Clearing the smoke: evaluating the United States policy toward white phosphorus munitions in urban contexts

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As the world becomes more urbanized and wars are fought in more condensed areas it is important to continue to evaluate the propriety of certain methods of warfare in these new and varied contexts. This article offers that when debates arise over the propriety of using certain weapons systems, an outright or systematic ban of that weapon system should rarely be the outcome. Rather, it is far more appropriate to provide armies with as many tools as possible to bring an armed conflict to a quick and decisive end and to hold those commanders and warfighters accountable to using those tools in accordance with international law, treaties, and norms. To do otherwise would unnecessarily handcuff and endanger those that are doing the fighting. This article presents this argument through the lens of the United States' policy toward using white phosphorus munitions in urban contexts. The United States, among other militaries, has continued to employ white phosphorus munitions in the face of increased international scrutiny. This article evaluates that policy and concludes that it is both legal and appropriate provided that targeting decisions are made in accordance with traditional law of armed conflict principles and with an eye toward humanitarian imperatives. This conclusion is supported by a survey of relevant international treaties, various states' practice, and is illustrated by hypothetical anecdotes provided by the author.

Dans un monde de plus en plus urbanisé, où des guerres se déroulent dans des régions plus densément peuplées, il est important de continuer à évaluer l'opportunité de certaines méthodes de guerre dans ces contextes nouveaux et variés. Cet article avance que, lorsque l'opportunité d'utiliser certains systèmes d'arme fait débat, cela ne devrait que rarement résulter dans une interdiction totale ou systématique du système d'arme en question. Au contraire, il est bien plus opportun de munir les armées d'autant d'instruments que possible pour mettre un terme aux conflits armés de manière rapide et décisive, et de tenir les commandants et les combattants responsables de l'utilisation de ces instruments, conformément au droit international, aux traités et aux normes. Agir autrement représenterait une entrave et une mise en danger inutiles des combattants sur le terrain. Cet article présente cette argumentation au travers de la politique des États-Unis en matière d'utilisation de munitions au phosphore blanc en milieu urbain. L'armée des États-Unis, parmi d'autres, a continué à utiliser des munitions au phosphore blanc malgré une surveillance internationale accrue. L'article évalue cette politique et conclut qu'elle est à la fois légale et appropriée, à condition que les décisions en matière de ciblage soient

* The views and opinions expressed here are only those of the author and do not necessarily reflect those of the Department of Defense, the United States Army, or any other department or agency of the United States Government.

prises conformément aux principes consacrés du droit des conflits armés et en gardant à l'esprit les impératifs humanitaires. Cette conclusion est étayée par une étude des traités internationaux pertinents et des pratiques de différents États, et est illustrée par des anecdotes hypothétiques fournies par l'auteur.

Aangezien de wereld steeds meer verstedelijkt en oorlogen in compactere gebieden worden uitgevochten, is het belangrijk om te blijven evalueren of bepaalde methoden van oorlogvoering gepast zijn in deze nieuwe en diverse contexten. Dit artikel stelt dat, wanneer er discussie is over de gepastheid van het gebruik van bepaalde wapensystemen, dit zelden zou moeten leiden tot een regelrecht of systematisch verbod van dat wapensysteem. Integendeel, het is veel beter om legers van zoveel mogelijk middelen te voorzien om een gewapend conflict snel en beslissend te beëindigen en om commandanten en oorlogvoerende partijen verantwoordelijk te houden voor het gebruik van deze middelen overeenkomstig het internationaal recht en de internationale verdragen en normen. Anders zou dat degenen die de strijd voeren, onnodig beknotten en in gevaar brengen. Dit artikel bekijkt dit argument door de lens van het beleid van de Verenigde Staten betreffende het gebruik van witte fosformunitie in stedelijke omgevingen. De Verenigde Staten zijn, net zoals andere legers, doorgestaan met het gebruik van witte fosformunitie ondanks toegenomen internationaal toezicht. In dit artikel wordt dat beleid geëvalueerd en wordt geconcludeerd dat het zowel wettig als gepast is op voorwaarde dat de beslissingen over de doelbestrijding worden genomen in overeenstemming met de traditionele beginselen van het recht van de gewapende conflicten en met het oog op humanitaire vereisten. Deze conclusie wordt ondersteund door een overzicht van de relevante internationale verdragen en de praktijk van diverse staten, en wordt geïllustreerd aan de hand van hypothetische anekdotes van de auteur.

A medida que el mundo se vuelve más urbanizado y las guerras se libran en áreas más concentradas, es importante continuar evaluando la idoneidad de ciertos métodos de guerra en estos nuevos y variados contextos. Este artículo sugiere que cuando surgen debates sobre la conveniencia de usar ciertos sistemas de armas, el resultado raramente debería ser una prohibición total o sistemática de ese sistema de armas. Más bien, es mucho más apropiado proporcionar a los ejércitos tantas herramientas como sea posible para llevar un conflicto armado a un final rápido y decisivo y hacer que esos comandantes y combatientes sean responsables del uso de esas herramientas de conformidad con el derecho, los tratados y las normas internacionales. Hacer lo contrario limitaría innecesariamente y pondría en peligro a quienes están combatiendo. Este artículo presenta este argumento a través de la lente de la política de los Estados Unidos hacia el uso de municiones de fósforo blanco en contextos urbanos. Estados Unidos, entre otros ejércitos, ha seguido empleando municiones de fósforo blanco ante el creciente escrutinio internacional. Este artículo evalúa esa política y concluye que es legal y apropiada siempre que las decisiones de selección de objetivos se tomen de acuerdo con los principios del Derecho tradicional de los conflictos armados y teniendo en cuenta los imperativos humanitarios. Esta conclusión está respaldada por un estudio de los tratados internacionales relevantes, la práctica de varios Estados y está ilustrada por anécdotas hipotéticas proporcionadas por el autor.

Man mano che il mondo diventa più urbanizzato e le guerre si combattono in aree più concentrate, è importante continuare a valutare la correttezza di alcuni metodi di guerra in questi nuovi e cambiati contesti. Questo articolo afferma che quando sorgono dibattiti sull'opportunità di usare determinati armamenti, raramente il risultato dovrebbe essere

un divieto totale o sistematico di quel sistema d'arma. Piuttosto, è molto più appropriato fornire agli eserciti quanti più strumenti possibili per porre fine in modo rapido e decisivo a un conflitto armato e ritenere quei comandanti e combattenti responsabili dell'uso di quegli strumenti in conformità con il diritto internazionale, i trattati e le norme. Fare altrimenti significherebbe immobilizzare inutilmente e mettere in pericolo coloro che stanno combattendo. Questo articolo presenta l'argomento attraverso l'ottica della politica degli Stati Uniti nei confronti dell'uso delle munizioni al fosforo bianco in contesti urbani. Gli Stati Uniti, tra gli altri eserciti, hanno continuato a impiegare munizioni al fosforo bianco a fronte di un maggior controllo internazionale. Questo articolo valuta tale politica e conclude che è sia legale che appropriata, a condizione che le decisioni a tal fine siano prese in conformità con i principi tradizionali del diritto dei conflitti armati e con attenzione agli imperativi umanitari. Questa conclusione è sostenuta da una revisione dei trattati internazionali pertinenti, dalla pratica di vari Stati, ed è corredata da ipotetici aneddoti forniti dall'autore.

Da die Welt immer stärker urbanisiert wird und Kriege in immer stärker verdichteten Zonen geführt werden, ist es wichtig, die Geeignetheit bestimmter Methoden der Kriegsführung in diesen neuen und unterschiedlichen Kontexten weiterhin zu bewerten. Dieser Artikel behauptet, dass sich, wenn sich eine Debatte über die Geeignetheit der Verwendung bestimmter Waffensysteme anspinnt, daraus selten ein absolutes oder systematisches Verbot des betreffenden Waffensystems ergeben soll. Vielmehr ist es angebracht, Armeen mit möglichst vielen Mitteln auszustatten, damit ein bewaffneter Konflikt zu einem raschen und entscheidenden Ausgang gebracht wird, sowie Befehlshaber und Kombattanten hinsichtlich der Verwendung dieser Mittel in Übereinstimmung mit dem Völkerrecht, Verträgen und Normen zur Rechenschaft zu ziehen. Eine andere Vorgehensweise würde denjenigen, die kämpfen, unnötig Zügel anlegen und sie gefährden. Dieser Artikel betrachtet dieses Argument durch die Linse der Politik der Vereinigten Staaten in Bezug auf die Verwendung weißer Phosphormunition in einer städtischen Umgebung. Die Streitkräfte der Vereinigten Staaten haben, wie auch andere Streitkräfte, angesichts zunehmender internationaler Kritik, weiterhin weiße Phosphormunition verwendet. Der Artikel bewertet diese Politik und schlussfolgert, dass diese sowohl rechtmäßig als geeignet ist, vorausgesetzt, dass die Zielentscheidungen in Übereinstimmung mit den herkömmlichen Grundsätzen des Rechts der bewaffneten Konflikte und unter Berücksichtigung humanitärer Gebote getroffen werden. Diese Schlussfolgerung wird mit einem Überblick über relevante internationale Abkommen und die Praxis verschiedener Staaten untermauert und wird mit hypothetischen Anekdoten vom Autor illustriert.

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The St. Petersburg Declaration of 1868, the first formal international agreement to prohibit the use of a particular weapon 'in time of war between civilized nations', envisaged that governments would in due course seek an understanding 'whenever a precise proposition shall be drawn up in view of future improvements which science may effect in the armament of troops, in order to maintain the principles which they have established, and to conciliate the necessities of war with the laws of humanity'.¹ This conciliation that the drafters referred to is both important and nuanced. The

1. Declaration Renouncing the Use, in Time of War, of Explosive Projectiles Under 400 Grammes Weight (adopted 11 December 1868).

object of combat is to disarm the enemy² but to allow combatants to pursue this end with a blind eye to humanitarian imperatives would lead to gratuitous pain and destruction for combatants and non-combatants alike. On the other hand, it would also be improper to deny combatants access to effective methods of fighting when these methods could instead be governed in a way that safeguards humanitarian principles. These competing priorities are the analytical foundation for debates over certain methods of fighting or types of weapons; ‘There are the weapons of the poor and the weapons of the rich, the weapons of the attackers and those of the defenders; the problem is indeed complex.’³ While this area of analysis can at times seem abstract it is important to remember that it has real-world implications for the civilian and warfighter alike. It is vital to have an intimate understanding of the law as well as of the ground-level implications of various policy choices as practitioners and theorists work toward solutions. One such case that seems to lack consensus⁴ is regarding the use of white phosphorous (WP) munitions, specifically in urban contexts. The most appropriate policy (and the one that the United States military promulgates) regarding WP is one that does not completely avoid the munitions for fear of inflicting unnecessary suffering but rather places tactical decisions in the hand of the military commander, emphasizing traditional law of armed conflict (LOAC) and humanitarian principles. This policy allows commanders to protect humanitarian imperatives and, at the same time, bring overwhelming and lawful force to the battlefield, thereby protecting their own troops and helping to bring the overall military conflict to an end.

Urbanization is a relentless trend. Today roughly 55 per cent of the world’s population lives in urban areas.⁵ Projections by the United Nations Department of Economic and Social Affairs show that urbanization, combined with steady growth of the world’s population, could add another 2.5 billion people to urban areas by 2050 (with urbanites composing 68 per cent of the world’s population by then).⁶ Over the next decade the world is projected to go from having 32 megacities, defined as cities that have a population greater than 10 million, to having 43.⁷ One of the many byproducts that this growth will bring is more armed conflict taking place in urban areas; war is an inherently social phenomenon and as such it tends to unfold where people live. This byproduct stands to favour some fighting forces relatively more than others as less technologically-advanced forces may be able to leverage the dynamic urban environments to stymie more conventional forces in ways similar to how insurgent groups like al-Qaeda have operated in the mountainous terrain of Afghanistan for decades. Margarita Konaev of the French Institute of International Relations

2. Protocol Additional to the Geneva Conventions of 12 August 1949 and relating to the Protection of Victims of International Armed Conflicts (Protocol I) Commentary of 1987, para 1411.

3. Ibid at para 1413.

4. The Faculty of Law at the University of Oslo, ‘Regulation of White Phosphorus Weapons in International Law’ (17 November 2011), ‘These disagreements are mostly over facts, but are nonetheless indicative of the reality that the law is not clear enough to lead to agreement in the actual cases.’

5. United Nations, ‘68% of the world population projected to live in urban areas by 2050, says UN’ (*United Nations Department of Economic and Social Affairs*, 16 May 2018), available at <<https://www.un.org/development/desa/en/news/population/2018-revision-of-world-urbanization-prospects.html>> (accessed 6 April 2021).

6. Ibid.

7. ‘World City Populations 2020’ (*World Population Review*), available at <<https://worldpopulationreview.com/world-cities/>> (accessed 6 April 2021).

describes urban warfare as the ‘great equalizer’ between professionally and technologically-superior conventional militaries and the generally much weaker, under-modernized irregular forces; she argues that these smaller forces can gain certain tactical advantages by drawing larger militaries in to urban areas.⁸ Relatively smaller military groups will increasingly be able to use the complex and dynamic nature of urban environments to (intentionally or not) force their adversaries to make targeting and weaponeering decisions for targets that are in close proximity to civilian populations and infrastructure.

Urban warfare is by no means a new phenomenon and history has indicated that without a willingness to completely devastate a city it is seemingly impossible to achieve definitive victory in an urban setting. To effectively operate in such environments warfighters and commanders must understand that they will be more likely than ever to operate in immediate proximity to civilian populations and their shared resources (i.e. power grids, water supplies, transportation systems). They must train and prepare as such. In October of 2016 then-US Army Chief of Staff GEN Mark Milley acknowledged this reality, stating that ‘in the future, I can say with very high degrees of confidence, the American Army is probably going to be fighting in urban areas. We need to man, organize, train and equip the force for operations in urban areas, highly dense urban areas’⁹ As the US and other nations move to develop urban capabilities, we will certainly see continued advances in precision weapon technology. As debates and frameworks emerge over how to regulate the employment of those new technologies, however, we cannot forget that the lion’s share of the fighting will, at least in the short term, still be done with weapons and munitions that have been around for decades. We must be able to lawfully apply ‘old’ weapons to new problem sets. Not every military in the world (and certainly very few insurgent groups) boasts a vast array of precision-strike capabilities and as such it is as important as ever to have the right rules in place when militaries and armed groups fight in increasingly condensed areas.

Due to its vicious and potentially incendiary effects there has been historical discord over where and against whom you can employ WP munitions. This discord is heightened when considering the added humanitarian challenges that urban warfare present. In March 2009 Human Rights Watch posted a report about the alleged use of WP rounds by Israeli forces in the fight in Gaza City, commenting that ‘its use in open areas is permissible under international law, but air-bursting white phosphorus over populated areas is unlawful because it places civilians at unnecessary risk and its wide dispersal of burning wedges may amount to an indiscriminate attack’.¹⁰ It is worth noting that there are more recent, similar reports regarding WP use such as by US forces in Syria and Iraq,¹¹ by Turkish forces in Syria¹² and by Saudi forces in Yemen,¹³ all of which stand to show that WP munitions are somewhat common. The Gaza City

8. M Konaev, ‘The Future of Urban Warfare in the Age of Megacities’ *Ifri* (March 2019) Focus stratégique, No. 88.

9. M Tan, ‘Army Chief: Soldiers Must Be Ready to Fight in “Megacities”’ *Defense News* (5 October 2016), available at <<https://www.defensenews.com/digital-show-dailies/ausa/2016/10/05/army-chief-soldiers-must-be-ready-to-fight-in-megacities/>> (accessed 6 April 2021).

10. Human Rights Watch, *Rain of Fire: Israel’s Unlawful Use of White Phosphorous in Gaza* (25 March 2009).

11. A Barnard, ‘U.S.-Led Forces Said to Have Used White Phosphorus in Syria’ *New York Times* (10 June 2017), available at <<https://www.nytimes.com/2017/06/10/world/middleeast/raqqa-syria-white-phosphorus.html>> (accessed 6 April 2021).

12. D Sabbagh, ‘Investigation into alleged use of white phosphorus in Syria’ *The Guardian*

report, though, serves as a good example of the need for an informed and nuanced analysis of this sort of targeting decision. Based on the facts provided in the Human Rights Watch report it is likely that Israeli forces did in fact employ WP in an illegal manner, but to say employing WP in certain contexts is illegal per se, purely because of the *potential* risks involved, is an over-simplification. It would be fair to say that knowingly exploding WP over concentrations of civilians is *highly likely* to be in violation of the customary law principles of distinction and the prohibition of indiscriminate attacks, but it cannot be affirmatively said so until there is an examination of the specific facts incident to the attack. It seems that too many individuals and groups either do not know or are hesitant to acknowledge the fact that under proper circumstances WP munitions *can* lawfully be used against human targets and in areas of civilian concentration. To be clear: despite the aforementioned misunderstandings and push-back,¹⁴ the United States Department of Defense position is that **WP rounds may be legally employed against human targets and in the vicinity of civilians provided that the engaging party complies with the general rules for the conduct of hostilities established by customary international law, including the principles of distinction and proportionality as well as taking all feasible measures to avoid causing superfluous injury and collateral impact on civilians.**¹⁵ This policy complies with current international law¹⁶ and, as will be discussed below, is in line with many other states' practice.¹⁷ This policy is appropriate because the alternative, a complete abolition of WP, would take away a valuable resource from commanders who can be trusted to employ WP in a way that complies with international military custom and law just as they do with many other munitions.

1 WHY DOES THIS ALL MATTER?

The intent of this article is not to present a hawkish stance toward the use of WP or to advocate for expanding its use in urban areas. This munition certainly has the potential

(18 October 2019), available at <<https://www.theguardian.com/world/2019/oct/18/un-investigates-turkey-alleged-use-of-white-phosphorus-in-syria>> (accessed 6 April 2021).

13. T Gibbons-Neff, 'Saudi Arabia appears to be using American-supplied white phosphorus in its war in Yemen' *Independent* (20 September 2016), available at <<https://www.independent.co.uk/news/world/americas/saudi-arabia-appears-be-using-american-supplied-white-phosphorus-its-war-yemen-a7316841.html>> (accessed 6 April 2021).

14. Steve Goose and Bonnie Docherty of the Arms Division at Human Rights Watch are advocates for heightened restrictions on the employment of WP and argue that it should be regulated as an incendiary weapon. B Docherty and S Goose, 'White phosphorous: the new napalm?' (*Human Rights Watch*, 8 June 2012), available at <<https://www.hrw.org/news/2012/06/08/white-phosphorous-new-napalm>> (accessed 6 April 2021). Discussed below, WP is not regulated as an incendiary weapon.

15. United States, *Department of Defense Law of War Manual*, Office of General Counsel, US Department of Defense, June 2015 (updated December 2016) s 6.14.2.1.

16. Multiple sources and treaties will be discussed below, with the most relevant being the Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (CCW Protocol III) (adopted 10 October 1980).

17. One of many examples, some of which will be discussed below, Israel's Manual on the Rules of Warfare states that 'phosphorus is permitted for use as long as its use is directed against combatants and not against civilians'. Israel, *Rules of Warfare on the Battlefield* (2nd edn, Military Advocate-General's Corps Command, IDF School of Military Law, 2006) 19.

to wreak unnecessary havoc on combatants and civilians alike if it is employed indiscriminately or irresponsibly. Indeed the intent of this writing is twofold: (1) to submit that an abolition of the use of certain weapon systems should be the exception – rather, we should emphasize the foundational principles of honor, humanity, military necessity, distinction and proportionality as being the framework through which we should make responsible and lawful targeting decisions; and (2) to explain and illustrate the US policy toward the employment of WP, its basis in International Humanitarian Law (IHL), how that policy compares to other leading militaries around the world, why that policy is most appropriate and what the outer limits of its employability practically look like.

Warfighters deal with inherent risks each day that they spend in a combat zone and should be given all of the tools reasonably available to them to accomplish their mission while still responsibly balancing the safety and wellbeing of those that are not part of the conflict. It is the responsibility of military practitioners, theorists and legal professionals to provide candid feedback and analysis that is correct in a technical sense and applicable in a practical sense; this article seeks to provide that analysis regarding the employment of WP munitions.

2 WHITE PHOSPHOROUS' TECHNICAL SPECIFICATIONS, USES AND EFFECTS

Given WP's potentially grisly effects it is perhaps legitimate to question why militaries continue to employ it, in certain contexts, at all.¹⁸ WP can burn at a temperature of 5,000 degrees Fahrenheit (which is sufficient to burn through metal) and can have its effects linger on a target area for a term of days if left undisturbed.¹⁹ On the human body WP can create immediate and severe burns that continue as long as the substance and the wound are exposed to air.²⁰ Despite these effects the utility lies in WP's versatility as a weapon – inter alia, it is lightweight (making it an attractive filling for hand grenades) and produces dense smoke quickly. Today the US Army's most commonly-employed WP munition is the M825A1 artillery round. It is a field artillery-delivered projectile that is most often paired with a timed fuse that allows for an air-burst, whereby the round's 116 WP-impregnated felt wedges fan out in an elliptical pattern before hitting the ground. The elemental phosphorus can begin to burn when it is exposed to oxygen at temperatures as low as 86 degrees Fahrenheit,

18. T Haddad, 'White Phosphorus Melts Children's Flesh – But No Government Wants to Investigate, and the U.S. Keeps Using It, Too' *Newsweek* (4 November 2019), available at <<https://www.newsweek.com/why-united-nations-not-investigating-alleged-white-phosphorus-attacks-1468042>> (accessed 6 April 2021).

19. In soil, white phosphorus may stick to particles and dilute within a few days to become less harmful compounds. Agency for Toxic Substances and Disease Registry, United States Center for Disease Control and Prevention, 'White Phosphorous-ToxFAQs' (September 1997).

20. WP is easily absorbed through the skin and causes severely painful, partial (second degree) to full thickness (third degree) burns, which have a characteristic yellow color and garlic-like odour. National Institute for Occupational Safety and Health, 'WHITE PHOSPHOROUS: Systemic Agent' (*United States Center for Disease Control and Prevention*, 12 May 2011), available at <https://www.cdc.gov/niosh/ershdb/emergencyresponsecard_29750025.html> (accessed 6 April 2021).

creates a dense white smoke and glows in the dark.²¹ Though they do have the potential to set fire to objects or to cause burn injury, WP rounds are designed and used primarily for marking or illuminating a target, obstructing enemy movement or masking friendly force movement by creating smoke.²² WP also impedes the use of infrared tracking systems, like those used to guide some anti-tank missiles, which can be especially beneficial to mask the movement of friendly troops at night. If employed against human targets, WP is often fired on an enemy that is hiding in fortified positions as part of a 'shake and bake' artillery mission. There, WP rounds are fired in conjunction with High Explosive (HE) rounds where the WP is intended to disorient and uproot the enemy and the HE is intended to render the enemy hors de combat. If employed against enemy equipment or infrastructure WP can be employed via air or ground-burst and fired directly at the target that is intended to burn and be destroyed.²³

All military weapon systems, including WP munitions, are designed to be as devastating and effective as possible on the target area; it is incumbent on the warfighter to leverage that effectiveness as much as possible while still respecting and guarding humanitarian considerations. That balance is best achieved by ensuring that all targeting decisions are made in accordance with foundational LOAC principles. As a threshold matter, however, it is appropriate to show that WP munitions are not illegal per se.

3 WHITE PHOSPHOROUS IS NOT BANNED OR RESTRICTED UNDER ANY INTERNATIONAL TREATIES

WP munitions do not fall under the purview of the Chemical Weapons Convention (CWC) as WP is not a munition or device specifically designed to cause death or other harm through toxic properties.²⁴ The elements or chemical compounds that work together to create the effects of WP rounds are not listed in any of the CWC's Chemical Schedules.²⁵ Further, the CWC explicitly does not restrict 'military purposes not connected with the use of chemical weapons and not dependent on the use of the toxic properties of chemicals as a method of warfare'.²⁶ WP munitions are not designed to rely on any chemically toxic properties but they can have incendiary effects in certain conditions. As such, it is worth evaluating WP against another relevant international treaty – CCW Protocol III.

Protocol III 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 (CCW Protocol III) regulates, inter alia, the use of incendiary weapons in close proximity to civilian populations. Article 1 of Protocol III

21. Federation of American Scientists, 'White Phosphorous Fact Sheet', available at <<https://fas.org/programs/bio/factsheets/whitephosphorus.html>> (accessed 6 April 2021).

22. United States, *Department of Defense Law of War Manual*, s 6.14.1.3.

23. WP-filled grenades are sometimes used to destroy equipment or materials. For example, a WP grenade set off on the engine of an enemy vehicle can destroy the entire engine rather quickly.

24. The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (the Chemical Weapons Convention or CWC), Art II(1)(b).

25. Ibid, Annex on Chemicals.

26. Ibid, Art II(9)(c). WP rounds do not rely on any toxic chemical properties as a method of warfare.

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’. Article I(b)(i) expressly excludes an entire class of weapons that serve the exact same purpose that WP does, namely ‘munitions which may have incidental incendiary effects, such as illuminants, tracers, smoke or signalling systems’.²⁷ Therefore, WP munitions do not come under the scope of CCW Protocol III.

Although there are some states that choose to treat WP munitions as they would an incendiary weapon,²⁸ that is simply a policy choice and is not mandated under Protocol III. States may choose this policy for reasons largely similar to an argument put forth by Human Rights Watch in a 2018 memorandum that ‘the humanitarian harm caused by white phosphorus munitions outweighs their potential usefulness on the battlefield, and less dangerous alternatives exist’.²⁹ While this is surely a rational policy, to maintain it does unnecessarily hinder commanders’ abilities to lawfully apply what may be their most effective tool to certain tactical scenarios. In order to be as effective as possible on the battlefield states must allow their war fighters the broadest possible menu of options while ensuring that they are employing those options in a legal manner. Article I of Protocol III allows states to approach WP munitions in this manner.

Article 2 of Protocol III continues by restricting how and when incendiary weapons may be employed, depending on the delivery method. The United States has signed and ratified the Protocol but also included a key reservation, stating that:

[W]ith reference to Article 2, paragraphs 2 and 3, [the US] reserves 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, but in so doing will take all feasible precautions with a view to limiting the incendiary effects to the military objective and to avoiding, and in any event to minimizing, incidental loss of civilian life, injury to civilians and damage to civilian objects.³⁰

This reservation is not an implicit admission by the US that WP munitions may actually fall under the Protocol, indeed WP is never once contemplated or mentioned in the reservation. Rather, it is included as an opportunity to further explain and promote the United States’ persistent and practical viewpoint of warfighting in general – war is dynamic and unpredictable so placing a blanket restriction or ban on a weapon system is likely to unnecessarily fetter our commanders and soldiers.³¹ It is

27. CCW Protocol III, Art I(i).

28. Discussed below. Norway’s *Manual of the Law of Armed Conflict*, s 8.56, for example, says that ‘Phosphorus munitions designed to set fire to targets ... may be used for their purpose subject to the general restrictions upon incendiary weapons. Phosphorus munitions shall not be used directly against personnel’. More examples are outlined in the following section.

29. Human Rights Watch and International Human Rights Clinic, *Myths and Realities about Incendiary Weapons* (Memorandum to Delegates of the 2018 Meeting of States Parties to the Convention on Conventional Weapons, November 2018) 6.

30. US Reservation to the Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III), Geneva, 10 October 1980.

31. C Dunlap, ‘White phosphorus sometimes can be lawfully employed as an anti-personnel weapon ... but should it ever be used that way? (Probably not, but maybe.)’ (*LawFire*, 29 September 2016), available at <<https://sites.duke.edu/lawfire/2016/09/29/>> (accessed 6 April 2021). (‘In modern war especially, we simply cannot foresee every possible combat scenario. As

instead more appropriate to give our warfighters as many tools as possible and rely on them to make decisions, using the information reasonably available to them, that are in accordance with traditional LOAC principles.³² That is surely not to say that ground force commanders should be given carte blanche when making tactical decisions.³³ All commanders are expected to abide by international law, which have the notions of humanity and military necessity baked in to them. The decision of whether or not to use a weapon such as WP, however, is more appropriately left up to a commander that will be responsible for using it lawfully rather than taking the option away from them entirely by banning the weapon either outright or in some contexts.

It is not farfetched to imagine a scenario where, for example, the enemy has a deadly biological weapons facility that can only be definitively destroyed by employing an incendiary-style weapon.³⁴ Such weapons might need to be used notwithstanding the fact that the facility is located in an area where there is a concentration of civilians.³⁵ An incendiary-style weapon could also be used to deny open terrain to an advancing or retreating enemy force, or perhaps it could be used as a 'show of force' before a population that is subject to a counter-terrorism styled operation, potentially gaining compliance from the locals without inflicting any violence.

Relating this logic to the employment of WP which, again, is not considered to be an incendiary weapon per the CCW or any other international treaty, then-US Chairman of the Joint Chiefs Marine General Peter Pace said in 2005 that a 'bullet goes through the skin even faster than white phosphorous does. So I would rather have the proper instrument applied at the proper time as precisely as possible to get the job done in a way that kills as many of the bad guys as possible and does as little collateral damage as possible ... [t]hat is just the nature of warfare'.³⁶ There is no 'nice' way to kill the enemy and General Pace's emphasis on what is proper and precise highlights what is the most appropriate way to analyse the lawfulness of actions taken in

such, we should not peremptorily and unnecessarily handcuff our warfighters, particularly when a hitherto unforeseen situation arises when a usually repugnant means unexpectedly becomes the best and, ultimately, most humane way to protect the innocent and helpless, yet still accomplish mission objectives').

32. US Reservation to CCW Protocol III: 'It is the understanding of the United States of America that any decision by any military commander, military personnel, or any other person responsible for planning, authorizing or executing military action shall only be judged on the basis of that person's assessment of the information reasonably available to the person at the time the person planned, authorized, or executed the action under review, and shall not be judged on the basis of information that comes to light after the action under review was taken.'

33. The fundamental international norm that 'in any armed conflict, the right of the Parties to the conflict to choose methods or means of warfare is not unlimited' is set forth in both Art 35(1) of Additional Protocol (AP I) to the Geneva Conventions, 1977 and Art 22 of the Hague Regulations.

34. For a real-world example: Captain J Cobb, First Lieutenant C LaCour, and Sergeant First Class W Hight, 'After-Action Review (AAR) for the Battle of Fallujah' *FIELD ARTILLERY* 23, 26 (Mar. Apr. 2005) 'WP proved to be an effective and versatile munition. We used it ... as a potent psychological weapon against the insurgents in trench lines and spider holes when we could not get effects on them with HE [High Explosive]. We fired 'shake and bake' missions at the insurgents, using WP to flush them out and HE to take them out.'

35. Dunlap (n 31).

36. D Miles, 'Chairman Calls White Phosphorous Legitimate Military Tool' (*DoD News*, 30 November 2005), available at <<https://archive.defense.gov/news/newsarticle.aspx?id=18195>> (accessed 6 April 2021).

combat.³⁷ WP can (and certainly at times does) have drastic ancillary effects on the target area, effects which certainly need to be taken into consideration, but it is more appropriate to emphasize lawful and tactically-proficient decision-making than to blindly take away salient options; the United States policy on WP reflects that ideology.

4 STATE PRACTICE AND INTERNATIONAL VIEWPOINTS

In light of the fact that WP is not categorically prohibited by international law, it is useful to survey state practice to see if there is any customary law that prohibits WP munitions either as a category of weapon or specifically as an anti-personnel weapon. No states categorically prohibit WP munitions but some do place more explicit restraints than others, with some even excluding WP from their arsenals completely.

There are two general schools of thought reflected in foreign military doctrine, both of which generally track the language of Protocol III. In one group, states including the United States, Israel, Canada, France, Denmark, Germany and Australia do not have any explicit prohibitions against using WP against enemy personnel and generally outline practical guidance, in accordance with traditional LOAC principles, when considering its use in areas of civilian concentration.³⁸ In the other group, states like Norway, New Zealand and the United Kingdom basically treat WP as an incendiary weapon and place qualified restrictions on its employment overall.³⁹

Though obviously not a state actor, the Human Rights Watch acknowledges that WP is not banned but emphasizes that a 'broader, effects-based definition of incendiary weapons should be created to encompass multipurpose munitions with incendiary effects, such as white phosphorus ... countries should bolster the protocol's restrictions by prohibiting the use of all incendiary weapons in civilian areas because a

37. US Army MAJ Matthew Aiesi: 'Focusing on the weapon, and not how it is being used, muddies the law and facts surrounding the circumstances in which a war crime may have occurred. This may ultimately make the actual war crimes harder to identify and prosecute.' M Aiesi, 'The Jus in Bello of White Phosphorus: Getting the Law Correct' (*Lawfare Blog*, 26 November 2019), available at <<https://www.lawfareblog.com/jus-bello-white-phosphorus-getting-law-correct>> (accessed 6 April 2021).

38. Military manuals of: Canada (Law of Armed Conflict at the Operational and Tactical Levels, para 521.3), France (Manuel de Droit des Conflits Armes, pp 20–21), Germany (Law of Armed Conflict Manual, paras 453–558) and Australia (Executive Series ADDP 06.4 Law of Armed Conflict, paras 4.30–31). From Australia: 'no weapons may be used indiscriminately or in such a way as to cause unnecessary injury or suffering. Similarly, non-combatants and those who have not been or are no longer in the fight must not be targeted'.

39. Military manuals of: Norway (Manual of the Law of Armed Conflict, para 8.56), New Zealand (Manual of Armed Forces Law Vol 4, para 7.7.7), and the United Kingdom (The Joint Service Manual of the Law of Armed Conflict, para 6.12.6). From the UK: 'Use of weapons such as napalm and flamethrowers against combatant personnel is not dealt with specifically in the Conventional Weapons Convention or any other treaty. Such uses are governed by the unnecessary suffering principle so that they should not be used directly against personnel but against armoured vehicles, bunkers, and built-up emplacements, even though personnel inside may be burnt. The same applies to white phosphorous, which is designed to set fire to targets such as fuel and ammunition dumps or for use to create smoke, and which should not be used directly against personnel.'

complete ban on incendiary weapons would have the most humanitarian benefits and provide the strongest protection under international law'.⁴⁰

Peter Hirby, in an interview as a representative of the International Committee of the Red Cross [ICRC], says that '[t]he fact that international humanitarian law does not specifically prohibit phosphorous weapons does not imply that any specific use of weapons containing this substance is legal. The legality of each incident of use has to be considered in light of all of the [use-of-force and targeting principles recognized across international law]'.⁴¹ It is clear that state practice does not reflect any blanket prohibitions on employing of WP in combat and it is also clear that different states and groups implement or advocate various levels of restraint, driven by the foundational principles of the law of armed conflict as well as the spirit of Protocol III.

5 WHITE PHOSPHORUS MUNITIONS EVALUATED AGAINST BEDROCK LOAC PRINCIPLES

General principles of law that are common to the major legal systems of the world are a recognized part of international law.⁴² LOAC principles are understood to be included in this category of international law⁴³ and provide the foundation for the specific LOAC rules. Legal principles, however, are not as specific as rules and must be applied to factual situations in a holistic way. While rules are valuable in helping govern the most resolute aspects of warfare, much of what occurs on a battlefield is too fast-paced and dynamic to be properly distilled into a single rule – this is where the fact-intensive nature of principled analysis is most useful. LOAC principles: (1) help practitioners interpret and apply specific treaty or customary rules; (2) provide a general guide for conduct during war when no specific rule applies; and (3) work as interdependent and reinforcing parts of a coherent system.⁴⁴ The US Law of War Manual identifies five core LOAC principles that combatants should use to inform and govern their use of force on the battlefield absent any overriding laws or rules: military necessity, humanity, honour, distinction and proportionality. As mentioned, WP munitions are not banned by any international treaties or formal law and as such their employment is most relevantly governed by these five principles. In the context of WP munitions, war fighters must not only apply these principles as they would with any other targeting decision but must also do so understanding that WP has the potential

40. Docherty and Goose (n 14).

41. P Hirby, 'Phosphorous weapons – the ICRC's view' (*International Committee of the Red Cross*, 17 January 2009), available at <<https://www.icrc.org/en/doc/resources/documents/interview/weapons-interview-170109.htm>> (accessed 6 April 2021).

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

43. M Bothe, K Partsch and W Solf, *New Rules for Victims of Armed Conflicts* (Nijhoff Publishers, 1982) ('Following the original clause in the preamble of the 1899 IV Hague Convention and para. 4 of the denunciation clause in the Conventions these principles are stated in the present text to be part of international law. They are "general principles of law" in the sense of Art. 38 of the Statute of the ICJ.').

44. Mainly ensuring that 'the inhabitants and belligerents remain under the protection and the rule of the principles of the laws of nations, as they result from the usages established among civilized peoples, from the laws of humanity, and the dictates of the public conscience'. When there is not a specific law in place that regulates a type of conduct on the battlefield, these principles serve to inform and guide the combatant. Hague Convention (II) with Respect to the Laws and Customs of War on Land [1899] Preamble.

for extended physical and temporal effects on a target area relative to many other methods of engagement.

Military necessity may be defined as the principle that justifies the use of all measures needed to defeat the enemy as quickly and efficiently as possible that are not prohibited by the LOAC.⁴⁵ More specifically, it empowers military forces to take whatever lawful measures are needed to achieve legitimate military objectives.⁴⁶ It is worth noting that the DoD Law of War Manual and customary IHL both acknowledge that certain incidental harms may occur as a result of armed conflict and the enactment of what is militarily necessary.⁴⁷ In the permissive regime that is *jus in bello*,⁴⁸ which both requires and empowers those in the vortex of battle to balance legitimate military needs against larger humanitarian imperatives,⁴⁹ this principle allows the employment of WP munitions in all contexts not proscribed by international law subject to the element of necessity. Since WP munitions are not banned under any formal international law this principle seems to grant great power in deciding to use WP while the remaining four LOAC principles, discussed below, cabin this right with associated responsibilities.

Humanity is an intransgressible principle that may be defined as forbidding the infliction of suffering, injury, or destruction unnecessary to accomplish a legitimate military purpose.⁵⁰ Although the principle of military necessity justifies lawful actions that are necessary to defeat the enemy as quickly and efficiently as possible, military necessity cannot justify actions that are unnecessary to achieve this purpose, such as cruelty, wanton suffering, **or inflicting unnecessary suffering**.⁵¹ The prevailing argument against the use of WP munitions is that they violate that bedrock international LOAC norm of avoiding inflicting unnecessary suffering upon the enemy or civilian population.⁵² Some states have gone as far as impose a self-ban on the

45. United States, *Department of Defense Law of War Manual*, s 2.2.

46. Instructions for the Government of Armies of the United States in the Field (Lieber Code) 24 April 1863, Art 14 ('Military necessity, as understood by modern civilized nations, consists in the necessity of those measures which are indispensable for securing the ends of the war, and which are lawful according to the modern law and usages of war.')

47. *United States v. List, et al. (The Hostage Case)* [1948] TRIALS OF WAR CRIMINALS BEFORE THE NMT 1253–54 (military necessity 'permits the destruction of life of ... persons whose destruction is incidentally unavoidable by the armed conflicts of the war').

48. M Newton, 'Charging War Crimes' (Vanderbilt University Law School Public Policy and Legal Theory Working Paper 14-6) 6 ('The vitally important point for jurists and practitioners to grasp is that *jus in bello* is properly understood as being permissive by its express terms insofar as it defines the limits of lawful authority rather than operating as an affirmative grant of authority').

49. *Ibid.*

50. United States, *Department of Defense Law of War Manual*, s 2.3.

51. AP I, Art 35(2) as well as Hague Convention IV (Annex to the Convention: Regulations respecting the laws and customs of war on land) 18 October 1907, s II, Ch I, Art 23(e).

52. Human Rights Watch and ICRC, 'From Condemnation to Concrete Action: A Five-Year Review of Incendiary Weapons' (*Human Rights Program at Harvard Law School*, November 2015), available at <<http://hrp.law.harvard.edu/wp-content/uploads/2015/11/Incendiaries-5-year-review-final.pdf>> (accessed 6 April 2021). 'The definition of incendiary weapons in Protocol III should be amended to focus on how incendiary weapons affect people – the cruel nature of the injuries they cause and their tendency to injure soldiers and civilians without distinction – regardless of the purpose for which weapons are primarily designed. Such a definition would encompass white phosphorus and other weapons that cause significant suffering through fire and heat yet are not clearly included in the existing definition.'

munition for that specific purpose.⁵³ The wildly painful and prolonged effects that WP has the potential to impose on the human body, exacerbated by the urbanization trends discussed at the outset, give cause to carefully consider the propriety of using WP in urban contexts and are a prominent consideration in the analysis that commanders must conduct when deciding whether or not to employ WP munitions. Applied, the principle of avoiding unnecessary suffering may dictate that a commander should, if feasible, engage a target with a point-detonating WP munition⁵⁴ so as to localize its effects or fire the absolute minimum number of rounds possible to accomplish the mission in order to avoid wantonly affecting the surrounding population. It may also be appropriate to use a different weapon system entirely. Again, the principle of avoiding unnecessary suffering⁵⁵ is one of a few important considerations that must be taken into account along with the other LOAC principles to inform targeting decisions. In the specific context of weapons, a useful application of the principle of humanity is the superfluous injury rule that prohibits weapons that are designed to increase the injury or suffering of the persons attacked beyond that justified by military necessity.⁵⁶ WP munitions are not designed to do so and as such should not be banned as a class of weapons or in specific contexts. Rather, the decision to and method of employing WP should simply be tailored to satisfy the above goals.

Honour, closely related to humanity, reflects the principle that parties to a conflict must accept that certain limits exist on their ability to conduct hostilities.⁵⁷ For example, parties to the conflict must accept that the right of belligerents to adopt means of injuring the enemy is not unlimited.⁵⁸ This principle colours all actions taken by combatants and serves as the link between warfare and works with the other principles to imply that WP munitions should only be employed when it would be necessary and reasonable to do so.

The principle of distinction obliges parties to a conflict to distinguish principally between the armed forces and the civilian population as well as between unprotected and protected objects.⁵⁹ Correspondingly, it requires combatants to obtain positive identification of any potential targets and confirmation that the target is indeed a legitimate military target.⁶⁰ While this positive identification is important in any targeting decision it is worthy of extra attention in the context of WP munitions because even if the target is not directly hit it may still be affected substantially. A broader and more deliberate distinction analysis, including tools like collateral damage estimation, weather analysis and civilian consideration, will help to avoid a breach of any of the other principles discussed herein. Once a legitimate target has been identified, it must also be engaged in a proportionate way.

53. See United Kingdom (*The Joint Service Manual of the Law of Armed Conflict*, para 6.12.6) fn 39.

54. As opposed to an air-burst, which would have physically broader effect on the target area.

55. Which is subsumed under the broader principle of Humanity in the *US Law of War Manual*.

56. United States, *Department of Defense Law of War Manual*, s 6.6.2.

57. *Ibid* at s 2.6.

58. This idea is implied by the Martens Clause of the Hague Conventions and Additional Protocols to the Geneva Conventions.

59. United States, *Department of Defense Law of War Manual*, s 2.5; see also AP I, Art 48.

60. Defined as 'certain persons and objects during hostilities which, by their nature, location, purpose, or use, make an effective contribution to military action and whose total or partial destruction, capture, or neutralization, in the circumstances ruling at the time, offers a definite military advantage'. United States Department of the Army, *FM 6-27 Commander's Handbook on the Law of Land Warfare*, August 2019, ss 2–29.

The principle of proportionality may be defined as even where one is justified in acting,⁶¹ one must not act in a way that is unreasonable or excessive.⁶² Violations of this norm are described in the Rome Statute of the International Criminal Court as attacks that are launched with the ‘knowledge that such attack will cause incidental loss of life or injury to civilians or damage to civilian objects or widespread, long-term and severe damage to the natural environment which would be clearly excessive in relation to the concrete and direct overall military advantage anticipated’.⁶³ It is important to point out, however, that the word ‘overall’ being included means that proportionality analysis is not limited to any specific attack in a vacuum. Rather, it compares the concrete and direct military advantage anticipated in the grand context of the military conflict as a whole.⁶⁴

With no international bans on WP munitions, these principles work together to inform how a warfighter’s use of force (and specifically their choice of whether or not to employ WP) should be evaluated from a legal perspective.⁶⁵ They work together within the permissive *jus in bello* framework to tailor and inform the means and methods by which commanders bring lawful, overwhelming force on the battlefield.⁶⁶

The presence of these LOAC norms also implies that in the unfortunate event that there is collateral damage associated with an attack, even heart-wrenching situations like when an innocent child is injured by errant WP, that collateral damage should not be held against a commander as part of a strict liability regime; the mere existence of collateral damage does not mean that an attack was illegal per se. To be sure, if WP is employed in a wanton, reckless manner or disproportionate manner then the commander should be held responsible, but that post hoc analysis of a military commander’s decision is properly evaluated based on that commander having or having not taken reasonable or feasible measures that are in accordance with the above principles to ensure compliance with the LOAC.⁶⁷ Feasible precautions are those precautions that are ‘practicable or practically possible taking into account all circumstances ruling at the time, including humanitarian and military considerations’.⁶⁸ They are *not*

61. In the context of this article, action would constitute employing WP munitions.

62. United States, *Department of Defense Law of War Manual*, s 2.4. This principle can also be compared to the concept of economy of force.

63. Rome Statute of the International Criminal Court, Art 8(2)(b)(4).

64. United States, *Department of Defense Law of War Manual*, s 5.6.7.3.

65. The Martens Clause states in part that ‘... in cases not included in the Regulations adopted by them, populations and belligerents remain under the protection and empire of the principles of international law ...’.

66. United States, *Department of Defense Law of War Manual*, s 2.3 (‘Because humanity forbids those actions that are unnecessary, the principle of humanity is not in tension with military effectiveness, but instead reinforces military effectiveness.’).

67. United States Department of the Army, *Field Manual 27-10 The Law of Land Warfare*, para 2-8 (‘Military commanders attacking enemy military objectives must make reasonable efforts to reduce the risk of harm to the civilian population when conducting an attack. Military commanders do this by taking feasible precautions to reduce risk to protected persons and object. Military commanders must refrain from attacks that are disproportionate (where the expected harm to civilians and civilian objects would be excessive in relation to the concrete and direct military advantage expected to be gained). Military commanders may consider all relevant facts and circumstances, including the risk to forces under their command, the integrity of their command, and their mission in weighing the decision to use military force in any situation when military forces and civilians are intermingled.’)

68. CCW Protocol III, Art I, para 5. There could be entire academic courses that survey the literature on how ‘feasible’ should be defined and limited but for the purposes of this writing it

any conceivable precaution that an observer could imagine. Applying that sort of logic and analysis to the employment of WP and understanding the effect that WP rounds have on the target area, commanders would do well to take special care to have the best feasible intelligence concerning who and what is in the immediate area of their legitimate military target, to choose (if employing WP via cannon fire) a shell/fuse combination that seeks to feasibly limit exposure to only those people and things that are a legitimate military target,⁶⁹ and to choose a different munition or method of attack if feasible.⁷⁰ Commanders are not, however, legally obligated to take any measures that open their force up to unnecessary risk or to completely forego an otherwise lawful attack simply when it may result in some collateral damage that is well within the limits imposed by the LOAC norms discussed above. Surely there will be situations where WP absolutely should not be employed. There will also be situations where, either due to the factual circumstances or cautionary measures taken, the use of WP in an urban area is absolutely justified.⁷¹ US policy rightly places the tactical decision in the hands of the commanders and has them make these targeting decisions within the LOAC framework.

6 THE GOLDSTONE REPORT

In April of 2009 the President of the Human Rights Council established the United Nations Fact Finding Mission (the Mission) on the Gaza Conflict with the mandate ‘to investigate all violations of international human rights law and international humanitarian law that might have been committed at any time in the context of the military operations that were conducted in Gaza’ during a three-week long Israeli offensive at the beginning of 2009.⁷² Justice Richard Goldstone, former judge of the Constitutional Court of South Africa and former Prosecutor of the International Criminal Tribunals for the former Yugoslavia and Rwanda, was appointed to head the mission. The ensuing report’s commentary on the use of WP by Israeli forces in civilian areas accurately reflects where the law currently stands as well as providing a glimpse as to where the law may trend in the future.

WP was utilized in three relevant Israeli attacks, all of which took place in civilian centres in Gaza City: on a United Nations refugee compound, on a residential home and an attack on al-Wafa hospital.⁷³ All of these attacks reflected, at best, the Israeli forces’ rather clear disregard for WP’s collateral effects.⁷⁴ The Mission stated that it was ‘concerned not only with the inordinate risks the Israeli armed forces took in

will suffice to use the definition included in this protocol as it implies the two most relevant factors: (1) a holistic analysis of both the facts leading up to and follow-on implications of an attack, as well as (2) the temporal limitation of only evaluating feasibility against the facts *reasonably* known to the combatant *at the time* of the attack.

69. Addressing the LOAC norms of military necessity and distinction.

70. Addressing the norm of unnecessary suffering.

71. For example, WP can be particularly effective for screening the movement of friendly troops, allowing friendly troops to retreat by delaying an advancing enemy, blocking or exposing enemy movement by illuminating an open area or destroying an enemy weapons cache.

72. United Nations Human Rights Council, *Human Rights in Palestine and Other Occupied Arab Territories: Report of the United Nations Fact-Finding Mission on the Gaza Conflict* (A/HRC/12/48, 25 September 2009) 13.

73. *Ibid* at 195.

74. *Ibid* at 413.

using [WP], but also the damage it caused in fact. In speaking with medical experts and practitioners, [the Mission] was impressed by the severity and sometimes untreatable nature of the burns caused by the substance'.⁷⁵ The Mission found that the Israeli armed forces were 'systematically reckless in determining to use white phosphorous in built-up areas and in particular in and around areas of particular importance to civilian health and safety'.⁷⁶ The Mission's capstone legal finding on the matter outlined in full that:

While accepting that white phosphorous is not at this stage proscribed under international law, the Mission considers that the repeated misuse of the substance by the Israeli armed forces during this operation calls into question the wisdom of allowing its continued use without some further degree of control. The Mission understands the need to use obscurants and illuminants for various reasons during military operations and especially in screening troops from observation or enemy fire. There are, however, other screening and illuminating means which are free from the toxicities, volatilities and hazards that are inherent in the chemical white phosphorous. The use of white phosphorous, in any form, in or around areas dedicated to the health and safety of civilians has been shown to carry very substantial risks. The Mission therefore believes that serious consideration should be given to banning the use of white phosphorous as an obscurant.⁷⁷

The Mission's acknowledgement that WP is not proscribed is an essential and legally correct account. The follow-on statements in support of greater restrictions on WP's use are clearly driven by the recklessness that the Israeli forces displayed in their employment of WP weapons and the gruesome side-effects of that recklessness, but the statements nonetheless illustrate an ongoing strand of thought found in the international community.⁷⁸

As for the report's suggestions that WP be banned as an obscurant, there are indeed alternative cannon-delivered means of providing obscuration. The United States, for instance, also has the M116 series of smoke rounds that uses hexachloroethane-zinc (referred to as HC) to provide screening capabilities. HC smoke provides comparable screening effectiveness as WP but has a longer build-up time and a shorter screen time, particularly under windy conditions. As such, there are certainly situations where WP is clearly a more effective and appropriate obscurant than HC smoke. To ban WP from any use as an obscurant (as the report suggests) would be overly-broad. A detailed examination of the facts incident to the report may show that the Israelis indeed violated the principles of military necessity or avoiding unnecessary suffering by employing WP rounds in the manner that they did. Some of the factors that would be relevant in that analysis would be the actual need for obscurants in that tactical situation, alternative methods of delivering obscuration reasonably available to the Israelis at that time, what mitigation measures that the Israelis took once they decided to use WP rounds, and whether firing WP rounds as 'obscurants' was pretextual. It is well possible that the Israelis were justified in employing WP, depending on the factual situation. It is equally possible that the Israelis completely failed to satisfy some or all of the bedrock international law of war norms when they fired WP rounds. The answer, and any culpability, is best determined by analysing the facts. If there was

75. Ibid at 195.

76. Ibid at 21.

77. Ibid at 196.

78. A counter-argument to the Mission's recommended ban would be to impute greater responsibility on the actor rather than take away the capability from everyone.

a war crime committed, then it needs to be appropriately prosecuted, but to throw up our arms and say that we need to entirely ban WP as an obscurant would be insufficient.

7 AN EXAMPLE OF THE PRACTICAL APPLICATION OF WHITE PHOSPHOROUS MUNITIONS IN URBAN COMBAT

The following are two examples, one in a defensive capacity and one offensive, that briefly illustrate what lawfully employing WP munitions in an urban setting may look like as well as a mention of some of the practical considerations that commanders may, depending on the circumstances, be required to entertain. These examples are intended to be brief illustrations and certainly don't touch on *all* of the considerations or variables that a real-world situation may present⁷⁹ nor do they definitively identify the outer boundaries of what would or would not be lawful employments of WP munitions. There are no perfect or clear-cut answers to complex situations such as these, there are only holistic evaluations of the situation analysed through the proper framework outlined earlier.

First, imagine a military (for the sake of the example, the military of the fictional country Freedonia) engaged in an intense battle with a near-peer fighting force for control of Capital City. Capital City is largely a built-up urban area with surrounding suburbs. Throughout the course of the campaign, the Freedonian military has taken extensive measures to inform the locals of the dangers of remaining in the area and to facilitate their evacuation from the city until it is safe to return. Freedonian forces have established a Division-level headquarters 'command and control' node (undoubtedly the highest priority target for the enemy) inside a building on the easternmost side of the Capital City and Freedonian officers know that people in some communities have refused to leave their homes, including those in an apartment building across the street from their headquarters. A river runs along the east side of the building and there is a high-speed avenue of approach that feeds toward the building from the Southwest. As part of the defensive plan for the command building, Freedonian forces have established a final protective fire line (FPF)⁸⁰ roughly 300 metres away from the building, arranged perpendicular across the avenue of approach. Because of the urban environment, they have shortened the FPF from the doctrinally-recommended 300-metre length to a 100-metre length – this will allow for coverage of the width of the roadway without unnecessarily damaging the surrounding area.⁸¹ There is a 155mm firing battery of Howitzer cannons dedicated to providing the supporting fire and that firing battery is currently equipped with HE, illumination and WP rounds.

If the enemy makes a direct assault on the headquarters building, Freedonian forces are in no way legally obligated to withhold from triggering the FPF fire mission, to

79. Nor could they; the various factual scenarios that combat may be present are incalculable, and cannot be listed here.

80. A final protective fire line is a pre-planned artillery target that is designed to allow a friendly manoeuvre force time to escape if its position is being overrun by the enemy. In the execution of an FPF the supporting artillery battery will shoot any and all available rounds in an effort to block or hinder the advancing enemy – to include WP. When triggered, a FPF requires that all available rounds be fired. This is because of the dire or emergency situation that serves as the target's triggering event.

81. These measures work to satisfy the LOAC norms of proportionality and avoiding unnecessary suffering.

include firing all of the battery's WP, in response. There are no legal restrictions on the Freedomian's ability to defend their position with the absolute greatest force that they are able to bring to bear, even if that means that some nearby civilians will almost certainly feel the effects of WP because of the artillery fire. Any incidental suffering by the surrounding populace has been mitigated as much as is feasibly possible and will only be brought about by this reasonable (and absolutely essential) response to an enemy attack against Freedomian forces. These mitigation measures include shrinking the target size to only what is necessary to defend the headquarters, encouraging the surrounding civilians to leave the area and limiting the WP rounds to only the emergency situation of having the headquarters overrun by the enemy. Any mitigation efforts beyond what the Freedomians have taken are likely unreasonable given the permissive *jus in bello* framework.

For a slightly more nuanced example in an offensive context: On the other side of Capital City Freedomian forces have been surveilling a fire station that the enemy has re-purposed to house its command group, a target of tremendous leverage. The fire station takes up the bottom three floors of a six-story concrete building, making it nearly impervious to standard explosive munitions. Freedomian intelligence shows that the enemy sometimes uses the station for planning meetings with enemy commanders and that lower-level commanders are living in some of the rooms directly above the station. Intelligence also shows that a large number of civilians that are sympathetic to the enemy's cause have chosen to remain in the area; some live above the fire station and some live in an apartment building directly across the street. The area is heavily fortified by the enemy with tanks and checkpoints surrounding the station in all directions, making any sort of successful ground assault on the station nearly impossible. Freedomia learns from human intelligence sources that the enemy is having a meeting at the station within the next hour and that some of the enemy's top commanders will be in attendance. The only air asset that Freedomia can possibly get on station in time is a surveillance drone, which they use to observe the station and confirm that the commanders are in fact present. There are no precision missile capabilities that are within range of the station to engage this target of opportunity; there is only a friendly 155mm artillery battery which currently has HE, WP, and illumination rounds available and is able to engage the bottom floor of the station directly. Understanding that this is a target of the utmost importance, Freedomian forces fire a 'shake and bake' mission at the base of the fire station once the enemy commanders are present. In order to localize the effects of the WP rounds, they choose to fire them with a point-detonating fuse. In the course of this attack the surrounding civilians will almost certainly be affected by the rounds, specifically the incendiary effects of the WP, but Freedomian forces are not precluded from firing on the enemy's commanders.

This is a completely lawful artillery engagement because the alternative attack option, a ground assault, is nearly impossible, especially for a target of opportunity such as this. It would place Freedomian troops at unreasonable risk of being killed by the enemy's defences while there is a more effective and safe option, an artillery attack, that will not only protect friendly troops but will also deny the enemy time to escape.⁸² The fortified target means that a strike from directly overhead would be ineffective and would likely kill the civilians that live above the fire station.⁸³ Though no precision assets are available Freedomian forces have at least managed to utilize a

82. In accordance with the LOAC principle of military necessity.

83. Freedomia is distinguishing between enemy and civilian in the target area.

surveillance drone to help provide information and observation to the artillery unit.⁸⁴ Firing the WP portion of the ‘shake and bake’ mission with a point detonating fuse helps to localize the effects of the WP rounds as much as is feasibly possible.⁸⁵ This is a high-priority target and Freedomian forces have done everything feasible to affect only the enemy in this attack on a target of opportunity.

8 WHERE THE LAW STANDS

White phosphorous munitions, because of their various capabilities and potentially grisly effects, have been the source of uncertainty among warfighters and humanitarian groups for some time. WP is not banned or restricted by the CCW or any other international treaty and state practice ranges from having qualified restrictions imposed by some states’ own military doctrine to no special restrictions outside the boundaries of well-established LOAC principles. The United States Department of Defense makes it clear that they will not accept blanket restrictions on the use of WP but will rather have their tactical decisions be guided by traditional LOAC principles and collateral considerations. This policy is one that recognizes the dynamic nature of warfare and the fact that blanket policies often unnecessarily handcuff the warfighter. It is quite possible that the international community may see a refreshed campaign for heightened restrictions on WP as urban warfare and ‘megacities’ become more commonplace and precision weapons more readily available.

84. This works toward satisfying the principle of distinction as well as the principle of avoiding unnecessary suffering since observed rounds are more likely to be accurate and contained only to the proper military target.

85. This works toward satisfying the unnecessary suffering principle. It also satisfies the principle of proportionality in that this is a target of high strategic importance that, if effectively engaged, will be a large step toward ending the overall military conflict. Further, there are no readily available alternative means of engagement because the conditions were set on such short notice. This fact emboldens the military commander in accordance with the principle of military necessity.