternatives. The argument for white phosphorus being the best munition cannot be used. White phosphorus offers the benefit of being able to interfere with infra-red spectrum which results in impeding the use of night vision and infra-red tracking systems. The white phosphorus used by the IDF was during the day and obviated the need to use white phosphorus. An alternative 155mm smoke projectile would have offered the same qualities as white phosphorus if the obscurant qualities were the only reason in which it was used. Doing this would have provided no risk of fires, or burns and injury to civilians. This also leads to the argument of military necessity not holding ground either. White phosphorus was not the only possible weapon that could be used. There were other munitions that could have been used that would not have such effects.

To put these effects of white phosphorus in Gaza into perspective, a study⁷² that observed the Gaza war can be explored. The study used statistics from Gaza and showed the sort of damage that could occur if the same attack was made in other areas of the world. The Jabalia Camp in Gaza has a population of 93,455⁷³, an area of 1.4 square miles and a density of 66,754 per square mile. The Jabalia Camp was targeted and in total 80 housing units, 2 schools, 2 retail stores and 1 pharmacy were affected. If the same attack was made in the Tel Aviv City centre, 500 housing units, 30 local businesses, 2 museums and 1 school would be affected. In New York City, it would be 950 housing units, 40 local businesses, 1 University and 1 Church. In Paris, 400 housing units, 15 local businesses, 2 hotels and 1 Post Office would be affected. The same study with the use of a computer assisted simulation ran 150 iterations over a 30,000 square metre area of Jabalia.⁷⁴ It showed what sort of trajectory the munition would take and the kind of damage it could ensue. Out of the 150 simulations, 149 of them resulted in over 60 individual wedges hitting roofs. In 139, more than 20 hit a façade and in 147 more than 15 hit the ground. These high ranging probabilities, (99%, 93% and 98% respectively) show the intense difficulty with trying to control the white phosphorus wedges to limit the damage it can cause.⁷⁵

There is a lot of stigma surrounding white phosphorus. It does not appear to follow the values of IHL. A weapon that can cause the same effects of white phosphorus is prohibited if it is originally designed to cause incendiary effects. The values of IHL want to offer humanitarian protection and the best possible way to do so is to focus on the effects of white phosphorus. Its effects can be too devastating and the justification given by the United States for using it in Fallujah should not be prioritised. The role of white phosphorus in Gaza shows that the nature of the munition is one that causes too much suffering to those affected, and the growing stigma surrounding the weapon shows support for this.

2.3. USE OF WHITE PHOSPHORUS IN BOSNIA

The final case that will be looked at is the Bosnia war. It is notably an armed conflict that occurred before the second battle of Fallujah and the Gaza War. It has been chosen in this order to highlight the growing change in perception to white phosphorus as there is greatly increasing stigma to the weapon.

Whereas both Fallujah and Gaza were widely reported conflicts and brought on many debates as to the legality of the use of white phosphorus, in contrast the Bosnian war did not. The Bosnian War occurred in Bosnia and Herzegovina, and is believed to have started on the 6th April 1992, ending on

⁷²Bradley Samuels and others, 'The Use of White Phosphorus Munitions in Urban Environments: An Effects-Based Analysis' [2012] Forensic Architecture, accessed 9th October 2016 <<http://www.forensic-architecture.org/wp-content/uploads/2014/05/WP-print-report-FINAL.pdf>>

⁷³Palestinian Central Bureau of Statistics, Population, Housing and Establishment Census [2007] 90

⁷⁴Bradley Samuels and others, 'The Use of White Phosphorus Munitions in Urban Environments: An Effects-Based Analysis' [2012] Forensic Architecture, accessed 9th October 2016 <<http://www.forensic-architecture.org/wp-content/uploads/2014/05/WP-print-report-FINAL.pdf>>

⁷⁵ ibid

the 14th December 1995. The war has been described as the 'most devastating conflict in Europe since the end of World War II'⁷⁶ and came as a result of the breakup of the Republic of Yugoslavia.

The Siege of Sarajevo started in early April 1992, and it began the longest siege in modern warfare of a capital city. A total of 1,425 days brought terror against the residents of Sarajevo, as the siege sought to force Bosnian authorities to meet the demands of the Serbs. On the 8th February 1994, a telegram was sent to the White House from the United States Ambassador to Croatia, Peter Galbraith. He stated that Sarajevo was being subject to 'constant and indiscriminate shelling and gunfire.'⁷⁷ As a result of the war, Muhamed Sacirbey the Bosnian Ambassador to the United Nations, called for the assistance of the United Nations Security Council for the use of white phosphorus to be banned under the Geneva conventions following its use against the population of Sarajevo. He stated:

'These weapons are being used against the population of Sarajevo without punishment or response. According to United Nations logic, which justifies the failure to act by the fact that the sides are equal in strength, the Nazi murders of innocent civilians were really nobody's business, because the allies more than matched the Nazis in strength.'⁷⁸

There is little literature on the use of white phosphorus in Bosnia. The reasons for this and possible causes are because the use of white phosphorus in the war itself did not produce controversy. It has been shown that Serbian forces shelled a village, and a white phosphorus shell hit a house, burning one of its occupants. This was confirmed to have happened by the United Nations with a thick white smoke from white phosphorus grenades being deployed⁷⁹. Intended to intimidate civilians, a dozen shells were shot across the city of Sarajevo killing at least 5 people and injuring more than 20. Even though white phosphorus was used during the Bosnian war, compared to the commentaries of Fallujah and Gaza, there has been little research into Bosnia. There has been no similar fact finding mission or documentary. Comparing this to now, in which there are many comments of white phosphorus, a growth with the stigma of white phosphorus can be seen. The Bosnian Ambassador highlighted this issue, and was not happy with the lack of support. Whereas in the Bosnia war, the use of white phosphorus was able to slightly go under the radar, now when states use this munition this would not happen. Following this growing awareness of white phosphorus, the best time to amend the law would be now, a time where the stigma surrounding the weapon is high, and support for amendment would be available. It is not a case of the munition being more widely used now; it is just being reported more frequently. The law has remained the same, so it has not strengthened. It is ultimately a clear example of the stigma surrounding the weapon increasing. The weapons use goes against the values of IHL, and there needs to be change. Such change is yet to take place, and it should be accomplished now before the problem becomes more of an issue.

2.4. REVIEW OF THE LITERATURE

There has been a chronological development of the current knowledge and with the literature giving a critical review of the gaps in knowledge and potential problems, it is useful to observe. It will be commented on to show how other academics have reached their conclusions and the arguments that they have presented. Doing this will assist in reaching the conclusion that Protocol III of the CCW should take an effects based approach. The literature review aims to highlight where the thesis will fit within the current knowledge. The objective of reviewing the literature is to identify an area where further discussion can be made and why it would be useful to do so.

⁷⁶ Michael F Harsch, *The Power of Dependence: NATO-UN Cooperation in Crisis Management* [OUP, 2015] 37

⁷⁷ US Ambassador to Croatia Peter Galbraith, [2nd February 1994] accessed 12th October 2016
<<http://nsarchive.gwu.edu/IMG/20091106-friday.pdf>>

⁷⁸ Joseph D Tessier, 'Shake and Bake: Dual-Use Chemicals, Contexts, and the Illegality of American White Phosphorus Attacks in Iraq' [2007] 341

⁷⁹ Roger Cohen, NATO May Be Called On to Silence Guns in Sarajevo, *New York Times* [New York, May 25, 1995]

Currently white phosphorus is able to be used in armed conflict and produce incendiary effects. However, Protocol III of the CCW only prohibits munitions that are 'primarily designed to set fire or cause burn injury.' This means that a weapon such as white phosphorus that has various capabilities escapes the regulation of Protocol III as it would not be primarily designed to be used in this way. Its incendiary effects can be classed as a secondary effect. It is a munition that can illuminate, signal, screen and also be used for its incendiary effects on top of being able to also ricochet, penetrate, and ignite. Consequently there has been a great deal of research in this area of law and Bradley Samuels claims the use of white phosphorus is 'highly controversial'⁸⁰ especially in highly populated areas. Something being controversial does not provide enough information on its own, but it is a useful point to observe first in regards to this literature review. There will always be different arguments presented and these arguments will be illustrated.

Controversy can be from a culmination of stigma and in regards to white phosphorus, as the weapon is more frequently used, the fact that it can escape regulation means that there are more commentaries on the topic. IHL aims to minimise the sufferings of war as much as possible and white phosphorus is a weapon that cannot be controlled once deployed. As a result, academics, non-governmental organisations and states continue to comment on these issues. For example, Samuels when focusing on the effects of the munition states white phosphorus puts civilians, objects and the environment at great risk.⁸¹ This risk is equal to an incendiary weapon, and yet an incendiary weapon is prohibited. It is understood that war will have calamities, but a weapon that excessively causes calamities is contentious.

Where there is controversy, there will always be ideas presented to combat the issues. As white phosphorus has incendiary capabilities, a link between white phosphorus and Protocol III of the CCW can be found in the discussions. Protocol III states 'any weapon or munition which is primarily designed to set fire or cause burn injury'⁸² is to be prohibited. As white phosphorus does not fit within the current definition of an incendiary weapon, those who believe the use of white phosphorus is controversial look at this definition and see it as inadequate. There is no real primary purpose to white phosphorus. When it is being manufactured, it could be used for illumination or as an incendiary. It is up to the user of the munition to decide what they want to use the weapon for and because of this, the munition can never be primarily designed to set fire or cause burn injury.⁸³ MacLeod and Rogers argue that white phosphorus can never fit the definition and a lot of the literature discusses this. For example because of the weapons effects, Reyhani believes white phosphorus should fall under the scope of an incendiary weapon and therefore be prohibited.⁸⁴

Customarily, it appears as if researchers see white phosphorus as a growing concern as it continues to be used but escapes regulation and is not prohibited like incendiary weapons. Hashey comments on the ambiguity in the legal status of white phosphorus in IHL. He asserts that the status of Protocol III in regards to munitions such as white phosphorus has now become 'untenable'⁸⁵. As white phosphorus in continued to be used and is able to escape the regulation of Protocol III, the literature strengthens in this area. Hashey expands on his earlier point and considers that the use of white phosphorus in warfare may already be illegal.

⁸⁰ Bradley Samuels and others, 'The Use of White Phosphorus Munitions in Urban Environments: An Effects-Based Analysis' [2012] Forensic Architecture, accessed 9th October 2016 <<http://www.forensic-architecture.org/wp-content/uploads/2014/05/WP-print-report-FINAL.pdf>>

⁸¹ *ibid* 30

⁸² Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 1

⁸³ I.J. MacLeod and A.P.V Rogers, 'The Use of White Phosphorus and the Law of War' [2009]

⁸⁴ Roman Reyhani, 'The Legality of the Use of White Phosphorus by the United States Military during the 2004 Fallujah Assaults' [2007]

⁸⁵ Philip Hashey, 'White Phosphorous Munitions: International Controversy in Modern Military Conflict' [2011]

There is space in the literature to offer ideas in how white phosphorus could fit within the scope of Protocol III of the CCW and this is what this thesis will attempt to do. The literature shows that there is an issue and that it is regarded as controversial. With new ideas put forward, academics can help present a suitable resolution to the issues.

However, even though there are studies about the growing concern of white phosphorus, there are also other areas of the literature that do not follow the notion that white phosphorus is controversial and that there needs to be change. To fully agree with the above studies, it is important to examine the other side of the literature. This side of the literature is important to observe as it shows that they are not being ignored and that any conclusion does consider their arguments. Gross in *Moral Dilemmas of Modern War* highlights the effectiveness of using white phosphorus in 'shake and bake' missions⁸⁶. He comments on how effective the munition is, and says it is perfectly legal and a legitimate tool of military forces in armed conflicts. As already noted, it is expected for there to be casualties in war and there is literature that supports the notion that this should not be regulated too much. If munitions are constricted too much, then the expectations of war become unrealistic. Some of the current literature supports the use of white phosphorus and does not see it as controversial.

There is therefore not a clear condemnation on the use of white phosphorus. Adelman seeks for people to look objectively at the context of war.⁸⁷ For example, Evans argues that white phosphorus is the simplest way of effectively masking troops from the enemy and is no different or 'more dangerous or cruel than any other weapon.'⁸⁸ There is a focus on the capabilities of the weapon in regards to its benefits in armed conflict. White phosphorus can be an extremely useful weapon to armed forces and there will be support for a munition that can deliver desired results. As a result of this, there is not always a backing for the condemnation of white phosphorus. As the use of white phosphorus increases and the commentaries on the controversy of it does as well, so does the support for white phosphorus and this can be seen by the literature in areas such as this.

The discussion of white phosphorus does not just concern incendiary weapons. As it is a dual-use chemical, it could be considered to be a chemical weapon. The CWC prohibits chemical weapons and if white phosphorus was to fit within the scope of the convention, it would be completely prohibited. Castaing believes that white phosphorus should be seen as a chemical weapon.⁸⁹ He holds the view that the definition of a chemical weapon under the CCW is lax and therefore white phosphorus does actually fall in its scope. This is a result on the literature surrounding white phosphorus growing. Castaing is not the first to consider white phosphorus as a chemical weapon, but he considers in his research that because white phosphorus is unnatural and not found in nature – it should be classed as a chemical weapon. As there is literature concerning white phosphorus and its classification as a chemical weapon, it is important to examine this view. This thesis as a result will look at white phosphorus and its classification as a chemical weapon to dismiss this area of the literature.

The literature on human rights treaties and whether their ratification makes a difference offers an interesting backdrop. Oona Hathaway in 'Do Human Rights Treaties Make a Difference?' explores the effects that ratification to human rights treaties has in regards to human rights violations. She argues that human rights practices in states worsen with ratification of treaties because the ratifying state is rewarded with reduced political pressure to promote human rights standards.⁹⁰ Applying this to IHL, if the law surrounding white phosphorus was to be strengthened, then it could potentially

⁸⁶ Michael L Gross, *Moral Dilemmas of Modern War* [1st edn, CUP, 2010]

⁸⁷ Howard Adelman, 'Research on the Ethics of War in the Context of Violence in Gaza' [2009]

⁸⁸ Michael Evans and Sheera Frenkel, 'Gaza Victims Burns Increase Concern over Phosphorus' *The Times Online* [UK, 2009] accessed 11th October 2016 <<http://www.commondreams.org/news/2009/01/09/gaza-victims-burns-increase-concern-over-phosphorus>>

⁸⁹ Christian Castaing, 'White Phosphorus in the Middle East: crimes against humanity, or modern warfare?' [2010]<http://www.envisionschools.org/site/wp-content/uploads/2010/07/White_Phosphorous.pdf>

⁹⁰ Oona A Hathaway, 'Do Human Rights Treaties Make a Difference?' Faculty Scholarship Series [2002] 1941

mean that the humanitarian protection could worsen. If this was the case, then further amendments would not be the best cause of action and it could not be recommended for Protocol III of the CCW to take an effects based approach. However, this led to a follow up study by Ryan Goodman and Derek Jinks. They stated that Hathaway had not adequately covered all possible angles in her study.⁹¹ Their argument could be applied to those who believe that amending Protocol III could have a detrimental effect. They state:

‘In many jurisdictions, treaty ratification makes possible the initiation of individual legal claims based on the treaty's substantive guarantees. As a consequence, it encourages lawyers and their clients to express injuries in terms of the newly established treaty obligations.’⁹²

In a domestic example, as they explain, if there are more expansive sexual violence laws, statistically there is more likelihood it will result in a higher number of rape claims. This is regardless of if the actual rate of rape has changed.⁹³ This is not because more rapes have occurred, but because there is greater scope to claim with more also becoming aware of the issue.

If a similar model is used for white phosphorus, as IHL progresses and more treaties, conventions and principles are created and expanded on – there is a greater likelihood that states are to raise concern about the use of the munition. In the chapters to come, this will be assessed to see if there is a need for amendment to Protocol III of the CCW but this will not be done under the notion that doing so will offer worse humanitarian protection than before. It will instead, consider other possible issues such as the possibility that not using white phosphorus in armed conflict has become emerging customary law meaning there is no need for an amendment. Enforcement in regards to IHL is problematic compared to the enforcement of human rights and this must be noted. However, as the expansion of liability is to be considered in the thesis it is useful to consider the potential impacts of amendments.

Most of the research on white phosphorus looks at the potential for white phosphorus to be regarded as an incendiary weapon. It focuses on the inadequacies of the humanitarian protection offered and the ways to combat this. It is therefore an area that will be repeated here to highlight the significance of the need for change. However, in this research there will be an attempt to offer a critical analysis as to what the change could be and how the law should be amended. By offering this proposal, an addition to the literature will be presented.

So far, the aims of the thesis have been brought forward, and white phosphorus itself has been discussed in detail. The effects of the munition, its role in IHL and the law surrounding the weapon have all been commented on. White phosphorus has varying degrees of severity, and can be fatal. Its destruction is strong, and once deployed there is little that can be done to control it. This has led to both academics and states commenting on amending the law. There does need to be change and the remaining chapters will argue why it should be the CCW that is amended. It will observe different possibilities and balance the benefits with the disadvantages of each possible change. Alleviating humanitarian issues is vital, and the concept of upholding the values of IHL will be focused on.

The starting point will be to observe Zyklon B. As it has been argued that the law surrounding white phosphorus should be strengthened to offer better humanitarian protection the next chapter will consider if liability should be expanded for violations. The dual use chemical Zyklon B and a case study involving Zyklon B will be assessed to consider this notion as it will be assessed and compared to white phosphorus.

⁹¹ Ryan Goodman and Derek Jinks, 'Measuring the Effects of Human Rights Treaties' [2003] EJIL

⁹² *ibid* 176

⁹³ *ibid* 176

3. ZYKLON B

3.1. WHAT IS EXPANDING LIABILITY?

The previous chapter discussed what justifications states give for using white phosphorus and the growing stigma of the munition. The current state of the literature was also observed. It concluded with stating that there does need to be change. By creating this foundation, it is possible to begin to look into how the law can be changed to alleviate human suffering as much as possible. The first consideration will be to potentially expand liability for those that violate the law and the notion of responsibility for complicity. Specific wording of the law would not need to be amended, but more subjects could be liable for exploiting the law when white phosphorus is used. Looking at all possible options is important, as it shows consideration for all potential outcomes and strengthens the eventual conclusion. This will be done as it is just one look at the possible ways in which the law for white phosphorus munitions can be protected. The principles and values of IHL show us that there is an aim to protect subjects as much as possible and to alleviate suffering. The aims discussed are vital to IHL, and any direction that is conflicting to these aims should face consequences to prevent the same happening again.

To do this, the dual-use chemical Zyklon B will be compared to white phosphorus throughout the chapter. First Zyklon B will be introduced, with a description of its effects and history. Once this has been done, the distinguished Zyklon B case will be discussed. This case is an example where responsibility for complicity was presented in IHL. By looking at this case, it can be evaluated to see if similar proceedings could take place for white phosphorus. The advantages and disadvantages of expanding liability will be observed, it will conclude that even though it may help, it may not be the best possible change. This will lead to the next few chapters where other possibilities are presented.

Before this conclusion can be reached, it is important to explain what is meant by expanding liability. In legal terms, liability concerns the subject who is legally responsible for an action.⁹⁴ In regards to IHL, a person for example would be liable if they committed a war crime. If one has committed a war crime, a major violation in IHL would have taken place and the subject would be criminally responsible for their actions. To expand liability would mean for more subjects being responsible for a same wrong that has taken place. In regards to white phosphorus, if it has been designed for its incendiary qualities or targeted against civilians then it is regarded as illegal. This would make the subject that decided to use it in this way liable. However expanding liability would also cause another subject on top of this to be liable for the violation in law. This could be the state that administrated the use of white phosphorus, or the manufacturer of the munition itself.

In a case involving Zyklon B, two men were convicted to death as a result of their involvement in the production and supply of Zyklon B during World War II.⁹⁵ Zyklon B was invented in the early 1920's in Germany and consisted of hydrogen cyanide and a cautionary eye irritant. Hydrogen cyanide is a poisonous gas and it interferes with cellular respiration. Appendix B briefly explains this further.

3.2. THE ZYKLON B CASE

Fritz Haber who is considered the 'father of chemical warfare'⁹⁶ conducted research in the Kaiser Wilhelm Institute for Physical Chemistry and Electrochemistry. Haber is known for developing and weaponising chlorine and other poisonous gases that were used during the First World War. He is known as a science great,⁹⁷ but he defended gas warfare. He believed that death was death regardless

⁹⁴ Gale Group, 'West's Encyclopaedia of American Law' [2nd edn, Cengage Gale, 2008]

⁹⁵ re *Tesch Zyklon B Case* [1946] 1 Law Rep of Trials of War Criminals

⁹⁶ Dietrich Stoltzenberg, *Fritz Haber: Chemist, Nobel laureate, German, Jew* [1st edn, Chemical Heritage Press, 2004]

⁹⁷ Chris Bowlby, 'Fritz Haber: Jewish chemist whose work led to Zyklon B' *BBC News* [London, 12 April 2011] accessed 12th October 2016 <<http://www.bbc.co.uk/news/world-13015210>>

of how it was inflicted and did not believe that it was inhumane. Fritz Stern says Haber must be remembered 'in all his complexity' and he was a man of 'scientific greatness but deeply cultivated'⁹⁸. Haber's research in the institute led to the founding of Degesch, which was a state controlled consortium. Degesch was formed to investigate and conduct research into military use of chemicals. This research discovered that adding a cautionary eye irritant to a less volatile cyanide compound in the presence of heat would become hydrogen cyanide. This could be used for military purposes, and the product was branded as Zyklon. The specific research was the work of Bruno Tesch, Walter Heerdt and Gerhard Peters. Nazi Germany used Zyklon B in extermination camps during the Holocaust. Gas chambers such as Auschwitz would be filled with people forced into chambers, with the doors then locked shut. Zyklon B pellets would be inserted through either a vent in the roof or holes in the chamber and all victims would be dead within 20 minutes.⁹⁹ Millions were killed this way. Prior to the war, most of the profits derived from Zyklon B were from overseas sales. The chemical could fumigate entire ships, buildings, barracks, flour mills, grain elevators or railroad cars without damaging their contents in any way. With the Second World War, profits greatly increased. For example, Auschwitz received a great total of 23.8 tons of Zyklon B¹⁰⁰, with only 6 tons of this being used for fumigation. This shows that there was a lot more Zyklon B being delivered than needed for fumigation. Zyklon B could not have been bought in high quantities to be stored. The chemical only has a shelf life of three months. Joseph D. Tessier describes hydrogen cyanide as probably the quintessential example of a dual-use chemical.¹⁰¹

After the conclusion of the Second World War, Tesch, Karl Weinbacher and Joachim Drosihn were arrested by Britain as war criminals. Tesch and Weinbacher were executed, with Drosihn being acquitted of the charges. This led to the Zyklon B case. When charged, it was deemed that the three men:

'In violation of the laws and usages of war did supply poison gas used for the extermination of allied nationals interned in concentration camps well knowing that the said gas was to be so used.'¹⁰²

It was claimed that they continued their involvement in the sale of Zyklon B to Nazi forces despite knowing that it was being used to exterminate human beings in concentrations camps and that they continued to do so in ever-increasing quantities. During the trial, the prosecution stated that Zyklon B was used for:

'Systematically exterminating human beings to an estimated total of six million, of whom four and a half million were exterminated by the use of Zyklon B in one camp alone, known as Auschwitz.'¹⁰³

Tesch's defence had to prove that he had no knowledge that Zyklon B was used for the killing of humans and that his delivery of Zyklon B was for the purpose of disinfection. Tesch argued that the quantities of Zyklon B delivered were quite normal quantities, and that any instruction course that was given was 'held only according to the relevant laws and regulations, and again only for the purpose of teaching the method of exterminating vermin.'¹⁰⁴ Doctor Zippel, who defended Tesch, stated that he had a duty to:

⁹⁸ *ibid*

⁹⁹ Franciszek Piper, *Gas Chambers and Crematoria* [Indiana University Press, 1994] 157–182

¹⁰⁰ re Tesch Zyklon B Case [1946] 1 Law Rep of Trials of War Criminals

¹⁰¹ Joseph D Tessier, 'Shake and Bake: Dual-Use Chemicals, Contexts, and the Illegality of American White Phosphorus Attacks in Iraq' [2007]

¹⁰² re Tesch Zyklon B Case [1946] 1 Law Rep of Trials of War Criminals, 93

¹⁰³ *ibid*

¹⁰⁴ *ibid*

‘Try to prove that Tesch supplied this gas not knowing for what purposes it might be used. My second duty is that, even if he knew something about it, still the laws of this procedure would not suffice to find him guilty.’¹⁰⁵

This would appear as a direct defence against the notion of complicity. However, his defence also wanted to defend against the notion of expanding liability all together. Zippel stated that even if Tesch was aware, the law should not find him guilty. Tesch did not believe that he was in the wrong. He ended his testimony by stating ‘I was not a militant member of the Nazi Party but I was always loyal to the German State’¹⁰⁶. Nonetheless, it was deemed that Tesch had no reason to not know what the true intentions of the use of Zyklon B were for. He was known as being an extremely efficient man with there being little chance that he could be duped. It was stated that:

‘To my mind, although it is entirely a question for you, the real strength of the prosecution in this case rests rather upon the general proposition that, when you realise what kind of man Tesch was.’¹⁰⁷

Karl Weinbacher was also executed for his involvement. Weinbacher it was approximated was in sole control of the company for around 200 days in the year. During this time, he would have had access to all the books and travel reports of the firm. It was deemed that he too was liable for his actions as he would be in a position where he was aware of what was happening.

There was a line drawn however for the given standard for liability as Joachim Drosihn was acquitted of his charges. In his defence, he argued that his knowledge on the activities of the business was ‘scanty’ and that he only became aware that the gassing of humans occurred after the capitulation of Germany.¹⁰⁸ It was deemed that Drosihn had a subordinate position within the firm and would not have had the knowledge of what Zyklon B was being used for. Drosihn's role was being the firm's first gassing technician, and any supply of gas would be beyond his control.¹⁰⁹

Drosihn's acquittal is very important. It shows that there is a limit and that consideration needs to be made to ensure that the scope of liability has not been expanded too far. His job role was limited to installing, repairing or maintaining gas lines. The values of IHL are imperative, and any violations of IHL should be prosecuted. But this does not mean that it should prosecute anyone. The acquittal of Drosihn shows that there was a constraint, and if liability for the illegal use of white phosphorus was to be expanded this would need to be considered. To ensure that this did not become a problem in the case of Zyklon B, the Judge Advocate for the case effectively made a three part test that needed to be fulfilled.

The first part was for it to be sure that the Allied nationals had been gassed by means of Zyklon B. It was then needed for the gas used for extermination to be supplied by the firm. Finally, it was needed for the accused to have been aware that the gas they were supplying was to be used to kill humans.¹¹⁰ Firstly, there was evidence to confirm that it was Zyklon B used in the concentration camps and that the Zyklon B was supplied by their firm, meaning that at this stage all three could still be liable. However, only Tesch and Weinbacher were in a high enough position within the firm so only they would have been aware that the gas was being used to kill humans. They were not the ones explicitly conducting crimes, but by aiding it and doing nothing to prevent it meant that they were found guilty. Therefore the third part of the test the Judge Advocate set was fulfilled and the defendants found guilty. Since the trial of Zyklon B, Article 6 of the statute of the Nuremberg Military Tribunal has

¹⁰⁵ *ibid* 98

¹⁰⁶ *ibid* 93-94

¹⁰⁷ Elihu Lauterpacht, *International Law Reports*, [1st edn, CUP, 1951] 260

¹⁰⁸ *Law Reports of Trials of War Criminals*, [London, Vol 1, 1947] 93

¹⁰⁹ Gary D Solis, *The Law of Armed Conflict: International Humanitarian Law in War* [1st edn, CUP, 2016] 366

¹¹⁰ *Law Reports of Trials of War Criminals*, [London, Vol 1, 1947] 93

imposed sanctions on individuals who either contributed or cooperated to the commission of principal crimes.

The Zyklon B case is an example where individuals are made accountable for their actions even though they are not committing the crimes themselves. This same concept could be applied to individuals who represent states as well as states themselves. States do not simply seek to win armed conflicts in the most convenient or efficient manner. States appreciate the value of winning armed conflicts in the best possible view of the international community. IHL is constructed with states around the world agreeing on the constraints that should be set. The general consensus therefore is to ensure that armed conflict occurs in the most humane possible way. A method of preserving this is to make those that deviate from this be liable for their actions. So if there are individuals who aid states in violating the law, it must be considered to see if they should also be prosecuted, similar to how Tesch and Weinbacher were.

3.3. RELEVANCE OF ZYKLON B AND SUPPORT OF STATES

It can now be explained why Zyklon B has been chosen for a parallel with white phosphorus. The inclusion of the material needs to be justified. The first point is that they are both simply dual-use chemicals. It is easier to relate to a munition when the other shares similar properties. Even though one is considered to be a chemical weapon, the two munitions do share alike properties. Zyklon B is not a weapon and if used in warfare is completely illegal, and there are no justifications to using it as a munition. In comparison, white phosphorus has certain uses that can be legal and beneficial due to its versatility. When used and designed for specifically its incendiary purposes, the use of the weapon becomes illegal, and it is this use that is usually exploited by states.

Another reason why Zyklon B has been chosen is because it is an example of liability being expanded in IHL. It can be looked at to see in the Zyklon B case how the notion of complicity was applied and the reasons for which it was done so. In addition, the advantages and disadvantages of this can be observed and any of the after effects that occurred can be discussed. It can be seen why this happened, how it could potentially be prevented and if it would be applicable to white phosphorus.

As noted, the growing stigma and controversy with the use of white phosphorus is there, and it is also another point that can be observed in regards to Zyklon B. Since the trial, great stigma has arisen in regards to Zyklon B. After the conclusion of the Second World War, it has only been used rarely as a pesticide and in industrial applications. Even though firms from the Netherlands, Germany, Japan and the United States still to this day use it, they do so under an alternative brand name such as Cyanosil.¹¹¹ Whenever the word Zyklon is used in trade names, angry reactions have followed. British sportswear Umbro in 2002 issued an apology for using the name Zyklon on the box of one style of their trainers for numerous years.¹¹² They received complaints and consequently stopped using the word. Similarly, the word can be found on portable roller coasters made by the company Pinfari. This has led to numerous organised protests over many years to show the anger of many people for the continued use of the word.¹¹³ Zyklon B is very effective at sanitising objects and the levels of stigma that arose as a result of its involvement in World War II means that it is only now used for sanitisation. This shows how valuable stigma can be for IHL. It is a deadly chemical that is only now being used for commercial reasons. If a similar approach occurs for white phosphorus it could ensure that it is only used legally.

¹¹¹ David A Dzombak and others, 'Cyanide in Water and Soil: Chemistry, Risk and Management' [CRC Press, 2005]

¹¹² 'Fury over Nazi gas sports shoe name' *BBC News*, [London, 29th August 2002] accessed 12th October 2016 <<http://news.bbc.co.uk/1/hi/uk/2222783.stm>>

¹¹³ 'Zyklon' Roller Coaster Sign Is Pulled After Jewish Outcry' *The New York Times*, [New York, 11th August 1993] accessed 12th October 2016 <<http://www.nytimes.com/1993/08/11/us/zyklon-roller-coaster-sign-is-pulled-after-jewish-outcry.html>>

In a similar way, there are also examples emerging now of subjects not wanting to associate themselves with white phosphorus. It must be noted first however that Zyklon B is an agent that was never claimed to be used for military purposes but was in fact used for genocide. In contrast, white phosphorus is intended to be used for the military but it is being used inappropriately. The two situations are slightly different, but this does not mean that stigma cannot play the same role for white phosphorus. It can work in a way to prevent white phosphorus from being used inappropriately. As previously stated in the earlier chapters, Israel following their use of white phosphorus in the Gaza war originally stated that they had not used white phosphorus at all. By first stating that they were definitely not using the weapon, before there was no other option but to confirm that they had used the munition starts to show a comparable disdain. By apparently not wanting to be associated with the munition shows the building stigma that is associated with white phosphorus. Though not the levels of stigma that Zyklon B has, it shows that it has already started to occur and can therefore be a comparable munition.

White phosphorus can be used legally but can still be controversial. This controversy has not completely yet made states reluctant to use white phosphorus. This is shown by Israel being aware of the stigma of the munition, but still using the weapon regardless. Although the stigma surrounding white phosphorus many not reach that of Zyklon B, it is growing, and a lesson can be learnt from it. The stigma surrounding Zyklon B is different to white phosphorus, but it is useful as it is a circumstance that shows what the potential end result could be.

Comparing the stigma between the two munitions has relevance, as stigma can play a major role when impacting IHL. For example, cluster munitions which were first used in the 1940's are an extremely unreliable and inaccurate munition. It is an explosive weapon that when used in operation ejects other smaller sub-munitions. These explosive smaller bombs are intended to either kill people or destroy objects. The wide ranging area that the munition can impact because of the bomb's release of many smaller bombs makes the munition pose great risk to combatants and civilians alike. If a bomb does not explode during the attack, it may do so later and kill well after the conflict has ended. In a similar way to white phosphorus, once the munition is deployed there is little that can be done to control it. The United States during the Vietnam War used cluster bombs against targets in Vietnam, Laos, and Cambodia. It has been reported that from the 260 million cluster bombs that were deployed on Laos between the years 1964 and 1973, around 80 million failed to explode¹¹⁴. This unreliability and further unintended destruction that the munition can cause generated great outcry to the use of the weapon.

In 2000, the ICRC urged States to stop using the munition all together as they expressed their deep concerns towards the weapon.¹¹⁵ In 2007, Norway launched the 'Oslo Process' which sought to begin the process of creating an international treaty to prohibit the use of cluster bombs in armed conflict.¹¹⁶ There were also global conferences in Lima, Vienna and Wellington, and regional meetings in Africa, Asia, Europe and South America to discuss the issue. The Convention on Cluster Munitions was consequently adopted on the 30th May 2008. Over a hundred states have now joined the convention.

Whereas once the munition was regarded as 'morally repugnant,¹¹⁷' it is now illegal. The stigma of the weapon impacted the development of the convention. The values and principles of IHL were upheld. The President of the ICRC, Jakob Kellenberger stated:

¹¹⁴ Ian MacKinnon, 'Forty years on, Laos reaps bitter harvest of the secret war' *The Guardian*, [London, 3 December 2008]

¹¹⁵ The Convention on Cluster Munitions, 5 accessed 12th October 2016
<https://www.icrc.org/eng/assets/files/other/icrc_002_0961.pdf>

¹¹⁶ *ibid* 5

¹¹⁷ *ibid* 6

‘I am also confident that the convention will result in cluster munitions being stigmatized and that its impact will extend far beyond the participating states and the mere words it contains.’^{118c}

This shows the potential that stigmatising munitions can have by asserting that it is not limited. It can further preserve the values of IHL beyond just those that have signed the treaty due to the stigmatisation of the munition. There is potential for the munition to be completely eradicated from armed conflict and this is a progression from a munition being morally wrong to becoming illegal. No longer can those that used the munition be able to distance themselves from the consequences of the munition and leave those affected to carry the burden.¹¹⁹ Just as Zyklon B is only used commercially now, there is potential for white phosphorus to only be used in its legal way and for the law not to be exploited. If this was to occur, then there would be no need to amend the law. In the later chapters, this will be discussed further.

Even though the use of Zyklon B in the manner the Nazi forces used it was completely illegal under IHL, there is cynicism that there was an attempt to exploit the law. It can be argued that by deliberately choosing to use Zyklon B there was an attempt to avoid international criticism and also liability. Albert Speer who was Germany’s Minister for Armaments during the Second World War was asked why the vast stock piles of deadly gases were not chosen during the war, but instead Zyklon B. He stated:

‘It was because at that stage of the war it was perfectly clear that under no circumstances should any international crimes be committed which could be held against the German people after they had lost the war. That was what decided the issue’¹²⁰

This shows that even at this time and for this dual-use chemical, a state was exploiting the law in an attempt to avoid being held accountable for certain actions. Even though the reason and manner in which the munition was exploited is different, it shows how it can be an issue. Whereas in the case of Zyklon B, two men were convicted, in regards to white phosphorus if change is made sooner, then the problem can be prevented. The inclusion of the material of Zyklon B can be justified for these reasons, as it does help reach the final conclusion because there are similarities.

As the inclusion of the material has been justified, and expanding liability explained it can now be considered to see if liability should be expanded when the use of white phosphorus in armed conflict is exploited. Firstly, there would need to be support by states for any change to be made. It does appear as if there could be support. Any change that is to be proposed requires support from the international community otherwise there would be very little substance to the discussion as it could not be a likely proposition and would not likely be implemented. There are concerns with the use of white phosphorus within the international community. For example, Belgium states their concerns come from a humanitarian perspective. They believe that there is misuse of white phosphorus from the normal use of illuminating.¹²¹ The humanitarian aspect that is highlighted appears to point to the principles of IHL. The munition can cause unnecessary suffering when used for its incendiary qualities rather than its illuminating purposes and because of this, some states are not happy with how white phosphorus is being misused.

Cyprus too follows the same concerns as Belgium. Cyprus states that they have concern to the ‘humanitarian consequences of white phosphorus. And in this framework supports every initiative in

¹¹⁸ *ibid* 6

¹¹⁹ *ibid* 7

¹²⁰ Gitta Sereny, ‘Albert Speer: His Battle with Truth’ [Pan Macmillan, 1996] 472

¹²¹ Human Rights Watch, ‘Government Positions on Protocol III on Incendiary Weapons Memorandum to Convention on Conventional Weapons’ [2012] accessed 10th October 2016
<https://www.hrw.org/sites/default/files/related_material/nov2012_arms_incendiarypii_0.pdf>

the direction of minimising the humanitarian impact of these weapons.’¹²² By supporting any initiative as long as it reinforces humanitarian protection shows that some states are willing to consider different possibilities. For this reason, if the proposition of expanding liability was made, it would not be instantly dismissed. There is disdain for certain munitions and change could be made. Midgley asks the question:

‘Are we economically and psychologically chained to weapons technologies and policies which sacrifice our most positive impulses to a culture based on the planning of millions of deaths?’¹²³

This can be applied to the use of white phosphorus. Chapter 2 shows white phosphorus is an extremely effective and versatile munition. Regardless of if it is toxic and can be fatal, the weapon offers qualities that other weapons may not offer. But this does not mean that all states believe that it should be used. A nuclear weapon can kill millions in a single blast and Zyklon B is able to be used to kill millions of people. But IHL has been outlined to steer states and subjects in a direction that follows the objectives of IHL and to preserve this ideology. By not being chained to a munition that steers away from the objectives of IHL, the principles are upheld. There is support for upholding the principles of IHL, and because of this, the possibility of making more liable for the exploitation of the munition is likely to have some support to start the discussion. Considering this, it could be possible for states to agree to expanding liability for the exploitation of white phosphorus. It must be noted that expanding liability can only occur when there has already been a violation. For example, liability was expanded in the case of Zyklon B because the killing of allied nationals was a war crime, regardless of if Zyklon B was used or not. So to expand liability, there must already be a violation. Consequently, the possible changes that could occur can now be discussed.

3.4. HOW WOULD LIABILITY BE EXPANDED?

To expand liability, if a similar model to the case of Zyklon B is used, the potential changes that could be made are quite clear. In the case of Zyklon B, the manufacturer and supplier were prosecuted. If this was to happen for white phosphorus, it would be the person that designed the weapon. This has relevance as Protocol III of the CCW states that any ‘munition which is primarily designed to set fire to objects or to cause burn injury to persons’ is prohibited. If liability was to be expanded, the person who ‘primarily designed’ the munition would also be liable if there was a violation. White phosphorus has devastating effects and such effects cannot be controlled easily. Once the munition is deployed, the type of effect can differ and this is dangerous as there can be no distinction made between a civilian, combatant, or military target. For this reason, if a person has intentionally designed white phosphorus to be used for its incendiary qualities, then it seems logical that they should also be liable for the actions of the user if there has been a violation. As the protocol focuses on the design of the weapon, if a munition is designed to do something that is in violation of IHL, then they would also be prosecuted. This would not stop the user of the weapon being responsible for their action.

If liability was to be expanded, it would be beneficial to adopt a similar three part test that was used in the Zyklon B case. If this approach was to be adopted, the following could be suitable:

- 1.) White phosphorus has been primarily used for incendiary qualities
- 2.) It was designed by the subject
- 3.) It was designed primarily for its incendiary qualities

This would ensure that there are limitations to who the liability is expanded to. The limits of liability need to be set to prevent those that have not violated the law to end up being prosecuted. The case of Zyklon B shows the importance of this. This sort of amendment could strengthen the law surrounding

¹²² ibid 6

¹²³John B Midgley, ‘That Bomb, Human Rights’ [1985] 28-52

white phosphorus. It would expand liability to the manufactures of the munition if they are the ones who designed the munition for it to be used for its incendiary qualities. In the same way that occurred in the Zyklon B case, if an individual is to abet a violation of IHL, then they could now also liable for their actions.

There are advantages to expanding liability and these points need to be considered to see why expanding liability would be the best course of action. One advantage would be that the wording of Protocol III would not need to be altered. This would not be an easy process and if it could be avoided then it would prevent hassle. By expanding liability, it would make more subjects responsible for violating IHL. If there are more occurrences of people being prosecuted for wrongdoings then it could potentially lead to people thinking twice about exploiting the law and refrain from doing it themselves. If this was to happen, then the issue of exploitation could occur less frequently.

It has already been discussed that white phosphorus has devastating effects and when states have used the munition and exploited the law there is not enough done about it. By making more liable for their actions, a clear stance is presented that violating the law will not be taken lightly. For this reason and the reasons shown so far, it does appear as if there would be advantages to expanding liability for the violation of IHL in regards to white phosphorus.

3.5. WHY LIABILITY SHOULD NOT BE EXPANDED

Even though there does appear to be advantages for expanding liability there are also possible disadvantages. On the surface, it could present to be too much of a risk. It would be much more difficult to prosecute those that violated the laws as it is a more of a worldwide issue compared to the Zyklon B case where it only occurred only in one state. A sense of inconsistency could ensue if one was to be prosecuted for violating IHL and another was not.

Even though expanding liability would make more responsible for their actions, suffering would not be alleviated where suffering has occurred. There would be no direct change made to stop suffering where a victim has suffered. There would be no direct combat to offer humanitarian protection and this should be mostly prioritised. For example, a manufacturer of the weapon could design the munition for a manner that is legal under IHL, but the user of the weapon could still use it illegally. This would not prevent suffering for those who become victims of the munition and it still does not prevent states from being able to exploit the munition. A change that does this would be more suitable. The argument that the proper use of white phosphorus could enhance the fulfilment of IHL principles would hold weight. It has been said that in some scenarios this may be the case, but as a whole this would not offer the most humanitarian protection. More often than not, it would cause great human suffering and this is what needs to be prevented. If another more suitable change can ensure this, then it should be made. There is no guarantee that for example white phosphorus could cause less human casualties as a whole, and this premise should not be the basis of the law if it is not certain.

There is also no guarantee that this would limit the misuse of the munition from occurring. Even if there were a higher number of prosecutions, it is likely that this would not deter others from doing the same. As in IHL it is hard to prosecute for a violation, there is little deterrence offered. If there is not a great likelihood that the law surrounding white phosphorus is strengthened then it should not be the course of action that is taken.

Some also believe that the case Zyklon B was incorrect in its conclusion.¹²⁴ If Tesch and Weinbacher were not rightfully executed then justice would not have been bought forward. William Lindsey believes that the United Nations had a universal desire to see as many German nationals bought to

¹²⁴ William B Lindsey, 'Zyklon B, Auschwitz, and the Trial of Dr Bruno Tesch' [2002] accessed 9th October 2016 <<http://vho.org/GB/Journals/JHR/4/3/Lindsey261-303.html>>

death. Because of this, the trials openly favoured the trial ending in the execution of Tesch and Weinbacher. However, there will never be a universal decision that is agreed by everyone. It was judicially decided that Tesch and Weinbacher should be convicted and it does not seem as if the decision was incorrect. This is similar to how not all states agree that there is an issue with white phosphorus. Those that have this view do not believe that any change should be made. For example, Japan asserts their view by stating that the concern in regards to white phosphorus is raised 'by some of the parties and not all of us.'¹²⁵ Italy states that 'white phosphorus is not really an incendiary weapon' and that the issues are not as great as perceived.

Assessing all of the issues and arguments, it would appear that extending liability for the misuse of white phosphorus would not be the best possible course of action. There are other possible directions that could be followed. Although it could potentially make more liable for their actions when violating IHL, it is more valuable to seek better humanitarian protection. It cannot be said for sure if it will be beneficial and there is no guarantee that it offers the best humanitarian protection. States would still be able to exploit the law in ways that they are doing so now. There is no guarantee for what white phosphorus is being designed for, so it would be very difficult to prosecute the designer. It would ultimately lead to the same issue there is now, in that states can exploit the law and use white phosphorus in a way that goes against the values and principles of IHL. There is support by states for change, and this is good, but the correct decision needs to be made into what the change is.

The next couple of chapters will look into different possible ways in which the use of white phosphorus munitions can be protected. The first will be an observation into the CWC. It can be argued that white phosphorus should fit within the scope of the CWC. The chapter will focus on why it does not, and then it will consequently argue why it should not be the CWC that is amended. By showing this, credibility is added in the chapter after when it is argued that the Protocol III of the CCW should take an effect based approach. Alternatives will have been considered and dismissed which will lead to the only possible outcome which is to take an effects based approach. But this chapter ends with the conclusion that even though there does need for some change to occur, it should not be liability that is expanded.

¹²⁵ Human Rights Watch, 'Government Positions on Protocol III on Incendiary Weapons Memorandum to Convention on Conventional Weapons' [2012] accessed 10th October 2016
<https://www.hrw.org/sites/default/files/related_material/nov2012_arms_incendiarypii_0.pdf>

4. THE CHEMICAL WEAPONS CONVENTION

4.1. THE HISTORY OF THE CWC

The previous chapter concluded by asserting that expanding liability would not be the best possible change to prevent states from exploiting the law. White phosphorus was compared with Zyklon B and even though expanding liability could offer some advantages, other possibilities also need to be considered if there is a chance that better humanitarian protection is possible. On the basis of this, the Chemical Weapons Convention (CWC) will be assessed to see if there is any way in which the law surrounding white phosphorus can be strengthened. The CWC has been chosen because similarly like Protocol III of the CCW, the CWC does not look into the effects of a munition. Whereas Protocol III of the CCW focuses on the design of a munition, the CWC looks at the purpose for which it is being used. For this reason, it will be considered to see if the CWC should take an effects based approach. By considering this point, it will assess the CWC to see if any amendments would be beneficial. It will ultimately conclude by stating that any amendments would not be desirable and this chapter will also dismiss the notion that white phosphorus should fall under the CWC in its current state.

The CWC concerns chemical weapons and a chemical weapon is a munition that uses chemicals to inflict harm or death to humans. They are said to 'make deliberate use of the toxic properties of chemical substances to inflict death.'¹²⁶ A chemical weapon has three different configurations in which it can be stored. If it is self-contained, it is held in projectiles, cartridges, mines, or rockets and the chemical can be propelled or exploded out. It can also be delivered via an aircraft where there would be no explosive component. Finally, the chemicals can be in the form of a raw agent in large containers. If they exist in this form they are not yet a weapon that is ready to be used. A chemical weapon is classed as a weapon of mass destruction (WMD) and not a conventional weapon.

For a repeat as to what encompasses the CWC before it is discussed refer to Appendix C. Reaching this stage took a series of developments and observing the progression allows us to see how loopholes and areas of IHL that were exploited have been dealt with in the past. This shows the issues that can arise from an area of IHL that does not offer enough protection and how states are able to exploit this. It also helps to understand how the CWC has reached a stage in which there is a total ban on chemical weapons.

Dating back to 1899, the Hague Gas Declaration stated that 'projectiles the sole purpose of which is the diffusion of asphyxiating or deleterious gases'¹²⁷ would be illegal under international law. This statement would require for toxicity to be the central effect of the projectile. However there was a loophole as a projectile that was a combination of both gas and shrapnel would be lawful if it was the shrapnel that caused the dominant effect of the weapon. This prohibition meant a state was not allowed to use an asphyxiating gas as a weapon on its own. A debate during the 1899 Convention concluded with affirming 'that the destructive effect of a shell must be greater than the effect of the gas emitted from it.'¹²⁸ The toxicity would need to be the central effect of any projectile and therefore a sole purpose criterion was made.

On the 17th June 1925, the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare¹²⁹ was signed and it entered into force on the 8th February 1928. It prohibited the use of asphyxiating, poisonous and other gases and bacteriological warfare. Notably however it did not prohibit the production, but solely the use of such

¹²⁶ Steve Tulliu and Thomas Schmalberger, '*Coming to Terms with Security*' [UNIDIR, 2003] 53

¹²⁷The Hague Conventions (IV) Declaration concerning the Prohibition of the Use of Projectiles with the Sole Object to Spread Asphyxiating Poisonous Gases [1899]

¹²⁸ *ibid*

¹²⁹ Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare [1925]

weapons. This was a result of the increasing use of large-chemical weapons, especially during the First World War.

In 1914, once General Erich von Falkenhayn took over as the Chief of the German General Staff he ordered that experiments in using chemical weapons should begin. Germany began to consider using chemical weapons in the war for three distinct purposes¹³⁰. Firstly, they were suspicious that the French had already begun planning to use gas themselves. Also, engaging in trench warfare often resulted in a stalemate. With the distance of the opposing trenches usually only a few hundred metres apart from each other, it was difficult to gain an upper hand. By using chemical weapons, an enemy combatant would need to leave their position and therefore become easily assailable. This is a similar concept to the shake and bake method deployed by the United States in the second battle of Fallujah. Major Bauer suggested that using a gas to 'persuade' enemy combatants to leave their line of defence would have a great effect.¹³¹ States are able legitimately weaken the military forces of the enemy and it would be appropriate to disable the greatest number of men possible. This prevailing principle of IHL allows for harm or death to be inflicted on enemy combatants.¹³² To persuade enemy combatants to come out of their position so that they could be killed would not directly violate a principle of IHL. The final reason in why experiments were ordered was because Germany was facing an issue with their supplies of shells, guns and other materials. With the issue of lacking resources, a more efficient method of armed conflict was sought.

The loophole in the 1899 Declaration was able to be exploited during the First World War. A chemical powder was produced by Bayer & Co to have a lachrymatory - tear gas - effect on the enemy's mucous membranes.¹³³ When exposed to the munition, the target would be a victim of violent sneezing. The powder would be placed around the shrapnel of a 105mm shell meaning that when the shell exploded, a cloud of the irritant powder would be created. The munition was given the codename Ni-Schrapnell. The sole purpose of the munition was not to deploy a chemical on the battlefield as there was also shrapnel and explosives in the shell. This meant that the loophole of the Hague Convention was exploited. There is a similarity here to how white phosphorus is being exploited by states. The 1899 Declaration allowed for states to use a munition that did not have the sole purpose to deploy a chemical and white phosphorus is allowed to be used when it is not designed primarily for its incendiary capabilities. Even though white phosphorus is not classed as a chemical weapon, a comparison can be made from how the law allows for a weapon to be used in a certain way.

Fritz Haber during the war believed that creating a cloud of gas to engulf the enemy defence line would be very beneficial.¹³⁴ Releasing liquid chlorine from pressurised bottles would turn into a gas when it comes into contact with the air. With wind, the gas would be carried across no-man's land and find its way into the enemy trenches. A cloud of chlorine would be generated that would follow Major Bauer's suggestion at Fallujah that gas could be used to 'persuade' enemy combatants to leave their line of defence. German combatants could then follow the gas quickly without too much risk and kill their enemy combatants.

After chemical weapons were used in the First World War, the Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare was adopted. There was great stigma surrounding the munition after it used during the war. The munition

¹³⁰ Potsdam Reichsarchiv, *'Die Grenzschlachten im Westen'* [Berlin, Mittler, 1929]

¹³¹ Ludwig Fritz Haber, *The Poisonous Cloud: Chemical Warfare in the First World War* [2nd edn, OUP, 1986]

¹³² Frits Kalshoven and Liesbeth Zegveld, *Constraints on the Waging of War: An Introduction to International Humanitarian Law* [4th edn, CUP, 2011]

¹³³ New German weapon: the gas cloud, accessed 12th October 2016 <<http://www.greatwar.co.uk/battles/second-ypres-1915/prelude/gas-development.htm>>

¹³⁴ Ludwig Fritz Haber, *The Poisonous Cloud: Chemical Warfare in the First World War* [2nd edn, OUP, 1986]

could cause horrific effects and as the war ended these effects contributed to a great deal of disdain towards chemical weapons. Stigma has been shown to be able to play a major role in the development of IHL and it is apparent here again.¹³⁵

Even though developing this protocol showed progress, it still had inadequacies. If a state already had such weapons, then they were not required to remove them and the state could still be in control of them. Additionally, the development of chemical weapons was not restricted, and because of this there would no reasonable guarantee that a state would not use chemical weapons if they had them. For example during the Second World War, the United States, Great Britain, and Germany used resources to be able to deploy chemical weapons if they wanted to use them. Even though they refrained, it was still there to be used if the states wanted to.

More recently, Iraq used chemical weapons against Iran. On the 22nd September 1980, Iraq attempted to invade Iran, and the President Saddam Hussein pursued a chemical warfare programme to achieve the goals of the State. Iraq used chemical weapons for several years and after three years; the United Nations was notified by Iran that Iraq was using chemical weapons against Iranian combatants.¹³⁶ These claims were verified when casualties of the chemical weapons were sent to be treated and the United Nations dispatched a specialist team to investigate the claims. The United Nations confirmed that Iraq had used chemical weapons and they were doing so in ever increasing amounts.

Following Iraq's use of chemical weapons, Dunn in *Chemical Aspects of the Gulf War* said:

‘It is vital to realise that the continued use of chemical weapons in the present conflict increases the risk of their use in future conflicts. In view of this, and as individuals who witnessed first-hand the terrible effects of chemical weapons, we again make a special plea to you to try to do everything in your power to stop the use of such weapons in the Iran–Iraq conflict and thus ensure that they are not used in future conflicts.’¹³⁷

The use of chemical weapons was on the rise and it seemed that it could increase in the future. The CWC was signed on the 13th January 1993 to prevent this issue from spreading even further than it had already done so. It has already been stated that the CWC not only prohibits the use of chemical weapons but also the production, and requires for all chemical weapons to be destroyed. Established in 1997, The Organisation for the Prohibition of Chemical Weapons (OPCW) oversees and verifies the total destruction of all chemical weapons that have been declared. It currently has 192 member states and the collective goal is to prevent ‘chemistry from ever again being used for warfare, thereby strengthening international security.’¹³⁸ Notably in regards to dual-use chemicals, the OPCW assesses the processing and consumption of dual-use chemicals to try and ensure that the chemicals are being used exclusively for their peaceful uses and nothing else.

4.2. IS WHITE PHOSPHORUS A CHEMICAL WEAPON?

The history of the CWC has been discussed. It is now important to see how the convention is interpreted and used. The reason for this is so that the notion that white phosphorus is a chemical weapon can be dismissed. The treaty is highly technical; it was created to permit the peaceful uses of chemicals whilst also having to define what activities are forbidden. Creating this balance is not easy to do, and the implementation of the CWC requires a continuous obligation. Thakur, Ramesh and Chandan describe the CWC as:

¹³⁵ Alan Bryden, *International Law, Politics, and Inhumane Weapons: The Effectiveness of Global Landmine Regimes* [Routledge, 2013] 130

¹³⁶ Joost Hiltermann, *America Didn't Seem to Mind Poison Gas* [2013] accessed 2nd February 2017 <<https://www.globalpolicy.org/component/content/article/169-history/36403.html>>

¹³⁷ Peter Dunn, 'Chemical Aspects of the Gulf War, 1984–1987 Investigations by the United Nations' [1987]

¹³⁸ Organisation for the Prohibition of Chemical Weapons, accessed 7th October 2016 <<https://www.opcw.org/>>

‘A convention that is unique among disarmament treaties for having outlawed a class of weapons, instituted a comprehensive verification regime, establishing its own organization responsible for implementing all provisions of the treaty, and placing its own restrictions on export of dual-use technology.’¹³⁹

It needs to be shown that white phosphorus is not a chemical weapon. The reason why some incorrectly class it as a chemical weapon is due to some aspects of the CWC being ambiguous. This is why understanding how the CWC works is vital, as it helps confirm that white phosphorus should not be classed as chemical weapon. Once the ambiguity has been discussed it will then be considered if any changes to the definitions can be made to strengthen the convention and then also encompasses white phosphorus in its scope. Even though white phosphorus does not fall under the scope of the CWC, this does not mean that it should not be classed as a chemical weapon. For example, the chemical Thioglycol is a chemical that can be used in munitions that have mustard agents. It is an example of a chemical that is well policed by the OPCW as it also has legitimate uses. If white phosphorus was policed by the OPCW it would prevent the munition from being used inappropriately and would offer great humanitarian protection. If white phosphorus should be regarded as a chemical weapon, then there would be no need to amend Protocol III of the CCW, as it is of concern of the CWC. So for it to be argued that Protocol III of the CCW should be amended, its potential classification as a chemical weapon needs to be dismissed.

Part of this ambiguity comes because the CWC only expressly states specific purposes of chemicals that are not prohibited by the convention. It does not expressly state what the purposes for chemical weapons are. Therefore the meanings of the CWC need to be interpreted to see if an individual chemical falls within the scope of the convention and this is difficult to do. As already discussed there can be chemicals like chlorine and hydrogen cyanide that can be used as weapons in armed conflict but also can be found in commercial products. Therefore, to determine if a dual use chemical is prohibited, the chemical is applied to a general purpose criterion to see whether they fit in the scope of the CWC.

There are ambiguous aspects of the CWC such as what constitutes ‘temporary incapacitation’ which is found in Article II (2) of the CWC. This could range from just a few seconds to hours and there is no clear distinction. Even though the CWC is a fully functioning convention, it is still complex and has parts of it that do not have a definitive answer. As a consequence of this complexity, many people incorrectly believe that white phosphorus is a chemical weapon. There are many factors for this with one of them being attributable to the naming of white phosphorus as a chemical weapon by the United States. A former classified Pentagon intelligence document from 1995 states:

‘Iraq has possibly employed phosphorous chemical weapons against the Kurdish population in areas along the Iraqi-Turkish-Iranian borders.’¹⁴⁰

This was referring to Iraq’s use of white phosphorus against the Kurdish population. The United States stated that white phosphorus is a chemical weapon. A chemical weapon is classed differently to an incendiary in IHL and has different rules applying to it. Here the United States has a contrasting view as to what white phosphorus is classed as compared to their use of white phosphorus in Fallujah. It appears as if the Pentagon refers to white phosphorus as a chemical weapon when it is being used by an enemy.¹⁴¹ It also appears that there are dishonest efforts that deny and downplay the use of

¹³⁹ Thakur and others, *The Chemical Weapons Convention: Implementation, Challenges and Opportunities* [United Nations University Press, 2006]

¹⁴⁰ Pentagon, 'Possible Use of Phosphorous Chemical' [1995] accessed 10th October 2016
<<https://thinkprogress.org/exclusive-classified-pentagon-document-described-white-phosphorus-as-chemical-weapon-bdcc0153c5dd#.5fqegpdhf>>

¹⁴¹ *ibid*

white phosphorus when it is being used by the United States, but regard it as a chemical weapon when used by others.

The United States having classed white phosphorus as a chemical weapon is an example of why there is confusion as to whether white phosphorus is a chemical weapon or not. It suggests that there is a possibility that states could consider white phosphorus as a chemical weapon. As the CWC does not expressly state what 'chemical weapons purposes' are but only lists purposes that are not prohibited by the convention there will always be scope for debate especially in regards to dual-use chemicals. Nonetheless, white phosphorus is not a chemical weapon. It is considered to be an incendiary agent and not a chemical weapon because it achieves its effects through thermal energy. This is reflected by the United States media. The New York Times has ran numerous pieces about white phosphorus that emphasise that white phosphorus are incendiary weapons and are incorrectly referred to as chemical weapons.¹⁴² Nonetheless, because white phosphorus is not a chemical weapon, it does not mean that there should not be discussions as to whether it should be regarded as one or not. If it was to be regarded as a chemical weapon then there would be no need to amend Protocol III of the CCW as white phosphorus would be prohibited under the CWC.

A study by Christian Castaing considered the scientific nature of white phosphorus against the CWC to conclude that it should be considered as a chemical weapon.¹⁴³ The study observed the molecular workings of white phosphorus to do this. Castaing argued that any munition that relies on chemical reactions such as the rearrangement of molecules, changes in matter, or the bonding of elements to produce a deadly force that is unnatural - is a chemical weapon. Considering this notion, white phosphorus does not exist naturally without military science and would therefore be unnatural. White phosphorus feeds of the oxygen in the skin and body and uses it as fuel to spread. This chemical reaction is argued to not be found in nature so should be considered as a chemical weapon. This is one argument there is for white phosphorus to be classed as a chemical weapon. Arguments such as this focus on the fact that white phosphorus can be a deadly munition and therefore should be banned. The scientific study focuses on the notion that white phosphorus is deadly and unnatural which is the same for chemical weapons. For this reason, it should be considered to see if an amendment to the CWC should happen so it also encompasses white phosphorus.

4.3. PEACEFUL USES OF CHEMICALS

This thesis will conclude that the CCW should be amended and for there to be a focus on the effects of munitions. But to reach this conclusion other possible changes will have to also be considered. It will be considered to see what would need to be taken into account if the general purpose criterion was no longer applied to the CWC and a change was made that meant white phosphorus could fit in the scope of the CWC.

Currently, Article II of the CWC uses the intended purpose of the chemical as a defining criterion rather than its toxicity. It focuses on what the purpose of the chemical is because it needs to balance the economic interests of the chemical industry, research purposes and the benefits that humanity receives from their peaceful uses. For example a dual-chemical can have a legitimate use and it would not be logical to prohibit the chemical just because it can also be used as a chemical weapon.

If the CWC was to be amended to encompass white phosphorus and was based on effects, there would have to be considerations to the legitimate uses of some chemicals. Currently the CWC is able to permit peaceful uses of chemicals whilst also defining what it is to completely forbidden. To do this the CWC divides chemicals into three distinct groups that distinguish chemicals that can have

¹⁴² Ethan Bronner, 'Outcry Erupts Over Reports That Israel Used Phosphorus Arms on Gaza' *The New York Times*, [January 21st 2009] accessed 10th October 2016 <http://www.nytimes.com/2009/01/22/world/middleeast/22phosphorus.html?_r=1>

¹⁴³ Christian Castaing, 'White Phosphorus in the Middle East: crimes against humanity, or modern warfare?' [2010]<http://www.envisionschools.org/site/wp-content/uploads/2010/07/White_Phosphorous.pdf>

legitimate purposes. For further information on these schedules, see Appendix D. These schedules highlight the legitimate uses of chemicals. All of these schedules show how the CWC has created a balance as it would not be possible to create a clear ban on all chemicals. It protects the interests of the chemical industry whilst also preventing it from being used inappropriately in armed conflict. If the CWC was to focus on effects and toxicity instead then a similar exception would be needed to allow for the interests of the chemical industry to be protected. Chemicals that are used legitimately can still have devastating effects so if a chemical because of its effects is outlawed then it would prevent many legitimate uses of chemicals from happening. The CWC is a complex treaty, but that one that works well. Even though some aspects of it are ambiguous, as a whole it fulfils its purpose well. Article VI of the CWC states:

‘Each State Party has the right, subject to the provisions of this Convention, to develop, produce, otherwise acquire, retain, transfer and use toxic chemicals and their precursors for purposes not prohibited under this Convention.’¹⁴⁴

This would not be possible if there was not a purpose criterion and instead an exception would have to be made so that chemicals that have legitimate uses could still be used. If it is deemed that there should be an amendment to the CWC, then there has to be a similar exception. Otherwise the convention would be so restrictive that it would be detrimental to other areas of humanity.

4.4. TOXICITY

Looking at toxicity would mean that instead of the intended purpose of the chemical, it is the strength of the chemical that is observed. Toxicity is to be considered as it is a way to measure effects. Any change that looks at possible effects is prioritised so that the values of IHL can be upheld. For this reason, the suitable criteria for effects would be toxicity rather than the general purpose of the chemical. Before it is argued why this would not be beneficial to do, toxicity should first be defined.

When the toxicity of a substance is measured, it is the capacity to cause injury to a living organism that is measured. For example; a highly toxic substance will damage an organism if administered in very small amounts whereas a substance of low toxicity will not produce an effect unless the amount is very large. Horace Gerarde stated that the definition of toxicity is the:

‘Capacity of a substance to cause injury, it is an inherent, unalterable molecular property which is dependent upon chemical structure. There is nothing we can do about the toxicity of a chemical except to know it.’¹⁴⁵

Measuring toxicity is not easy to do and it requires many factors to be taken into account. Firstly, toxicity cannot be defined without reference to the quantity of the substance administered or its dose. It would also need to take into account the way in which the quantity is administered. This could range from inhalation, ingestion or injection. There would also need to be consideration to what time frame the substance is distributed in. For example a dose could be administered in a single dose or repeated doses. Other factors would be the type and severity of injury caused as a result of the substance, and the time needed to produce that sort of injury. These are all factors that would need to be taken into account if toxicity was to be considered. A limit would need to be set so that a certain level of toxicity would be classed as a chemical weapon. This is would not be easy to do and would

¹⁴⁴ Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Art VI

¹⁴⁵ International Programme on Chemical Safety, Principles And Methods for Evaluating the Toxicity Of Chemicals, accessed 12th October 2016 <<http://www.inchem.org/documents/ehc/ehc/ehc006.htm>>

make any amendments to the CWC a problematic matter. A possible way in which these many factors could be considered would be to:

‘Make an approximate estimation of toxicity based on the chemical structure and the physical and chemical properties of the substance, and on known correlations of these variables with biological activity.’¹⁴⁶

It would also need to be considered at what point the toxicity of a chemical would need to be met for a chemical to fit the scope of the CWC. White phosphorus may cause injury and death to most forms of life but not all chemicals would have this impact. This would mean that not all chemicals would need to be covered by the CWC. A chemical can be divided into lethal and incapacitating categories. A substance is classified as incapacitating if less than 1/100 of the lethal dose causes incapacitation.¹⁴⁷ Incapacitation could be for example nausea or visual problems whereas a lethal dose would be very destructive and could cause death. There is no clear limit between lethal and incapacitating substances and this poses yet another problem. Even though usually a statistical average is referred to, it is still not a clear limit that is set.¹⁴⁸

In toxicology a median lethal dose known as LD50 measures the lethal doses of a toxin, radiation, or pathogen and this could potentially help to measure toxicity if it was to be considered. LD50 is the value required for a substance needed to kill half the members of a tested population during tests.¹⁴⁹ An LD50 figure can be used as a general indicator of a substance’s toxicity as it works as a good benchmark. This is an approach that could be considered as it is a method that is used in toxicology and offers good results. It presents a possible way in measuring the effects of a chemical but this still not does alleviate the issues that have been shown. If a limit was set and white phosphorus classed as a chemical weapon on the surface it would appear to alleviate human suffering in regards to white phosphorus as it would prohibit white phosphorus being used in armed conflicts.

But this would not be easy to do, because if there was to be an amendment in the law the different possible effects of different toxic chemicals would also need to be considered. The reason for this is that toxic chemicals can have either acute effects or toxic effects. An acute effect is an effect that occurs or develops rapidly after a single administration.¹⁵⁰ Temporary acute effects can be skin irritation, sickness, nausea and permanent effects can be blindness, scars or mental impairment.¹⁵¹ Usually, acute toxicity can be found within minutes of being exposed. Whereas a chronic effect is often a result of repeated or prolonged exposures. Generally, chronic toxicity becomes apparent many years after exposure has taken place. It would also have to be considered to see if one type of effect would take priority over the other. The general purpose criterion does not have this sort of issue. By focusing on the purpose of the chemical, there is less ambiguity. In contrast if the effects of a chemical are considered then there is a lot more to consider and more possibility that there is ambiguity.

As argued, the values and principles of IHL want to prevent human suffering as much as possible, and the previous chapters have deemed that a way of doing this would be for there to be a focus on the effects of munitions. If a convention does not focus on effects and there is a possibility that better protection can be made, then it should be made. However, in the case of the CWC, this would not be a suitable amendment. In the paragraphs above, the different conditions that would need to be

¹⁴⁶ N G Andreyeshcheva, *Predicting Biological Effect as a Function of the Chemical Structure and the Primary Physical and Chemical Properties of Organic Compounds* [The National Institute of Environmental Health Sciences, 1976]

¹⁴⁷ Ray Acheson and Beatrice Fihn, 'Reaching Critical Will' accessed 12th October 2016

<<http://www.reachingcriticalwill.org/resources/fact-sheets/critical-issues/4582-chemical-weapons>>

¹⁴⁸ *ibid*

¹⁴⁹ Michael C Newman, *Quantitative Ecotoxicology* [2nd edn, CRC Press, 2012] 9

¹⁵⁰ L J Casarett and J Doull, *Toxicology* [1st edn, MacMillan, 1976]

¹⁵¹ Michael C Newman, *Quantitative Ecotoxicology* [2nd edn, CRC Press, 2012] 9

considered have been highlighted and this would not be an easy amendment to make. There are many issues to consider in regards to the CWC and even if toxicity was to be looked at and white phosphorus was to be classed as a chemical weapon, there would be a lot of ambiguity as to what sort of effects would result in a prohibition from the convention.

White phosphorus is just one munition in the array of resources that can be used in armed conflict. Even though white phosphorus is a chemical, it is not a chemical weapon. It is not a munition that is designed to cause death or other harm through the toxic properties of those toxic chemicals but instead it does so through thermal energy. There is no logical amendment to the CWC that could make white phosphorus fit within its definition. If the CWC was to take an effects based approach, setting an effects threshold that would need to be met would not be rational. There would be many factors to consider and toxicity does not have a definitive definition. For white phosphorus to fit in the scope of the CWC there would need to be amendments made, and this has been shown to not be a rational amendment to make. Even though there does need to be change in IHL to strengthen the law surrounding white phosphorus, it should not be the CWC.

To conclude the chapter it is important to reiterate that white phosphorus is not a chemical weapon – nor should it be considered so. The arguments that have been presented show that the general purpose criterion is a necessity and should not be changed. There should be no amendments to the CWC to also cover white phosphorus. The current schedules that the CWC has deals with the issue of balancing the legitimate uses of chemicals well and there would be no beneficial reason to change this. The previous chapters have stated there should be an amendment in the law, but this change should not be the CWC nor by expanding liability. The next chapter will assess the CCW and state why it should be this convention that should be changed over others. It will look into why Protocol III of the CCW should be amended to take an effects based approach. This change will uphold the principles of IHL in the best possible manner. The law surrounding white phosphorus still needs to be strengthened but it is of no concern to the CWC.

5. THE CONVENTION ON CERTAIN CONVENTIONAL WEAPONS

5.1. THE HISTORY OF THE CCW

The previous chapter concluded with stating that the CWC should not be amended to also cover white phosphorus. It was argued that any change would be detrimental to the CWC and that the CWC is of no concern to white phosphorus. The Convention on Certain Conventional Weapons (CCW) can consequently now be discussed. Protocol III of the CCW will be assessed and this chapter will conclude by stating that the CCW should be amended and that the protocol should take an effects based approach rather than a design based one. Reaching this conclusion will be the result of having considered other possible changes in IHL that could be made to protect the values and principles of IHL. However it will ultimately be decided that the most beneficial way to protect the law surrounding white phosphorus will be to amend the CCW. This chapter will look to observe in what way taking an effects based approach should be determined and what considerations would need to be taken to do this. Before this is to be done, there will be a brief look into the history of incendiary weapons in armed conflict, the CCW and of Protocol III. It will observe whether white phosphorus can be interpreted to be classed as an incendiary weapon in its current state instead of amending the law. If better humanitarian protection for white phosphorus could be offered without amending the law then it should be considered a possibility as it would be easier to apply. Appendix E is a reminder to the areas of Protocol III that have already been stated. However, Article 2 of the CCW also has relevance and it will play a role in this chapter. Article 2(1) states it is:

‘Prohibited in all circumstances to make the civilian population as such, individual civilians or civilian objects the object of attack by incendiary weapons.’¹⁵²

This article from the CCW says that civilians can never be the subject of attack by incendiary weapons and this would appear to offer good humanitarian protection. However, later on in the chapter it will be discussed how this article has played a role in showing the lack of strength that Protocol III of the CCW has as a whole. Both Article 1(1) and Article 2(1) will be discussed and there will be proposed changes as they do not offer enough humanitarian protection. But first, the CCW in which Protocol III can be found in entered into force on the 2nd December 1983 and the convention covers landmines, booby traps, incendiary weapons, blinding laser weapons and clearance of explosive remnants of war. These are the five protocols that encompass the CCW. The CCW aims to set guidelines to protect civilians and combatants from injury to weapons and from unnecessary suffering. As of now there are 123 parties to the CCW and 112 state parties to Protocol III.¹⁵³ It will be argued that currently Protocol III of the CCW is not fulfilling its aims as well as it could do.

Even though the CCW is an umbrella convention that covers other types of munitions as well, there will only be considerable focus to Protocol III of the CCW which concerns incendiary weapons. Using fire as a weapon has played a role in armed conflicts for centuries even before the introduction of gunpowder in the 15th century. Munitions that were regarded as incendiary and were found before the invention of gunpowder were weapons such as incendiary arrows and firebombs. Progressively the use of incendiary weapons grew and during the First World War Germany added flamethrowers to their arsenal and by the 1930's the Geneva Disarmament Conference was giving serious consideration

¹⁵² Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 2(1)

¹⁵³ *ibid*

to incendiary weapons.¹⁵⁴ There was an increasing use of incendiary weapons in armed conflicts around the world and an increasing suffering from the victims of the weapons.

As previously noted, during the Cold War when the Vietnamese village Trang Bang was bombed and the photograph of Phan Thi Kim Phuc was shown around the world the stigma of incendiary weapons grew. This was not an isolated incident and there were many more cases in which the increasing use of incendiary weapons in armed conflicts around the world can be shown.

The Bombing of Tokyo was conducted by the United States during World War II. Around 75,000–200,000 civilians were killed with roughly 1,000,000 being displaced from their homes.¹⁵⁵ The majority of bombs dropped on Japan were from a B-29 Superfortress strategic bomber and this is the bomb that was used in the Bombing of Tokyo. This type of bomb has a range of up to 3,250 nautical miles and would be used to drop incendiary bombs. Over a 1000 tonnes of incendiaries would be dropped at once causing devastating effects.¹⁵⁶ The bombing of Tokyo on the 9th March 1945 was the single deadliest air raid of World War II and as a single event was greater than Hiroshima or Nagasaki. This puts into context how much of an issue incendiary weapons were becoming as a higher number of people were being affected than ever before.¹⁵⁷ A.C. Grayling looks at the bombing of civilians in Tokyo and questions whether it was justified by the necessities of war or if it was a crime against humanity, once again raising the question of the morality of such weapons.¹⁵⁸

By the 1970's the ICRC had a series of meetings following the widespread use of napalm and other incendiary weapons and these meetings were because of the humanitarian consequences of the weapons. The impact that the effects of the munition had was the focus of the discussions. The effects of the munition were too great and it was becoming more of a widespread issue. A munition that can have a greater impact than a nuclear bomb has ever had in a single event needed to be regulated. In 1980 the CCW was created alongside its three initial protocols. One of the initial protocols was Protocol III.

This is an illustration of the series of events that led to Protocol III of the CCW being drafted. Over the years however there has not been a complete vote of confidence for Protocol III. This has been a result of weapons such as white phosphorus playing a more dominant role in armed conflict and Protocol III's lack of dealing with it adequately. Particularly as can be shown by the Fourth Review Conference of the CCW (2011) it is because there is no universal agreement on various aspects such as the definition of incendiary weapons.¹⁵⁹ There are many commentators on Protocol III that range from states themselves, to academics and non-governmental organisations that agree with this stance. They state that international support for strengthening existing law on incendiary weapons is growing and that loopholes and inconsistent restrictions have limited the effectiveness of the protocol.¹⁶⁰ The prevailing argument is that if a munition can cause the same kind of harm as an incendiary weapon then it should be treated in the same way. If a weapon is needed to be primarily designed to cause

¹⁵⁴ League of Nations, *The Conference for the Reduction and Limitation of Armaments of 1932–1934*

¹⁵⁵ Mark Selden, 'A Forgotten Holocaust: US Bombing Strategy, the Destruction of Japanese Cities & the American Way of War from World War II to Iraq' [2007]

¹⁵⁶ Conrad C Crane, 'Firebombing (Germany & Japan)', accessed 12th October 2016

<http://www.pbs.org/thewar/detail_5229.htm>

¹⁵⁷ Geneva Academy of International Humanitarian Law and Human Rights accessed 9th October 2016

<<http://www.weaponslaw.org/weapons/incendiary-weapons>>

¹⁵⁸ A C Grayling 'Among the Dead Cities: Is the Targeting of Civilians in War Ever Justified?' [Bloomsbury Publishing, edn 1, 2007]

¹⁵⁹ Fourth Review Conference of the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May Be Deemed to Be Excessively Injurious or to Have Indiscriminate Effects, United Nations Office For Disarmament Affairs

¹⁶⁰ Human Rights Watch, 'Memorandum to Convention on Conventional Weapons Delegates: The Human Suffering Caused by Incendiary Munitions [2011]

incendiary effects then multi-purpose munitions such as white phosphorus are able to elude Protocol III of the CCW.

5.2. PROTOCOL III NEEDS TO BE AMENDED

There should be a great desire to strengthen the regulation of white phosphorus in a better way than it currently is being done so. This is because white phosphorus is not regarded as an incendiary weapon under Protocol III of the CCW. As the weapon has various capabilities it is not regarded as an incendiary as it is not a weapon which is primarily designed to set fire to objects or to cause burn injury to persons through the action of flame or heat. This loophole where a state can use the weapon and create effects that are the same as an incendiary weapon but not be classed as one has led to international support being generated for white phosphorus to fall within the definition. There is sustenance in trying to close this loophole so that the effects of the weapon can be supported more by law. Under the definition of Protocol III, the nature or magnitude of the impact of a weapon is not taken into account. As long as a weapon is found to have a primary purpose that is not to set fire then it is beyond the scope of Protocol III and this is concerning. A weapon that contains white phosphorus and is used for a distinct purpose such as to illuminate or obscure would be considered as an incidental incendiary effect when fire is produced. The definition of what is not to be regarded as an incendiary is too broad and is why white phosphorus escapes its regulation.

The reason why white phosphorus is not classed as an incendiary weapon has been discussed. The devastating effects of the weapon are the same as an incendiary weapon, and incendiary weapons are regarded to be a munition that goes against the values and principles of IHL. If a weapon is deemed to be an incendiary munition then civilians and combatants both have strong protection against the munition. Because of the fact that the definition of an incendiary weapon given in Protocol III allows for multi-purpose munitions such as white phosphorus to escape regulation there needs to be an amendment made. The classification of an incendiary is based on the discretion of the manufacturer or user instead of taking consideration into the weapon's incendiary effects. An example of why it is a broad definition can be highlighted well with this illustration in the following scenarios.¹⁶¹

A commander who is conducting a military operation can decide to use white phosphorus to obscure his unit's movement through a city that is occupied by civilians, civilian objects, enemy combatants and military objects. He can legally do this if he reasonably determines that the principles and values of IHL are met. If the principles are met, even if there was incidental civilian casualties and damage to civilian objects the act would still be legal. However, if the same commander instead decided to use white phosphorus to burn enemy positions in the same city, and with the same amount of incidental civilian fatalities and damage to civilian objects then this would now be a violation of IHL and therefore be illegal. There is only one discernible difference between the two scenarios and that is the commander's reasoning for using white phosphorus. The consequences are exactly the same but the way IHL views the two cases are very different. This highlights the legal distinction between the non-incendiary and incendiary uses of white phosphorus and the glaring loophole that is therefore a consequence. This shows how the same effects result in one scenario being legal and the other illegal. This scenario will later on in this chapter be further explored when it is considered what changes would need to be made Protocol III if it was to be amended to take an effects based approach.

It has been argued so far that there does need to be an amendment made to offer better humanitarian protection. The chapters have discussed the effects of white phosphorus in detail and the effects it can have to civilians and combatants. It showed how these effects go against the values and principles of IHL. This can be enough to argue why there does need to be change but there are also other factors

¹⁶¹ Shane R Reeves, *The Incendiary Effect of White Phosphorous in Counter-Insurgency Operations*, *The Army Lawyer* [2010]

that can be considered which when considered can strengthen the argument as to why change is needed.

There are occurrences where Protocol III has been undermined and it shows the lack of reverence that Protocol III has to the international community. An illustration of this is through the United States creating a reservation when going to ratify the protocol. A reservation is defined by the VCLT to be a:

'Unilateral statement, however phrased or named, made by a State, when signing, ratifying, accepting, approving or acceding to a treaty, whereby it purports to exclude or to modify the legal effect of certain provisions of the treaty in their application to that State.'¹⁶²

This means that if a state has made a reservation, then they are intending to for example accept a treaty but with their own exception to a certain aspect of the treaty. When a reservation is made it must be done so at the time of when a treaty is accepted and cannot be done after. It is also not necessary for a state to have formally acceded to the VCLT to make a reservation as it is regarded as international customary law. When the United States consented to be bound by Protocol III they included a reservation. The reservation stated that the United States reserved 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.'¹⁶³

If this reservation was to be accepted, then the United States would be creating an exception to Protocol III's Article 2(2) prohibition on using airdropped incendiary weapons in civilian areas. Not only this but it would also exempt the United States from the Article 2(3) requirement that states that it is prohibited to use incendiary weapons to attack military targets in civilian areas unless they are 'clearly separated from the concentration of civilians.'¹⁶⁴ By doing this, the United States would have their own exemption from being bound by the protocol in certain circumstances. This shows an example of a state clearly undermining the protocol. Even though the VCLT forbids states from filing reservations that are 'incompatible with the object and purpose of the treaty',¹⁶⁵ the United States attempted to circumvent Protocol III's rules on the use of incendiary weapons. If this reservation was to be accepted then military commanders from the United States would be given a great deal of discretion when using incendiary weapons in the concentration of civilians which other states would not have. This premise is based on incendiary weapons potentially being able to be less dangerous to civilians in certain circumstances than other legal weapons. An illustration of this can be seen in Chapter 2 where it was shown that the number of civilian casualties in the second battle of Fallujah was not a high number. The United States is arguing that they would like discretion in circumstances where they deem that using a weapon such as white phosphorus could limit the overall casualties of the conflict. However, if this discretion is given to the United States, then it opens up the possibility of other states wanting similar discretion. Even though a reservation is needed to be made upon signing or ratifying a treaty, if another state deems that using an incendiary could limit the effects then they would likely to do the same. If the United States can demand for the right to use incendiaries in civilian areas contrary to the requirements of Protocol III then it makes it more difficult to convince states of the impermissibility of such attacks.¹⁶⁶ The protocol will be undermined and humanitarian protection will not be as strong as it should be. This would undermine the protocol. If states are suddenly able to have their own discretion when using such munitions then the protocol becomes meaningless. States are able to decide when they use the munition or not and it offers them a high

¹⁶² The Vienna Convention on the Law of Treaties, Art 19

¹⁶³ Protocol III to the Convention on Certain Conventional Weapons [1980] United States ratification

¹⁶⁴ Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 2(3)

¹⁶⁵ The Vienna Convention on the Law of Treaties, Art 19

¹⁶⁶ Human Rights Watch, 'The Need to Re-Visit Protocol III on Incendiary Weapons' [2011]

degree of control. They are no longer limited by this article of the protocol. In some cases civilian casualties may be less, but as a whole it would likely mean more civilians are in danger as there could be more control for more states.

Jan Klabbers helps reiterate this point in 'Accepting the Unacceptable? A New Nordic Approach to Reservations to Multilateral Treaties.' Klabbers states that creating a reservation does not usually prevent the State from getting what they desire.¹⁶⁷ If a reservation is made and a party to the treaty after a period of 12 months remains silent then it is deemed that they have accepted the reservation. The only way in which to object to a reservation is to expressly object. As a result of this, a state's reservation is not likely to ever prevent them from getting the reservation that they want. An illustration of how this can happen can be seen by the 1977 Anglo-French Continental Shelf case.¹⁶⁸ In this case, France ratified the 1958 Convention on the Continental Shelf but when doing so made numerous reservations. The United Kingdom who had already ratified the convention notified the convention that they were 'unable to accept the reservations made by the French Republic.'¹⁶⁹ This is an illustration of a state when ratifying a convention making a reservation instantly and also another state party objecting the reservation within the 12 month period.

As a consequence of this objection by the United Kingdom the issue arose as to the effect of the French reservation now that the United Kingdom had made an objection. The French argued that because they had made a reservation that was not accepted by the United Kingdom, there was now no agreement between the parties to the terms of the Article. Therefore this would mean that there was no application to the Article for France. The United Kingdom opposed this view and argued that their rejection to the reservation would mean that the convention would still have to apply to France regardless of whether the reservation was accepted or not. It was concluded that the VCLT favours the reserving state at a cost of the objecting state.

There is an argument given by J.G. Merrills that states if a state has made a reservation they are doing so in the knowledge that their reservation may come under scrutiny and that they have accepted the possibility that the reservation might have objections and be rejected.¹⁷⁰ This means that a reserving state willingly takes the risk of the reservation being considered as incompatible. But this does not seem to be the case. The consequence of the 1977 Anglo-French Continental Shelf case shows that a state making a reservation will be the state that is favoured. This ultimately shows that because the United States made a reservation to Protocol III it would appear that they are doing so in the knowledge that they are likely to get what they desire. They either get the reservation that they want and if not, they would not be bound by Protocol III. Merrills says that there is a possibility that the reservation may be rejected but this does not mean that a state will not still be favoured. Anthony Aust states that:

'If one or more contracting states have objected to the reservation as being prohibited, the reserving state must decide whether or not it is prepared to be a party without the reservation; and until it has made its position clear it cannot be regarded as a party'¹⁷¹.

This shows how the United States would be favoured. If a contracting state objects the reservation, then they have the choice whether to be a party to the convention without the reservation. They would not be regarded as a party until they make their position clear. This means that the United States would only be ratifying Protocol III if it is under their conditions and with their exceptions.

¹⁶⁷ Jan Klabbers, 'Accepting the Unacceptable? A New Nordic Approach to Reservations to Multilateral Treaties' [2000]

¹⁶⁸ The Continental Shelf case, United Kingdom of Great Britain and Northern Ireland v the French Republic [1978]

¹⁶⁹ United Nations, The Convention on the Continental Shelf, 311

¹⁷⁰ J G Merrills, 'Anatomy of International Law' [Sweet & Maxwell, London, 1976]

¹⁷¹ Anthony Aust, 'Modern treaty law and practice' [CUP, 2004] 119

This shows the problems that can arise if a protocol does not work as well as it should do. There is an issue of multi-purpose munitions not being covered by Protocol III and the strength of the protocol diminishes as a result. The United States have made a reservation to the protocol that gives them a lot of discretion in regards to incendiary weapons. If the protocol was more direct and did not have aspects that do not offer enough humanitarian protection, then the protocol would not be undermined as it is being done so. Change needs to be made, and there does appear to be support for this to be done. The Human Rights Watch (HRW) state that a weapon that can produce the same incendiary effects as an incendiary munition should be treated in exactly the same way¹⁷². They have called on all states that are party to the CCW to review and reevaluate the inadequacy of Protocol III from a humanitarian perspective. They state that Protocol III has failed:

‘To live up to its promise of protecting civilians from the effects of incendiary weapons which cause horrific burns, permanent disfigurement and death.’¹⁷³

The non-governmental organisation Article 36 also agrees with the HRW and says that Protocol III needs to address its inadequacies in preventing humanitarian harm caused by weapons with incendiary effects.¹⁷⁴ Article 36 is a United Kingdom based organisation that works to prevent the unnecessary and unacceptable harm caused by certain weapons in armed conflicts around the world. Its name refers to Article 36 of the 1977 Additional Protocol I of the Geneva Conventions. This protocol requires for states to review means and methods of warfare and new weapons. Article 36 states that they have particular concerns over the use and impact of white phosphorous munitions in populated areas and agree with the notion that change needs to be made.¹⁷⁵

The HRW also comments on the fact that once white phosphorous has been deployed; it cannot be used in a way that discriminates between combatants and civilians in populated areas. This point goes back to the earlier concern that white phosphorus cannot be managed or controlled once it has been deployed. There are many states that are open to examining Protocol III.¹⁷⁶ This is a high number of states that are actively seeking for better protection to be offered. It shows that the time for change is now as support for it is high. It is not just states that support for some examination into Protocol III to be made. As already noted there have been investigations to the use of white phosphorus and the Goldstone Report stated that there were alternatives instead of white phosphorus that could have been used and would have been less harmful. These alternatives would not have the ‘the toxicities, volatilities and hazards that are inherent in the chemical white phosphorous’¹⁷⁷ but still uphold the valuable techniques of being able to illuminate and obscure the battlefield. The Goldstone Report stated that consideration should be made in banning white phosphorus as an obscurant. One way in doing this would be to take an effects based approach rather than a design based one as it would prevent white phosphorus being able to be used as an obscurant all together. It would no longer be allowed for a munition to be used as an obscurant weapon if it was to also have incendiary effects as well.

¹⁷² Human Rights Watch, 'From Condemnation to Concrete Action: A Five-Year Review of Incendiary Weapons' [2015]

¹⁷³ Human Rights Watch, 'Memorandum to Convention on Conventional Weapons Delegates: The Human Suffering Caused by Incendiary Munitions' [2011] accessed 12th October 2016

<http://www.hrw.org/sites/default/files/related_material/2011_arms_incendiariespastharmanduse.pdf>

¹⁷⁴ Article 36, 'The CCW should review Protocol III to better protect civilians from incendiary weapons' [2011] accessed 12th October 2016 <<http://www.article36.org/weapons/incendiary-weapons/article-36-statement-on-incendiary-weapons/>>

¹⁷⁵ Article 36, 'Statement by Article 36 to the Convention on Certain Conventional Weapons', accessed 12th October 2016 <<http://www.article36.org/weapons/incendiary-weapons/article-36-statement-on-incendiary-weapons/>>

¹⁷⁶ States open to examining Protocol III: Australia, Austria, Belarus, Belgium, Canada, Djibouti, Estonia, Finland, Germany, Honduras, Ireland, Jamaica, Kazakhstan, Latvia, Mauritius, Mexico, Moldova, New Zealand, Qatar, Saudi Arabia, Slovenia, and Switzerland. Human Rights Watch, 'Government Positions on Protocol III on Incendiary Weapons Memorandum to Convention on Conventional Weapons Delegates' accessed 12th October 2016

<https://www.hrw.org/sites/default/files/related_material/nov2012_arms_incendiarypii_0.pdf><https://www.hrw.org/sites/default/files/related_material/nov2012_arms_incendiarypii_0.pdf>

¹⁷⁷ Igor Primoratz, 'Protecting Civilians During Violent Conflict: Theoretical and Practical Issues for the 21st Century' [2016]

With there being so many states and subjects that are willing to start dialogue on Protocol III, it shows that the time to revisit Protocol III is now. The demand is high to do so and if there is high demand then it must be an extremely big issue that needs to be dealt with. A loophole is created by an incendiary weapon needing to be designed to be used for its incendiary qualities. However this discretion does not help protect civilians or combatants alike from becoming a victim of the shocking effects of the munition. There are references that cite that white phosphorus has caused superfluous injury or unnecessary suffering in some circumstances and this would go against the principles of IHL.¹⁷⁸ If there is a munition that goes against these values then it should be prohibited. As there does appear to be backing for an amendment and many reasons why it should happen, a look into what specific amendments that need to take place can occur.

5.3. HOW PROTOCOL III SHOULD BE AMENDED

Amending Protocol III of the CCW for it to have an effects based approach would not be an unprecedented move for the CCW. The CCW already has an effects based definition for one of its prohibitions. Protocol I of the CCW which concerns non-detectable fragments states:

‘It is prohibited to use any weapon the primary effect of which is to injure by fragments which in the human body escape detection by X-rays.’¹⁷⁹

This is an example of the convention already having a protocol that focuses on the effect that a weapon has rather than its design or purpose. However it must be noted that Protocol I has reference to the primary effects of weapons that can injure. If the same was to be applied directly to Protocol III then it could be argued that the primary effect of a munition such as white phosphorus is its screening qualities just as much as its incendiary qualities. This argument will be dealt with when the possible changes are proposed, but it does help to observe Protocol I as it can be seen how it operates and what needs to be done to ensure that the protocol exists in its best possible state. From a humanitarian perspective, adopting a definition of incendiary weapons that is based on the effects of the weapon and what sort of damage it can cause would offer the most protection.

Lessons can be learnt from Protocol I of the CCW and it is useful to note that Protocol I does not practically prohibit any conventional weapon in existence. It adds that it must be a munition that injures with fragments which in the human body escape detection by X-rays. This addition is vital, and a similar provision would need to be applied to Protocol III if it was to take a similar approach. There is a need for this so that not all munitions or resources that have similar effects to incendiary weapons are now prohibited by the CCW. There needs to be a line drawn and a balance made for what sort of effects is to be prohibited by the convention. There are numerous possibilities that could result in similar effects to white phosphorus from occurring. For example a resource as simple as petrol could cause the same sort of effects as white phosphorus. Petrol is a liquid that is primarily used as fuel for engines. It is very volatile and if it is leaked and there is a source of ignition present then it is very dangerous. If petrol is unconstrained it can burn rapidly and become flammable. If this was to occur then the effects of the petrol could be similar to white phosphorus. The ignition could spread and it could burn civilians and damage civilian objects. However this does not mean that it should be prohibited under Protocol III. Just because there would now be an effects based approach not everything that could cause similar effects would need to be prohibited. Chapter 4 commented on the importance of ensuring that resources that have legitimate uses outside of armed conflicts should not be restricted by IHL. For this reason it should be considered how to expand the definition of Protocol III without instances such as this also being encompassed by the convention. In addition to this even other munitions that could have similar effects do not need to be the focus for the CCW. The CCW

¹⁷⁸ International Committee of the Red Cross, Customary IHL Database, Rule 70 <https://ihl-databases.icrc.org/customary-ihl/eng/docs/v1_rul_rule70> accessed 6th October 2016

¹⁷⁹ Protocol I to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects

concerns itself only with conventional weapons and these are weapons that are relatively widely used and not weapons of mass destruction which would be munitions such as nuclear bombs or a biological weapon. However, if a bomb was deployed and its secondary effects caused surrounding areas to set on fire as a result of numerous different factors then there would need to be a way which to ensure that it is not of concern of the CCW but instead another aspect of IHL. Any amendment of Protocol III would need to ensure that these two possibilities do not become an issue. As a result of this, these points will be considered when the changes are proposed.

When suggesting the following proposition these notions will have taken place. It is recommended that instead of Article 1(1) stating an incendiary is any weapon or munition which is primarily designed to set fire to objects or to cause burn injury to persons it should instead state that an incendiary weapon is:

‘Any weapon or munition which has the primary or secondary effect to set fire to objects or to cause burn injury to persons through the action of flame, heat, or a combination thereof, produced by a chemical reaction of a substance delivered on the target.’

By amending the law to take a similar provision to this it would alleviate a lot of the issues that have been raised so far. The protocol would now focus on the effects that a weapon has instead of the design of it. It has a provision that a munition that is able to cause devastating effects even through its secondary effects will also be regulated under Protocol III. This would deal with the issue of dual-use chemicals avoiding regulation as it could no longer be argued that white phosphorus is being used for its screening qualities. If it is used in this way, but can still cause effects that set to fire to objects or cause burn injury then it will still be prohibited. This would offer better humanitarian protection. It would not make a difference why or how the weapon is being used. But if it results in causing burn injury as a result of fire produced by a chemical reaction then it should be prohibited. The issue that was raised with the need to ensure that the protocol does not cover instances where a conventional munition has not been used will also be combated with this definition and how this is done will be discussed later.

5.4. WHAT WOULD CHANGE?

Defining incendiary munitions with a primary and secondary effect would now ensure that the law cannot be violated and that human suffering is alleviated. It would no longer be possible for white phosphorus to escape the regulation of Protocol III. It could not be argued that the effect of the weapon is not the damage caused but its illuminate or obscurant qualities as this would have no relevance. If it can produce the devastating effects for whatever reason, then it would now be prohibited to use. There would no longer be a loophole.

With this definition made, most of the issues that have already been considered will have been dealt with. Nonetheless there needs to be a way in which to not prohibit other munitions that should not have relevance to the protocol. As the convention would now also regard secondary effects as relevant then it would need to ensure that this definition is not too broad and only encompasses dual-use chemicals and not weapons that are not relevant to the CCW. A munition such as an atomic bomb may cause fire or burn injury but this would not need to be regulated by the CCW. A munition such as this would not be a conventional munition so would therefore not regulated by the CCW. A conventional munition is a weapon that is relatively widely used. A munition like an atomic bomb is not a conventional weapon. This would not limit the level of humanitarian protection that is offered. Other areas of IHL that are more relevant would then be applied rather than the CCW. This amendment however would strengthen the regulation of incendiary weapons and particularly white phosphorus. There is also a need for a chemical reaction to take place for the fire to have been caused. This is another limit that is placed so it is ensured that it only concerns incendiary weapons.

The word secondary means the next in order, so a secondary effect can be regarded as being consequential to another effect. If Protocol III is to also encompass effects that are secondary, there does need to be a limit and this can be set by affirming what is to be defined as secondary. If it is not further defined, then the interpretation is left too broad and a resource such as petrol could fall within its scope. There are many factors that could be interpreted to be a secondary effect. It could be an effect that occurs in the short-term or long-term. It could be argued that it is also an effect that impacts the environment. To prevent the definition being interpreted broader than it should be, a secondary effect should be defined and seen as an accompanying effect. This would be an effect that occurs at the same time as the primary effect and an effect that is likely to always occur. This would ensure that effects that occur in the long-term are not interpreted to fall within the scope of Protocol III. A munition such as white phosphorus would fit under the definition. The primary effect of white phosphorus could be illumination; however in the same sequence of events it can also cause fires and burn injury. This would be the secondary effect and therefore the weapon would be prohibited under the protocol. An accompanying effect would be regarded as an effect that is likely to happen when the normal use of the resource occurs. A normal use of white phosphorus like illumination would be expected to also produce fire as a result. In contrast to this, a normal use of petrol would be to power an engine. Even though petrol is a highly flammable substance, it is not expected to cause a fire in this scenario. It could potentially cause similar effects but as it is not expected it would not fall under the definition of an incendiary weapon. By having this definition it would ensure that the definition of an incendiary weapon is not too broad but is broad enough to offer better humanitarian protection for dual-use munitions.

These are not the only considerations that need to be made however. There would also need to be consideration into the level of effects needed to be relevant to Protocol III. This needs to be a strong secure definition as to not create any ambiguity. For example, as mentioned the CWC defines a toxic chemical to be:

‘Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals.’¹⁸⁰

There is no clear indication as to what is regarded as temporary incapacitation. A limit is set but there is no suggestion as to where the line is drawn for it to be regarded that a chemical action has not caused temporary incapacitation. There will always be a sense of ambiguity on this aspect of the CWC unless it is further defined. For this reason, a limit needs to be well defined for the CWC.

A simple burn injury would not be suitable as it could be interpreted to be a burn that only has a slight discomfort and does not inflict much damage. Instead if it is defined that the burn injury needs to be severe enough to be able to cause death or permanent damage and harm then the correct level of humanitarian protection would be covered. It would prevent the protocol from applying to any level of discomfort whilst also covering effects that need to be prevented which would go against the values of IHL. Superfluous injury or unnecessary suffering would be a burn injury that is more painful than it should be and amending the law to cover this aspect would protect these values of IHL. White phosphorus would be covered with this amendment as it has been shown how severe the effects of the munition are and it would be interpreted that it does produce an effect that is severe enough to cause death or permanent damage and harm.

Strict liability would have to occur if Protocol III was to take an effects based approach once there was a violation. The scenario of a commander deploying white phosphorus for two different reasons that was shown earlier in the chapter has relevance here once again. The two contrasting scenarios that were presented show a different state of mind of the commander. Even though the same effects

¹⁸⁰ Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction, Art II (2)

would have occurred, in one the commander was aware that he was violating the law. The knowledge that you are committing a crime is mens rea and it plays an important role in law when someone has committed a crime. The principle requires both a mental and physical element. Actus reus is the act itself with mens rea being the awareness that a conduct is a crime. The commander who used white phosphorus to burn enemy combatants would be doing so with a guilty mind and it would be a scenario where a mens rea criterion has been fulfilled. If Protocol III was to take an approach based on effects then there would be no need for a mens rea criterion. It would no longer be relevant if white phosphorus was being used for its obscurant qualities as its incidental incendiary effects would now be classed as a secondary effect and would fit the definition of an incendiary weapon.

Regardless of what the intentions of the user are when using white phosphorus they would be found liable for their actions. The effects of the munition are what are prioritised and it would not matter if the commander intended to use the munition to illuminate the battlefield. The same devastating effects would have taken place. This would offer better humanitarian protection as regardless of the person's awareness of the crime they would be in violation of IHL. There would be no defence to using the munition because it would now be regarded as an incendiary weapon and would be prohibited to be used. This is what is meant by strict liability. It does not depend on the intent of the person and the law would find them liable regardless of their intent. This would have to occur for an effects based approach to work.

5.5. REASONS NOT TO AMEND PROTOCOL III

Consideration also needs to be made to why Protocol III should not be amended. If there is a way to offer better protection and continue to uphold the values and principles of IHL then it should be taken as it would prevent the need to amend Protocol III whilst also offering the same benefits. This is why it would be valuable to confirm that change does actually need to be made. If it is deemed that there is not another possibility then the proposed changes hold higher validity as it would appear to be the only plausible way in which humanitarian protection can be offered in a better way.

There is a possibility that if the international community is already against white phosphorus then there is no need to amend the law. There have been examples given that show that when a great majority of the international community shares a view then it can become emerging customary law. If the international community consider that using white phosphorus is already illegal then no change needs to be made. The nature of the munition would be seen to go against the values and principles such as the prohibition to cause superfluous injury or unnecessary suffering. If this belief was there then it gradually would become customary law which would prevent the need to amend Protocol III of the CCW. There is a test to determine whether a law has become international customary law. The International Court of Justice in the Legality of the Threat or Use of Nuclear Weapons commented that state practice and opinio juris need to be fulfilled for law to be regarded as international customary law¹⁸¹. State practice concerns the actual behaviour of states and opinio juris is the subjective belief of a state that their action is because they believe it to be legal obligation to do so. In regards to white phosphorus this means that states are not using white phosphorus for its incendiary qualities because they already deem it illegal to do so. For this reason then, it needs to be confirmed that using white phosphorus has not become customary international law. It does not appear as if states are refraining from using white phosphorus because they deem it to be illegal. It has been reported already that states such as Israel have tried to hide the fact that they have used the munition. This shows that it is more leaning towards the stigma surrounding the weapon rather than because they deem it to be legally binding not to. It has not yet reached a level in which the high majority of states are not using the munition because they deem it to be illegal. They just do not want to be associated with it rather than the subjective belief of the state that it is a violation.

¹⁸¹ The International Court of Justice advisory opinion on the Legality of the Threat or Use of Nuclear Weapons [1996] 226-253

There are also some states that do not support for there to be change and this needs to be combated. A look into the arguments made by such states need to be observed to see if the reasons for this stance holds validity. If the argument given by opposing states to any amendments holds weight then it should be considered another reason as to why Protocol III being amended is not the best course of action. Italy has stated that 'white phosphorus is not really an incendiary weapon.'¹⁸² If this argument is correct, then Protocol III is of no concern to the CCW. However, the characteristics of white phosphorus show that it is an incendiary weapon. It is a chemical that can be used to set fire to a person and cause a burn injury through the flames and heat produced by a chemical reaction. It may not be classed as incendiary weapon under the current law, but it is an incendiary. It can cause the same effects as a munition that is regarded as an incendiary weapon under the CCW so it should be classed as one. An incendiary is a device that can be used to cause fires and this is what white phosphorus can do. It has already been argued that white phosphorus even though is not an incendiary weapon under the current definition, should be because it has the same effects. It should not matter that it is designed for another purpose if it can have the same shattering effects as an incendiary weapon. By taking an effects based approach, this argument given by Italy would no longer hold any validity as IHL would now be concerned with the effects of an incendiary munition rather than its purpose. It would be classed as an incendiary munition and be prohibited.

5.6. CONCLUSION

Some arguments as to why Protocol III of the CCW should not be amended to take an effects based approach have been presented. These reasons must be balanced with the arguments for there to be change so this chapter can conclude by stating that the protocol should be amended. If the values and principles of IHL are to be considered, then IHL would be benefited if an effects based approach was made. Humanitarian protection is the pinnacle of what constitutes IHL and it is a vital element of what treaties, conventions and customary law seek to preserve. For this reason, this should always be the priority and if there is room to offer this protection in a greater way, then it should be taken. It should not matter if there is little number of states that do not want change to be made. There will never be a universal agreement on all issues and the decision should be made to prioritise humanitarian protection and the values of IHL. There does need to be an amendment made as there is no way currently this protection can be offered if no change occurs. It does not appear as if using white phosphorus incorrectly is becoming customary law. There is also not a way that Protocol III in its current state can be interpreted to encompass white phosphorus. Ultimately, it seems that the only possible way to offer this protection and to maintain the principles of IHL would be to make an amendment to the law.

This chapter concludes by stating that Protocol III of the CCW should take an effects based approach rather than a design based approach. Over thirty years ago, because of the Vietnam War and the use of napalm there was a trigger to adopt Protocol III and now white phosphorus can serve as the same stimulus to revisit the protocol. The advantages of doing so have been discussed and it has been argued that by taking an effects based approach greater humanitarian protection would be offered. White phosphorus is a very versatile munition and if used in the manner that it is by states then the principles of IHL are not being respected in a way that they should. There is stigma to the munition, but it has not yet reached a level where not using the munition has become customary international law. There is also no way under the current definition of an incendiary weapon in which better humanitarian protection can be offered. It has been assessed to see if the current law could be interpreted in a different way but this does not appear to be possible. Considerations have been made to the limits of what sort of effects will be considered to need to occur for a munition to fit the scope of the protocol. The amendment that should be made in IHL has been found and discussed. The

¹⁸² Human Rights Watch, 'Government Positions on Protocol III on Incendiary Weapons Memorandum to Convention on Conventional Weapons' [2012] accessed 10th October 2016

answer to the question of the thesis has as a result been answered. This now leads to the concluding chapter of the thesis where all the issues will be rounded up to confirm the conclusion and also to follow up on any unanswered questions that have arisen as a result of the conclusion.

6. CONCLUSION

6.1. OVERVIEW

This thesis set out to show that Protocol III of the CCW should be amended to take an effect based approach rather than a design based approach. Chapter 5 concluded that this change should be made and the possible changes to do this were proposed. The law surrounding white phosphorus needs to be strengthened and the way to do this would be to amend the definition of incendiary weapons to be:

‘Any weapon or munition which has the primary or secondary effect to set fire to objects or to cause burn injury to persons through the action of flame, heat, or a combination thereof, produced by a chemical reaction of a substance delivered on the target.’

This change is needed, and Chapter 2 showed the effects that white phosphorus has once it is deployed. White phosphorus is a toxic substance and has many possible serious effects.¹⁸³ These effects are the same as an incendiary weapon and can be just as devastating to the victim. These effects are not different to a prohibited incendiary munition so there should be no reason why white phosphorus should not be regulated in the same way. White phosphorus is versatile and can have four distinct different purposes. This versatility means that it escapes regulation. Protocol III of the CCW currently defines an incendiary weapon as:

‘Any weapon or munition 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.’¹⁸⁴

White phosphorus therefore does not fit within the scope of the protocol. If white phosphorus is to be used for its screening qualities then it has not been designed for its incendiary qualities. It can never be truly designed for one of its distinct purposes because it can always be used for a different purpose. Only the user of the munition truly knows what they are intending for the munition to be used for. The proposed changes would combat this loophole. It would not matter what the munition is being designed to be used for. If it can cause effects similar to an incendiary weapon then it will be prohibited. This would offer the most humanitarian protection and it upholds the principles and values of IHL.

This was not the only possible amendment that was considered when reaching this conclusion. Other possibilities were also observed and discussed to see if better humanitarian protection could be offered and what the advantages and disadvantages of each would be. Chapter 3 considered the possibility of expanding liability when there is a violation in the law when using white phosphorus. This would ensure that more people are liable for their actions. The case of Zyklon B was discussed and compared to throughout the chapter. The chapter concluded by stating that even though it may be possible to do this, and a three part test was adopted it would not offer enough humanitarian protection. It may make more liable for their actions, but it would not help the victims of white phosphorus and there would still be a loophole in the law. In the case of Zyklon B it was easier to prosecute someone as it was only one party committing the crimes in one conflict. It would be much harder to implement this concept on a larger scale around the world and for many different conflicts. Expanding liability would not offer the best humanitarian protection possible and it was deemed that another change should be sought instead.

¹⁸³ Penny Duerksen-Hughes and others, 'Toxicological Profile for White Phosphorus' [1997] Research Triangle Institute, accessed 10th October 2016 <<https://www.atsdr.cdc.gov/toxprofiles/tp103.pdf>>

¹⁸⁴ Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 1(1)

The next chapter looked at the CWC, and this convention prohibits states to develop, produce, acquire, stockpile, retain, or transfer chemical weapons.¹⁸⁵ If white phosphorus was to be classed as a chemical weapon then it would offer the utmost humanitarian protection as white phosphorus would no longer be able to be used in armed conflict. However, white phosphorus is not a chemical weapon as it is not specifically designed to cause death or other harm through the toxic properties of those toxic chemicals. It was considered to see if it could be classed as one. As it could not, possible amendments to the convention were considered to see if it could also encompass white phosphorus in its definition. This amendment did not seem logical. Currently, the CWC is able to regulate peaceful uses of chemical weapons and balance this with the prohibition of illegitimate uses of chemicals. The OPCW is a fully functioning body that helps maintain the functioning of the CWC. For the CWC to take an effects based approach it would have to consider the toxicity of a chemical and this would be ambiguous. There are many factors that would have to be considered such as the quantity, time frame, severity of injury or how the chemical is administered. This would mean that it would be harder to balance the legitimate uses of chemicals against illegitimate uses. It would require a complete overhaul and this would not be beneficial. The general purpose criterion works well, and any change would be detrimental to the convention.

With this amendment not possible, there was only the CCW left to assess. White phosphorus is not a new munition and has played a role in conflicts for many years. Amending the CCW to protect the law surrounding white phosphorus would be the best possible amendment. Stigma plays an important role in IHL as highlighted by the adoption of the Convention on Cluster Munitions. The time to amend the law surrounding white phosphorus is now as there is a high level of stigma and controversy when white phosphorus is used in armed conflict. The use of the munition in the United States showed the justifications given for using the weapon. But the ever growing attention to white phosphorus did not stop, and the use of white phosphorus in Gaza shows the growing pressure that comes from using the munition. The fact finding mission, the Goldstone Report found that Israeli armed forces were systematically reckless in determining to use white phosphorus in built up areas. These issues were covered extensively compared to the Bosnian war when white phosphorus was used in the Siege of Sarajevo. The best time to amend law is when interest is high to do so and the stigma surrounding the weapon shows that the time is now. Loopholes such as the sole purpose criterion that was needed to be met for the 1899 Hague Gas Declaration in IHL have been dealt with in the past. There is no reason why a similar approach cannot be taken to amend the glaring loophole in Protocol III now.

6.2. CONCLUDING THOUGHTS

Reaching this conclusion is important. It can act as a starting point for discussions to be made with the intention of offering better humanitarian protection for victims of white phosphorus. When discussion occurs, ideas can be developed and worked upon. By doing this, if there are any weaknesses then they can be advanced on. Protocol III has been recommended to consider also secondary effects, and even though there have been limits set as to what the secondary effects should be, this could still be further explored. By having a tight provision for what secondary effects are, then there will be little ambiguity. This thesis set out to argue that change should be made, and it introduced potential amendments. But this does not stop here, and this could be further developed. Now it has been deemed that an effects based approach is best, others can help contribute to what exactly this should be. The benefits and disadvantages of different possibilities can be discussed and built upon.

The proposed changes suggested will not solve all the issues in regards to the white phosphorus munition. However, it is a start. It can and will alleviate suffering and offer better humanitarian protection. It would allow for white phosphorus to be classed as an incendiary weapon. Any way in

¹⁸⁵ Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Art 1

which this can be done should be a change that is considered. The values and principles of IHL are fundamental parts of IHL and are too important. They must be protected as much as possible. Hans Bethe stated:

'If we fight a war and win it with H-bombs, what history will remember are not the ideals we were fighting for but the methods we used to accomplish them.'¹⁸⁶

This concept seems fitting to conclude the thesis. The values and principles of IHL are vital, and they should be protected as much as possible. The means and methods of warfare should not steer away from these principles, and the regulation of Protocol III does not regulate white phosphorus as well as it should do. There is a loophole in the protocol and multi-purpose munitions such as white phosphorus can be used in a way that can cause the same devastating effects as incendiary weapons which are prohibited. Change needs to be made and if better humanitarian protection can be offered then there should be change to do this. Protocol III of the CCW was created to protect people from the atrocities of incendiary weapons but it has fallen behind other areas of IHL. There is a glaring loophole and too much suffering has occurred because of its inadequate definition of incendiary weapons. Protocol III should take an effects based approach to strengthen the definition of incendiary weapons. The time to amend the law is now.

¹⁸⁶ Hans Bethe and others, 'Bulletin of the Atomic Scientists' [6th edition, A magazine for Science, Public Affairs, and Education, 1950] 102

7. APPENDIX

Appendix A

7.1. WHAT IS WHITE PHOSPHORUS?

The chemical element phosphorus is an allotropic element which has several forms. The most volatile, reactive and toxic form is white phosphorus which has a garlic like smell and is usually a colourless-to-white waxy solid. The name white phosphorus derives from the Greek god and 'bringer of light' Eosphoros (transliteration from Εωσφορος).¹⁸⁷ The namesake comes from the yellow-green chemiluminescent light that is produced when white phosphorus reacts with oxygen in air.

The effects of being exposed to white phosphorus have led to its classification as a toxic substance.¹⁸⁸ Such effects and the varying degree of severity depend on factors such as the dose, the duration, how one is exposed, personal traits, and whether other chemicals are present.¹⁸⁹ Cyanosis, abdominal pain, jaundice, shock, coma, death, liver damage, kidney damage, permanent damage to the eyes and severe burns are all possible effects. Even a burn that covers less than 10% of the body can be fatal if there has been damage to the liver, kidneys and heart.¹⁹⁰ There are known possible effects from exposure to white phosphorus but there is still some degree of uncertainty. If white phosphorus enters the lungs of a person breathing air containing it, it is still not known if it will enter the blood or how it will leave the body.¹⁹¹ Once exposed to the skin of a person, instead of burning through a chemical reaction, it does so through the generation of high levels of heat.¹⁹² The best way to put these effects into context is to look at a real life scenario. In June 2009, white phosphorus affected an eight year old girl named Razia. In Afghanistan in the Tagab Valley of Kapsia, two white phosphorus shells were deployed onto her house. Razia's two sisters died from the blast as flames engulfed the house. Since the incident her father has said:

'The sound of the blast was very strong and I was almost unconscious. I couldn't think. My children were shouting at me: Wake up! You're burning.'¹⁹³

Razia survived the initial blast, but white phosphorus was exposed to her skin. Her hair was burned away and burns had reached her face, head, neck and arms. She was consequently rushed to hospital and in the operating room an oxygen mask was put on her face. Instantly, the mask began to melt away. Whenever the doctors attempted to scrape away the dead tissue on her body, flames would frequently reappear on her skin. Razia had to endure over fifteen surgeries, but her skin will forever remain scarred, and her hair will never grow back. Deploying white phosphorus killed some of her family, and the effects to her own body will remain with her for a lifetime.¹⁹⁴

Even with such effects, due to white phosphorus being both highly flammable and pyrophoric, it does prove to be an effective and versatile munition.¹⁹⁵ The differing uses of the munition can be grouped

¹⁸⁷ Henry George Liddell and Robert Scott, 'A Greek-English Lexicon; Machine readable text' [1940] accessed 17th October 2016 <<http://perseus.uchicago.edu/cgi-bin/philologic/getobject.pl?c.80:5:31.LSJ>>

¹⁸⁸ Penny Duerksen-Hughes and others, 'Toxicological Profile for White Phosphorus' [1997] Research Triangle Institute, accessed 10th October 2016 <<https://www.atsdr.cdc.gov/toxprofiles/tp103.pdf>>

¹⁸⁹ *ibid*

¹⁹⁰ *ibid*

¹⁹¹ *ibid*

¹⁹² Roman Reyhani, 'The Legality of the Use of White Phosphorus by the United States Military during the 2004 Fallujah Assaults' [2007] *Journal of Law and Social Change*, 14-15

¹⁹³ Jason Straziuso and Evan Vucci, interview with Abdul Aziz, 'Burned Afghan girl learns to smile again' NBC News [23rd June 2009] accessed 9th October 2016 <http://www.nbcnews.com/id/31509214/ns/world_news-south_and_central_asia/t/burned-afghan-girl-learns-smile-again/#.V-KuHzWp3IU>

¹⁹⁴ *ibid*

¹⁹⁵ James T Cobb and others, 'TF 2-2 in the FSE AAR: Indirect Fires in the Battle of Fallujah,' *Field Artillery* [2005]

into four distinct purposes.¹⁹⁶ When used to illuminate, the burning causes a bright white light that can brighten large areas in the night. It can also be used to signal, in which the dense smoke produced from the munition can signal a target. Screening enables the smoke to hide any movement from people or vehicles. Finally, using the weapon for its incendiary capabilities allows setting areas or targets on fire. There is an absence of a specific treaty dealing with the use of white phosphorus. This means that when the munition is used for one of its distinct purposes, it may deal with a different area of IHL compared to when it is used for another purpose. Fear of fire and burn injury is deeply embedded in the human psyche and there is also a great dislike towards incendiary weapons.¹⁹⁷ Treaties and conventions can work as a response to such views, so where Protocol III of the CCW prohibits the use of incendiary weapons, a weapon used to illuminate an area would not invoke similar prohibition. The use of white phosphorus could fit in the scope of a treaty that deals with incendiary weapons or one that concerns illuminate munitions. The treaties may differ, but it is the same weapon being used. There are illegal uses of the munition and it cannot be used for its incendiary qualities against for example human targets. There is no ambiguity in this instance. But it becomes ambiguous when it is being used in its legal way. As it is a multi-functional weapon, when it is being used legally it can still affect humans in the same way as its illegal use. The ambiguity arises as a consequence of the weapons different qualities being able to have the same effects where one is legal and the other is not.

This is where the complexity of the use of white phosphorus as a munition comes into play. Its four distinct purposes are all very different. They offer different advantages and have their own weaknesses. However, most importantly, each use of the munition can be as destructive as the other. There can be some degree of control for the effects caused by the munition. If factors such as when the munition is used, where it is used and in what conditions it is deployed in are considered, then causalities can be limited. There is some degree of control that is possible as a densely populated area at night would produce fewer casualties compared to the middle of the city during the day. But the effects that it can cause when it is being used incorrectly can be destructive.

When white phosphorus is being designed, it is likely done so in the knowledge that it could serve for any one of its capabilities. The manufacturer is aware that it could be later used for its incendiary, screening or illuminate qualities. With this notion, there is no sole primary purpose that the munition is being designed for. It is left to the discretion of the user to use the weapon for what purpose they desire.

Regardless of what the purpose for using the weapon is, white phosphorous would be used in a M825 shell. The shell is 155mm (6"1) and weighs around 50kg which then holds the white phosphorus inside the shell. When a shell is fired from a 155mm howitzer, its range can reach 3 to 18km. The white phosphorus would be released when the shell is around 50 to 250 metres above the ground. This activation occurs through a timed charge located at the front of the shell which releases 116 white phosphorus wedges. The white phosphorus is encased in a sealed canister in the shell, with 0.6 ounces of white phosphorus.¹⁹⁸ This type of shell is used because it has great aerodynamic efficiency and it is able to separate into two parts which then releases the white phosphorus.

Though the munition can reach an elliptical area of up to 200 meters, the trajectory of each individual wedge varies. Armed forces cannot manage this risk.¹⁹⁹ Even though the effects of the munition can

¹⁹⁶ Bradley Samuels and others, 'The Use of White Phosphorus Munitions in Urban Environments: An Effects-Based Analysis' [2012] Forensic Architecture. accessed 9th October 2016 <<http://www.forensic-architecture.org/wp-content/uploads/2014/05/WP-print-report-FINAL.pdf>>

¹⁹⁷ Jann K Kleffner, *Yearbook of International Humanitarian Law* [1st edn, CUP, 2007]

¹⁹⁸ Bradley Samuels and others, 'The Use of White Phosphorus Munitions in Urban Environments: An Effects-Based Analysis' [2012] Forensic Architecture, accessed 9th October 2016 <<http://www.forensic-architecture.org/wp-content/uploads/2014/05/WP-print-report-FINAL.pdf>> 10

¹⁹⁹ *ibid*

be limited, once deployed there is no control. Wedges can from the force of the munition ricochet off its first impact point and hit another surface. This sort of trajectory has a very unpredictable and random nature. It increases the total coverage area that is affected and it cannot be controlled. Instead of ricocheting, an individual wedge can also penetrate a surface. If it hits a structure or window that is weak enough, the wedge can pierce through and cause damage from within and become trapped. The munition can also ignite and set fire to constructions. If white phosphorus makes contact with a combustible material, then it can act as a source of ignition and set the surrounding areas on fire.

7.2. THE HISTORY OF WHITE PHOSPHORUS

Fenian terrorists were the first to use white phosphorus as a weapon and did so in the 19th century.²⁰⁰ Fenian's were part of a secret oath-bound fraternal organisation and they used white phosphorus in the form of a solution in carbon disulphide. After evaporation, the phosphorus would burst into flames and ignite. This use of white phosphorus and mixture was known as 'Fenian fire.' There were stories told of a 'type of wild fire that could not be put out by water, clung onto ones skin, and could climb up the side of ones vessel²⁰¹.' With the growing reputation of Fenian fire, it started to become more widely used. Extremists from the Industrial Workers of the World (commonly referred to as 'Wobblies') in the early 20th Century too started to use white phosphorus as a means of achieving their goals.²⁰²

The munitions rise to being more widely used around the world and primarily in warfare occurred during World War I and II. 1916 was the first year Britain introduced factories for the production of white phosphorus grenades. During the First World War, white phosphorus was used in munitions such as mortar bombs and rockets. However, during World War II when the invasion of Britain appeared imminent there was a suggestion from phosphorus firm 'Albright and Wilson' of Oldbury to use white phosphorus as an incendiary weapon.²⁰³

It was suggested that white phosphorus be used in a similar way to how Fenian Fire was used as a weapon and this was consequently how Britain used white phosphors as an incendiary munition for the first time. It was officially known as the No. 76 Special Incendiary Grenade, but more commonly referred to as SIP (Self Igniting Phosphorus). The incendiary grenade originated from the United Kingdom and was produced over 6,000,000 times²⁰⁴. After demonstrations of SIP, the Royal Air Force distanced themselves from the weapon stating they had no interest. The focal point of this stance came through safety concerns. The first uses mainly were issued to the Home Guard and as an anti-tank weapon. The grenade itself could be thrown by hand or from a Northover projector. Its original use by the Home Guard is an interesting one. The Home Guard was a defence organisation during World War II for the British Army. It was made up of 1.5 million volunteers that were either too old or young to join the army, or otherwise ineligible.²⁰⁵ The objective of the organisation was to act as a second defence for Britain in case there was an invasion by Nazi forces whilst the primary British forces were fighting abroad. The Home Guard were poorly armed as most resources and weapons were given to British Army. This meant that the Home Guard's inventory mainly consisted of weapons that were no longer needed by the British Army, weapons that they no longer desired or weapon that could be produced cheaply. The fact that the weapon was not needed or desired by the British Army is notable. There were great concerns to using the weapon, with much of it being down to safety. There was also great scepticism about the efficacy of SIP. After weapon designer Stuart Macrae observed a trial of SIP, he stated:

²⁰⁰ Niall Whelehan, 'The Dynamiters: Irish Nationalism and Political Violence in the Wider World' [1st edition, CUP, 2012]

²⁰¹ Susan Popham, 'The Chemical Renaissance' 67-70

²⁰² Ian Turner, 'Sydney's Burning' [2nd edn, Sydney, 1969]

²⁰³ Ian Swanwatch, 'What Lies Beneath Rattlechain Lagoon?' Wordpress, accessed 11th October 2016 <http://www.whatliesbeneathrattlechainlagoon.org.uk/?page_id=128>

²⁰⁴ S P Mackenzie, 'The Home Guard: A Military and Political History' [1st edn, OUP, 1995] 92

²⁰⁵ Home Guard FAQ, accessed 2nd October 2016 <<http://www.home-guard.org.uk/hg/hgfaq.html#faq5>>

'There was some concern that, if the tank drivers could not pull up quickly enough and hop out, they were likely to be frizzled to death, but after looking at the bottles they said they would be happy to take a chance²⁰⁶.'

If the British Army during one of the world's greatest conflicts distanced themselves from white phosphorus, why is it so widely used now? White phosphorus munitions were regarded as extremely dangerous and were not deployed in combat. Caches of SIP were hidden by the Home Guard during the war in case of invasion and are to this day still being found and are still dangerous.

Nonetheless gradually over time, the use of white phosphorus grew and its involvement in warfare became more widely used. It is reported that white phosphorus played a major role in breaking up German infantry attacks during the later parts of the Second World War. With its ever increasing use, the impact it had on civilians too grew. Areas with civilians such as Chongqing, London, Coventry, Hamburg, Dresden, and Tokyo were all affected. Incendiary bombs of white phosphorus were used by both the Allied and the Axis forces. They were used against civilian populations and especially areas that had military significance. For example an illustration of one of these attacks occurred on the 8th of November 1940, as retaliation for an air attack by the Royal Air Force on Munich. 500 German bombers dropped white phosphorus on Coventry and 'virtually destroyed it.'²⁰⁷ The use of white phosphorus during World War II was mainly a way of bombing indiscriminately and on civilian populations. There was an increase in munitions being used with incendiary effects, and this led to the creation and ratification of Protocol III of the CCW. Though this Convention deals with incendiary weapons and not specifically white phosphorus, it shows how progressively using weapons resulted in conventions being created to combat them. There has been a great increase in the use of white phosphorus in 21st century warfare.²⁰⁸ The effects of white phosphorus and its issues have been discussed and there is a problem. The increasing use intensifies the necessity for better regulation.

²⁰⁶ Stuart Macrae, 'Winston Churchill's Toyshop' [1971] Roundwood Press, 120

²⁰⁷ Arthur Greenberg, 'Chemistry - Decade by Decade' [Twentieth-Century Science, 2007] 168

²⁰⁸ I J MacLeod and A P V Rogers, 'The Use of White Phosphorus and the Law of War' [2009]

Appendix B

7.3. ZYKLON B

Cellular respiration takes place in the cells of organisms that produces adenosine triphosphate (ATP). Preventing the human body from producing ATP is fatal. A human weighing just less than seventy kilograms would die within just a couple of minutes if they were to inhale 70mg of hydrogen cyanide.²⁰⁹ Hydrogen cyanide was originally discovered in the late 18th century and in the 1880's was used for fumigation. Originally used to fumigate citrus trees, it gradually spread to being used to fumigate ships, mills and good wagons as well.²¹⁰

²⁰⁹ Peter Hayes, 'From Cooperation to Complicity: Degussa in the Third Reich. Cambridge' [1st edn, CUP, 2004] 273

²¹⁰ *ibid*

Appendix C

7.4. THE CWC ARTICLES

Article 1 of the CWC is very definitive. It presents a clear prohibition to chemical weapons. It states that each party to the convention under all circumstances are prohibited to do the following:

- ‘(a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;
- (b) To use chemical weapons;
- (c) To engage in any military preparations to use chemical weapons;
- (d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention²¹¹,

Article 2 of the same convention helps define some of the words of Article 1 and it sets the criteria needed for a chemical to fit within the scope of the convention. Where Article 1 expresses that the convention concerns chemical weapons, Article 2 defines what a chemical weapon is meant as:

Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes;

(b) Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph(a), which would be released as a result of the employment of such munitions and devices;

Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph (b)²¹²

A toxic chemical is also stated to be defined under the convention as:

‘Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.’²¹³

²¹¹ Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, Art 1

²¹² *ibid*, Art 2

²¹³ *ibid*, Art 2

Appendix D

7.5. THE CWC SCHEDULES

Schedule 1 chemicals have either none or little use outside being used for chemical weapons. Chemicals that would be found under Schedule 1 would be weapons such as sarin, mustard gas and tabun. Under Schedule 1, these chemicals are allowed to be produced for research or medical purposes. Any production of the chemicals above 100 grams per year needs to be declared to the OPCW and a state is limited to only being able to possess 1 tonne of these materials. These are very deadly chemicals and if there was to be an amendment to the CWC that focuses on effects of munitions then a similar exception would need to be made.

Chemicals can also fall under Schedule Two and these are chemicals that have legitimate applications on a small scale. Manufacturing of these chemicals has to be declared and there are also restrictions on export to states that have not signed the CWC. An example of a chemical that applies is Thiodiglycol that can be legitimately be used as a solvent in inks, but also in the manufacture of mustard agents.

The final grouping is Schedule 3, and a chemical under this classification has large scale uses when not being used in chemical weapons. If more than 30 tonnes per year is manufactured however, this must be declared so there can be an inspection. Similar to Schedule 2, there are restrictions on exports to states that have not signed the CWC. An example of a chemical that applies is phosgene which although can be used in chemical weapons, is a precursor in the manufacture of organic compounds. Similarly, Triethanolamine which can be used in chemical weapons can also be found in toiletries and detergents.

Appendix E

7.6. THE CCW ARTICLES

Article 1 of the Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III) states that an incendiary weapon is to mean:

‘Any weapon or munition 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’²¹⁴

The convention offers examples, and states that incendiary weapons can take the form of flame throwers, fougasses, shells, rockets, grenades, mines, bombs and other containers of incendiary substances. However, it also furthers the definition by stating what should not be classed as an incendiary weapon. The convention states that if the following can be applied to a munition, it is not to be classed as an incendiary weapon:

(i) Munitions which may have incidental incendiary effects, such as illuminants, tracers, smoke or signalling systems.

(ii) Munitions designed to combine penetration, blast or fragmentation effects with an additional incendiary effect, such as armour-piercing projectiles, fragmentation shells, explosive bombs and similar combined-effects munitions in which the incendiary effect is not specifically designed to cause burn injury to persons, but to be used against military objectives, such as armoured vehicles, aircraft and installations or facilities.²¹⁵

²¹⁴ Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 1(1)

²¹⁵ *ibid*, Art 1(1)(b)

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Protocol I to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects

Protocol III to the Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons which may be deemed to be Excessively Injurious or to have Indiscriminate Effects, Art 1(1), 2(1), 2(3)

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