Is White phosphorus an inhumane weapon?

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Summary

This paper explores the legal classification of White phosphorus under the Convention on Certain Conventional Weapons, the Chemical Weapons Convention, and the Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques and Customary international humanitarian law. Once the scope of legality is determined, this paper argues for White phosphorus to be classified as an inhumane weapon of war due to the catastrophic, indiscriminate effects on civilians and future generations.

1 Introduction

White phosphorus (WP) has long been a controversial source of debate due to its dual-use and incidental incendiary effects in addition to its ability to cause indiscriminate, gruesome injuries. White phosphorus's highly unpredictable heterogeneous spatial distribution and its ability to remain in deep soils and bodies of water for extended periods lead to further discussion on whether its use can truly be discriminated (Racine et al., 1992; Abu Al Hayja et al., 2023).

The legality of White phosphorus use can be investigated through an analysis of the Convention on Certain Conventional Weapons (CCW), the Chemical Weapons Convention (CWC), the Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques (ENMOD Convention), and Customary International Humanitarian Law (CIHL).

Once the scope of legality has been determined, one may question the ethics of such use, thus drawing on the question of whether white phosphorus use in military practices should be classed as inhumane, moreover, whether WP should be subject to prohibition.

2 The legality of White phosphorus

The primary purpose of white phosphorus is to produce smoke and illumination for military practices, with an incidental incendiary effect. One would assume that due to these aforementioned effects, WP is classed as an incendiary weapon and/or a chemical weapon. The lack of inclusion in legal definitions leads to uncertainty regarding the legality of its application under international law.

2.1 Convention on Certain Conventional Weapons

The first key aspect when determining WP applicability to the Convention on Certain Conventional Weapons (CCW) is its definition of an incendiary weapon. The CCW 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' (The Convention on Certain Conventional Weapons, 1983). WP is therefore not defined as an incendiary weapon under the CCW due to its dual purpose. WP's primary purpose is to produce smoke/illumination, and its incendiary effects are incidental.

The second key aspect is that the CCW states that Protocol III does not cover weapons or munitions that incidentally produce incendiary effects. The third key aspect is that even if one could prove that WP should be covered under the CCW, it does not prevent the military from using WP as an anti-personnel weapon against 'combatants'. Furthermore, Article 2 focuses on the protection of civilians, and even if one could again prove that WP should be covered under the CCW, it would be incredibly difficult to prove that it was being used directly against civilians or purposely in a civilian-dense location. The difficulty in proving use against civilians is due to a multitude of reasons, but most notably the unpredictable and heterogeneous spatial distribution of WP. Illumination is a desirable effect of WP and is considered to pose minimal personnel risk when dispersed for this purpose. For illumination purposes, WP munitions are burst 500 meters above ground level; however, despite precautions, the flare could still burn once it reaches the ground and therefore poses a risk to civilians (Macleod, 2007). Anti-personnel land mines also pose a significant risk to civilians for years, if not fitted with a self-neutralising mechanism. It is increasingly evident that, regardless of the precautions, civilian risk is inextricably linked to the use of white phosphorus and is not conclusively addressed in the CCW.

2.2 Chemical Weapon Convention

The CWC defines a toxic chemical as 'any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals' (Chemical Weapons Convention, 1997).

Under the CWC definition of a toxic chemical, WP is not covered within the CWC. WP produces an incendiary response to oxygen, not to 'life processes', and is consequently not covered under this definition. Incendiary effects cause burns produced by WP exposure, and thus, they are reliant on its thermal properties, not its toxicity. One could argue that WP may apply to CWC after prolonged exposure to the chemical. The original exposure to WP produces thermal burns; however, WP may cause further damage to the burn by absorbing moisture from local tissue, resulting in a corrosive effect. WP can also cause liver/kidney abnormalities and metabolic changes, thereby altering life processes, and one could argue for its inclusion in the CWC (Aviv et al., 2017). One could also argue its applicability to the CWC during 'Shake and bake' missions due to reliance on the noxious properties of WP smoke (Tessier, J. 2007). Moreover, even if WP were included in the CWC, it would still be legal for use in military practices, as its primary purpose is not to produce incendiary effects; therefore, it is not included in the CCW. Due to the strict definition of a toxic chemical, WP is arguably not included in the CWC.

There is, however, room to argue for WP's inclusion within the CWC, depending on the intention behind the use. In general, if WP is used for its 'primary purpose' (smoke/ illumination), then it is arguably not included under the CWC. However, if used by a State Party to cause harm, it is thus in violation of the CWC general purpose criterion (Chemical Weapons Convention, 1997).

2.3 Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques

Under Article I, prohibited techniques meet the following criteria and must be: for hostile purposes, may cause destruction, damage or injury to another State Party and must have widespread, long-lasting or severe effects (ICRC, N.D. ENMOD Convention).

As such, one could argue for the inclusion of white phosphorus under the ENMOD convention in cases of wildfires, given the long-lasting environmental effects it may produce in soil and water. The American University of Beirut reports that the use of WP bombs in southern Lebanon in October 2023 has assisted in the destruction of hundreds of olive trees (Kallab, A.,& Mouawad, L.R., 2023).

WP's incendiary properties can be manipulated to cause wildfires by exploiting the land's vulnerabilities. If WP is used to produce wildfires, it is thus deliberately manipulating the natural process of the land, particularly in countries prone to wildfires. Furthermore, WP'S ability to remain in soil and water for extended periods may allow for its inclusion with the ENMOD convention, as it will produce 'long lasting/ severe affects' which will/can be illustrated via the environment (plants, crops, algae etc), through water (fish may ingest white phosphorus deposits leading to increased mortality and morbidity) and through its physical effects on the population and future generations.

2.4 Customary international humanitarian law

Under customary international humanitarian law (CIHL), weapons must not be deployed in a manner that causes unnecessary suffering, must not be poisonous or have asphyxiating properties, and must be used in a manner that discriminates between civilian and combatant targets (Customary IHL, 2024).

Regarding weapons and military practices, Rule 14 of customary international humanitarian law is of importance. Rule 14, also referred to as the principle of proportionality, is codified in Article 51(5)(b) of Additional Protocol I and repeated in Article 57. The introduction of the 'principle of proportionality' was met with mixed responses at the Diplomatic conference leading to the adoption of the Additional protocols (Henckaerts et al., 2005).

Rule 14, regarding WP, holds that debate is not about the specific weapon used, but rather how the weapon is used, when referring to this principle. Under Rule 14, state parties could legally disperse WP, as long as there is no risk of incidental loss of civilian life or injury to civilians. Thus, if WP dispersal is carefully executed with minimal risk to civilians, then it is not in violation of this principle. However, as previously stated, due to the nature of WP, dispersal produces a heterogeneous spatial distribution, which consequently poses a risk to civilians (Racine et al., 1992). Furthermore, projectiles may fall to the ground, burning WP, producing smoke and may even eject WP-saturated felt wedges, posing further risks to civilians (Mallick, 2021). WP containing munitions may scatter WP once exploded, and the

unpredictable nature of its spatial distribution poses a serious risk to civilians and the environment. Consequently, military use will almost invariably pose some risk to civilian life due to the unpredictable nature of the weapon, and thus may break CIHL. It should be noted, however, that CIHL is focused on protecting civilian life, meaning use against 'combatants' is not covered under the principle of proportionality. This leads to further conflict between defining 'civilian' and 'combatant', and raises questions about how they are distinguished during ongoing fighting. The lack of clarity in distinguishing between 'civilian' and 'combatant' is further complicated by the emergence of armed conflicts as a distinct civilisation. Moreover, the importance of the military mission may authorise the amount of military force required to accomplish the mission, and thus the tactics or weapons employed may cause unnecessary suffering; however, it will still be lawful as it is the means required to accomplish their primary objective.

2.4.1 Defining a civilian vs a combatant

The increasing civilisation of armed conflicts leads to further discourse regarding the rights and definitions of civilians vs combatants. Defining a civilian becomes increasingly complex in the context of asymmetric conflict, particularly in non-international armed conflicts. During the aforementioned conflicts, there is a tendency for members of armed groups to blend in with the civilian population. This leads to further debate on whether and how the principle can be applied, given the reliance of ordinary civilians on non-state armed groups. This issue is further complicated by groups defined by some states as 'unlawful combatants'. Unlawful combatants are defined as persons who directly participate in hostilities when they have no right to do so (ICRC, Principle of distinction N.D.). Unlawful combatants are therefore neither defined as civilians and lose their protection from the Geneva Convention IV, nor as combatants and are therefore not protected by the Geneva Convention III.

The direct targeting of civilians is prohibited in Protocol II, Amended Protocol II, and Protocol III in the Convention on Certain Conventional Weapons. The International Criminal Court also states that the intentional attacks against individual civilians or a civilian population who are not taking direct part in hostilities constitute a war crime. Thus, it is not the 'direct' targeting of civilians that is up for debate, but what constitutes a civilian and how the definition of this title may change during conflict or by the civilians' own will and actions. Furthermore, are the individual circumstances of each person considered when defining a civilian versus a combatant?

2.5 What defines a weapon as inhumane?

The St. Petersburg Declaration renounced the use of explosive projectiles weighing less than 400 grammes (Crawford, E., 2019). The explosive projectiles were prohibited as they were classed 'inhumane' and thought to cause unnecessary suffering. Weapons that may cause unnecessary suffering or indiscriminate effects were further codified in the Hague Conventions of 1899 and 1907, specifically poisonous gases and expanding bullets. Weapons deemed to be excessively injurious or to have indiscriminate effects are also prohibited under the CCW. As previously stated, the CCW aims to ban or restrict the use of specific weapons deemed to cause unjustifiable suffering to combatants or may affect civilians indiscriminately.

The aforementioned conventions each define an inhumane weapon as one that may cause

unnecessary suffering/superfluous injury, or may have indiscriminate effects against civilians. One could therefore argue for the classification of WP as an inhumane weapon of war.

Firstly, WP has disastrous effects on human health and may cause long-term, life-altering injuries. Burns produced by WP are excruciating, require complicated specialist care, and appear to have a higher mortality rate compared to thermal burns. There is also evidence to suggest a higher prevalence of congenital disabilities in areas where couples are exposed to WP, thus posing a threat to future generations. However, this requires further investigation with sufficient data (Naim et al., 2012).

Secondly, the presence of WP in soil or bodies of water has shown negative consequences to the environment and poses threat to wildlife; again, further studies should be completed to investigate the long-term effects on the environment, due to WP's ability to remain in deep soil or rivers with no/low oxygen for thousands of years (Abu Al Hayja et al., 2023)—white phosphorus's ability to survive in deep soil results in further threat to future generations.

Third, poses the question of whether white phosphorus can be used discriminately? If used directly against combatants or for purely illumination purposes, then one would answer yes. However, the unpredictable nature of WP and its ability to remain in the environment for long periods lead to debate about how discriminating its use is. As mentioned previously throughout the essay, WP has an unpredictable, heterogeneous spatial distribution, and consequently, even if used directly against a specific geographical area, its distribution cannot be accurately predicted, posing a threat to civilians and further complicating its 'discriminate' use. WP's ability to survive in deep soil or bodies of water for extended periods, presenting a risk to civilians and future generations, further questions whether its use is entirely discriminatory or whether its classification as discriminate or indiscriminate may change over time. For example, military operations and training have occurred on previously unoccupied land, and the use of WP has contaminated the soil and bodies of water. The use of WP in this matter can be classed as 'discriminatory'. However, if this land is then occupied and civilians begin to experience negative consequences due to WP exposure, would/could this change the original classification? Moreover, if future generations reap the consequences (burns, congenital disabilities) of WP-contaminated land, WP may be seen as an indiscriminate weapon.

3 Conclusion

To conclude, WP is a highly toxic compound that can have disastrous consequences for human health and the environment. WP is not referenced in any environmental protection convention and is not included in the ENMOD convention. However, due to its harmful effects to humans and the environment, its ability to remain in the environment for extended periods, its wide dispersal and ability to accumulate in fatty tissue of humans and wildlife, one may argue for its inclusion into an environmental protection convention (Abu Al Hayja et al., 2023). Moreover, WP's potential for its incendiary properties to be manipulated to cause wildfires poses an argument for its inclusion under the ENMOD convention.

WP use in the military for smoke and illumination is legal under international law. WP use is not prohibited under the CCW as its 'primary' purpose is for smoke/illumination and its incendiary effects are incidental. This lack of inclusion is further evidenced by Protocol III, which states that

it does not cover weapons whose incendiary effects are incidental. Furthermore, the CCW focuses on civilians, and as such, even if covered, it would not apply to military personnel. The CWC defines a chemical weapon as one that affects 'life processes', and consequently, WP does not reach the requirements of this definition. It could, however, be argued for its inclusion under the CWC when used in 'shake and bake' missions, as these rely on the noxious properties of WP smoke. Moreover, inclusion under the CWC may be argued if WP is intentionally dispersed to cause harm, thus violating the CWC's general purpose criteria.

Rule 14 of CIHL was of importance when discussing WP. Under CIHL, it is not the specific weapon, but how it is used. As such, if one can prove that WP can be used discriminately, then it is legal under CIHL; however, due to its unpredictable spatial distribution and ability to remain in deep soils and bodies of water for extended periods, it complicates whether it can genuinely be used discriminately. Its continual potential risk to civilians and future generations further complicates its classification as both discriminate and indiscriminate.

Finally, should WP be classed as an inhumane weapon of war? Its disastrous effects on human health and the environment, plus threats to future generations, in addition to the difficulties distributing WP discriminately, lead to the question of whether this weapon is truly humane. As such, should this weapon be subject to prohibition?

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