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## Unmasking The Shadows: International Humanitarian Law (IHL) And Evolving Prohibition of Biological Weapons

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### Abstract

*Given the ever-changing characteristics of biological weapons and the potentially catastrophic outcomes they might cause, it is imperative to regularly revise and update the legislation. This paper investigates the complex relationship between International Humanitarian Law (IHL) and the developing prohibition on biological weapons. The main objective of this essay is to thoroughly examine the conflict that arises between international humanitarian law (IHL) and the increasing understanding of biological weapons. The author highlights the impact of the advancement of more powerful and varied weaponry on the interpretation of the fundamental principles of International Humanitarian Law (IHL). This paper examines the advantages and disadvantages of International Humanitarian Law (IHL) in effectively addressing this particular threat. Examining International Humanitarian Law (IHL) and biological weapons reveals several uncertainties and areas of uncertainty that provide challenges in properly regulating and enforcing the norms governing these weapons. This study also highlights several other factors that contribute to the complexity of International Humanitarian Law (IHL) regarding biological weapons. This study examines potential strategies to strengthen the effectiveness of the International Humanitarian Law (IHL) in addressing the challenges posed by the rapid progress of biological weapons technology. It also highlights the pressing necessity for continuous updates to the law.*

**Key Words:** Biological Weapons, Catastrophic Outcomes, Developing Prohibition, Conflict Between IHL And Biological Weapons, Interpretation of Fundamental Principles, Strengthening Effectiveness.

### Introduction

The specter of biological weapons haunts humanity, prompting alarming concerns about both the suitability of existing legal structures to prevent them and their potentially catastrophic effects. Peace is the womb of war where the war slumbers unnoticed and invisible. Peace and tranquility are often where hidden seeds of conflict are sown, often ignored and underestimated. When we think of war, we often imagine the destruction, suffering, and loss. We think of guided missiles and fighter jets in the air, guns and well-equipped soldiers on the land, deadly submarines in the sea, and spy satellites in space. The most effective, most dangerous, and the most secretive weapons are those that we cannot see. With the evolving nature of the human mind and the rapid technological advancements around the globe, the idea of war itself has evolved (Khawaja, 2023). The war in this century includes Biological Weapons. Typically, when one hears the term "biological warfare," images of government spies purposefully bringing mysterious microbes into enemy territory or mediaeval soldiers flinging

dead livestock over city walls spring to mind. Of course, biological warfare has historically included these kinds of operations, but in contemporary and more recent times, bio warfare is becoming more and more insidious and subtle. Ever since life first emerged on Earth some 3.8 billion years ago, different species have constantly devised new strategies to eliminate one other in order to thrive. Biological warfare is one such strategy: it involves intentionally using any organism that employs poisons, including germs, viruses and poison, to create harm to others. According to Clark and Pazdernik in their book/article/report, *When humans use biological warfare, they do so by making use of these creatures that produce poison or toxins (Clark & Pazdernik, 2016)*. They accomplish this by developing and using bioweapons during warfare. However, is it classified as a bioweapon? The General Assembly's Resolution "Question of chemical and bacteriological (biological) weapons," adopted on December 16, 1969, 2603 (xxiv), provides a definition for "bio weapon" as any living organisms or infective material derived from them that are intended to cause disease or death in humans, animals, or plants. These biological agents of warfare rely on their ability to multiply in the targeted person, animal, or plant in order to achieve their harmful effects. Although there may be additional goals in biowarfare, it is undeniable that the main purpose is to overcome the enemy. However, it has other aims that are often held equally important in the eyes of the actor who initiates bio warfare; these other aims include causing psychological damage like Post Traumatic Stress or chronic fear to its victims and even extreme aims of generating a genocide or ethnic cleansing. These might seem utterly like Science fiction propositions but because bioweapons are continuously being technologically advanced as well as becoming more and more insidious and hard to figure out, it is always better to be aware of its potential dangerous uses if we are to even think about preventing it. This article builds upon the agreed upon knowledge and understanding of biological weapons and explores the complex interactions that exist between the always changing threat of biological warfare and IHL.

The subject of adaptability of bio weapons is central to this paper's investigation. We are living in lethal times. In addition to infectious diseases that are becoming more prevalent over time, we also have to deal with the threat of biological warfare and perhaps genetically modified agents that are resistant to current medical treatments. According to National Human Genome Research Institute, Genetic Engineering, also sometimes referred to as Genetic modification, is a process by which "the DNA makeup of an organism" is significantly or subtly altered through advanced technologies. To put it simply, genetic engineering is the process by which two biological entities are given functional genes (DNA) through human intervention. In this paper, genetic modification refers to the alteration of genes to produce novel pathogenic traits (such as enhanced drug resistance, virulence, survival, and infectivity). Organisms with altered characteristics are the "next generation" biological weapon, as they are resistant to medical treatments and are even more infectious and lethal than natural disease causing organisms.

This study also explores the nuances and murkiness surrounding biological weapons in IHL. Finding these grey areas in IHL is essential to developing remedies that guarantee that the law will continue to be an effective defense against biological warfare. The aim of this study is to shed light on the lingering effects of biological weapons on the global legal system. We may endeavor to strengthen the legal system that shields people from the horrors of biological warfare by closely examining the relationship between IHL and the ever-present threat of biological warfare.

## Research Questions

In the realm of IHL, the dynamic landscape of biological weapons poses a formidable challenge, necessitating a critical examination of customary norms to effectively address emerging threats. The overarching goal of this research is to unravel the intricate nuances surrounding the prohibition of biological weapons within the framework of customary international norms. The following research

questions guide our exploration into the shadows cast by the interplay of customary IHL and the dynamic landscape of biological weapons:

1. In light of the developing nature of biological weapons and their potential negative and catastrophic impact on the World, how have interpretations of certain customary IHL principles such as ‘on-discrimination’ and ‘unnecessary suffering’ developed over time?
2. To what extent can customary IHL remain an effective norm in regulating the evolving threat of biological weapons, and are there potential needs for complementary legal frameworks or international agreements?
3. What are the remaining ambiguities or grey areas within customary IHL regarding the prohibition of biological weapons, and how do these pose potential challenges for effective regulation and enforcement? And how can these ambiguities within Customary IHL be resolved?

## **IHL Principles in The Face of Biological Weapons**

Born from the horrors of war, the International Committee of the Red Cross (ICRC) stands as a beacon of hope for survival of humanity even in the times of war. It was founded with a resolute mission that is to protect life and alleviate suffering without discrimination. The ICRC champions the dignity of all, providing critical aid to wounded soldiers and civilians alike. Their unwavering focus extends beyond immediate needs. It tirelessly promote understanding and cooperation fostering the seeds of lasting peace between nations. It has played a fundamental role in refining IHL. Within the framework of the IHL, ICRC has identified certain fundamental concepts and principles that are necessary to explore. Just as the legal application of IHL depends on the specific circumstances of a conflict, the analysis of each incident on the battlefield hinges on adherence to IHL’s core principles. According to International Committee of Red Cross (*International Committee of the Red Cross*, n.d.) the core fundamental principles of the International Humanitarian Law (IHL) are:

- The principle of Humanity
- The principle of distinction (between civilians and combatants)
- The principle of military necessity
- The principle of proportionality
- Prohibition on causing unnecessary suffering

### **The Principle of Humanity**

The principle of humanity is a fundamental aspect of IHL. it emphasizes compassion and the alleviation of suffering during armed conflicts. This principle underscores the inherent dignity of every person and seeks to minimize the impact of warfare on civilians and non-combatants. The use of biological weapons, which involve the intentional release of harmful pathogens or toxins, stands in direct contradiction to the fundamental principle of humanity that seeks to minimize human suffering during armed conflicts. Biological weapons cause intense emotional, physical and environmental suffering. Historically, bio weapons have been used to cause plague, fever, small pox, glanders, aflatoxin and anthrax. Though intended or not, they also harm the environment making it impossible to live in for humans. They also have the potential to generate mass genocide and ethnic cleansing. Due to the loss of life of humans, and the causation of diseases as well as loss of homelands that have become toxicated, bio weapons also cause intense psychological damages and affects like chronic fear and loss of hope.

### **Principle of Distinction**

Distinction, often known as discrimination, is a basic notion in battle that fighters must strictly follow. The concept of minimising civilian deaths in armed conflicts was established by the "St. Petersburg

Declaration of 1868," a key principle of international humanitarian law. Currently, the principle is codified in articles 48, 51(2), and 52(2) of the 1977 Additional Protocol I to the Geneva Convention, with article 48 emphasising its importance. This article stipulates that parties involved in the conflict must consistently differentiate between the civilian population and combatants, as well as between civilian objects and military goals, in order to guarantee the respect and safeguarding of the civilian population and civilian objects. Consequently, parties are obligated to focus their actions only on military targets. This concept also implies that it is prohibited to initiate indiscriminate assaults or employ indiscriminate armaments. Biological weapons are not consistent with the notion of inherent variation in nature. Due to their inherent indiscriminate character, it is not possible to accurately direct them towards exclusively military targets. Instead, they multiply rapidly, causing injury to both soldiers and civilians. Biological weapons contravene the principle of distinction in international humanitarian law because of their indiscriminate nature (Schmitt & Pejic, 2007). The idea of difference is a basic principle of international humanitarian law (IHL) when it comes to biological weapons. Unlike traditional armaments, which may be aimed at specific military targets, biological agents disseminate without restraint, presenting a hazard to both noncombatants and soldiers. The inability to control the spread of these weapons undermines the core concept of discrimination in IHL poses an unconstrained threat to all individuals regardless of their involvement in conflict, and thus starkly violates the principle of distinction (Khawaja, 2023). Take the Mongolian occupation of Caffa as an example. Mongols threw infected dead bodies inside the walls of Caffa that infected and eliminated not only the soldiers but also all the civilians inside. This violation of the principle of distinction, inherent in the very use of bio weapons, makes it also very prone to enacting a mass genocide.

### **Principle of Military Necessity**

Maintaining a military balance that involves both neutralising the adversary and safeguarding humanity is a crucial requirement. Francis Lieber's concept of military necessity in Article 14 of his 1863 Code is widely regarded by experts as his most significant theoretical contribution to the contemporary law of war. Lieber asserted that "military necessity," as defined by contemporary civilised nations, refers to the imperative need for actions that are essential in achieving the objectives of war and are in accordance with the current laws and customs of warfare." He achieved this by employing his own battle experience and his knowledge of the principles of *jus in bello* (Carnahan, 1998). The principles of International Humanitarian Law (IHL) aim to strike a delicate equilibrium between the requirements of military operations and the protection of human rights and humanitarian concerns. Due to their indiscriminate nature and volatility, the utilisation of biological weapons in warfare contradicts the principle of military necessity. The prohibition against killing innocent civilians for the purpose of revenge or satisfying a desire to kill is clearly stated. However, it allows for the killing of armed adversaries and individuals whose deaths are an unavoidable consequence of armed conflicts. The International Committee of the Red Cross (ICRC) cautions that "military necessity" only justifies actions that are lawful according to the laws and customs of war.

### **The Principle of Proportionality**

The concept of proportionality is defined by two provisions in Additional Protocol I of 1977. Article 51.5(b) defines a violation of proportionality as an attack that is anticipated to cause excessive incidental loss of civilian life, injury to civilians, damage to civilian objects, or a combination of these, in relation to the specific and immediate military advantage expected. According to Article 57.2(b), an assault should be halted or postponed if it is found that the attack's purpose is not military or if there is a reasonable expectation that it will cause excessive harm to civilians or their property, which would outweigh the expected military gain. Biological weapons contravene the concept of proportionality in international humanitarian law (IHL) since they result in a significantly greater amount of unintended harm compared to the expected military benefit. The use of bioweapons not

only causes harm to people but also poses a long-lasting threat to future generations as biological agents may persist in the environment for extended periods of time. Employing biological weapons contravenes the proportionality principle of international humanitarian law since it poses an immediate and enduring danger, as well as causing incidental harm to human health and safety (Khawaja, 2023).

### **Prohibition on Causing Unnecessary Suffering**

The fundamental principle of the Laws of Armed Conflicts (LOAC) is the prohibition of unnecessary suffering. The principle discussed here pertains to those engaged in armed conflict, as opposed to non-combatants. It is explicitly stated in Article 35.2 of Additional Protocol I, which states that the use of weapons, projectiles, and warfare techniques that cause excessive harm or needless suffering is strictly forbidden. Which discomfort is superfluous? What level of suffering is necessary? Which criterion should be employed to ascertain if the suffering is justified? (Cassese, 1988). When it comes to biological weapons, a commander does not find these questions challenging. The enduring and unforeseen consequences of biological warfare render it challenging to rationalise inflicting misery, given the widespread devastation caused by biological weapons, since their impact beyond the immediate needs of military tactics.

### **The Evolution of Non-Discrimination and Unnecessary Suffering Concepts**

Even older than gas warfare is biological warfare. The Greek city of Kirrha was under siege, and legend has it that Solon, an Athenian, tainted the city's water supply with hellebore root in 590 BC. The British employed smallpox as a weapon against the Delaware Indians during the French and Indian War. The Germans used glanders and anthrax in addition to poison gas on American Army horses and mules during World War I. Typhoid was a weapon employed by the Japanese in World War II and Russian people were targeted in assaults during World War II (Schmitt & Pejic, 2007). The history of biological weapons is closely intertwined with the development of the rules that regulate armed conflict. In the current era of unparalleled scientific advancements, it is imperative for the global community to strengthen legal frameworks in order to efficiently address the ethical challenges posed by advanced bioweapons.

### **Early Roots: Customary Law and Martens Clause**

Prior to the establishment of formal treaties, customary law, a set of unwritten but widely acknowledged conventions, was the basis for regulations guiding conduct in times of armed conflict. The principle of distinction, which establishes a clear distinction between military personnel and non-combatants, is fundamental to the laws governing armed conflict. This was also validated by the Hague Declaration of 1899, which explicitly prohibited attacks on individuals and cultural assets. Despite the existence of legislation, the uncontrolled proliferation of biological weapons persisted due to limited understanding and technological constraints.

The Martens Clause, included in the Hague II Convention (1907), filled this gap. It mandated respecting "principles of humanity and the dictates of public conscience," even in the absence of specific rules. This paved the way for later prohibitions on biological weapons as a means of warfare based on ethical and humanitarian considerations.

### **The Geneva Conventions and Beyond: Codifying the Bans**

The 1949 Geneva Conventions, which emerged in the aftermath of World War II, explicitly banned the use of biological weapons. The prohibition of causing excessive pain or needless suffering, as well as the use of military techniques that might lead to significant and prolonged damage to the

environment, was further strengthened by Protocol I (1977). Although these principles acknowledged the indiscriminate nature and enduring consequences of biological weapons, the legal penalties associated with them remained unclear. Illnesses purportedly induced by biological weapons frequently mirror naturally occurring diseases, making it challenging to attribute them to a specific Aggressor State. Small pox, for example, was a naturally occurring lethal disease that people have become mostly immune against. Its symptoms include bumps on the body, fever and intense vomiting. The small pox virus spreads through the air via coughing and sneezing. However, though most have become immune to it, there are still fears of its reemergence. The Variola virus, the scientific name of small pox, can easily be obtained, modified genetically into a bio weapon and disseminated through aerosol sprays. In such a situation, though hypothetical, it would be difficult to ascertain and judge if the virus has evolved itself to again be harmful to humans or if it has been genetically modified in order to serve as a bio weapon in a bio war. Another example that is perhaps more convincing and grounded is a comparative analysis of historical Mongolian use of bio weapons and the more recent case of Tularemia outbreak in Germany. In the 1346 siege of Caffa, the Mongols threw plague infected dead bodies into the city, which infected and weakened almost everyone in the city. In this case, it is quite clear that the intentions of throwing of the dead bodies was rooted in bio warfare. However, quite the same incident can be said to be repeated in the case of Germany's outbreak of Tularemia. The *F. tularensis* bacteria in the dead infected rodent infected a huge population of Germany. But, though this virus was found in the dead rodent, it is impossible to judge if the infection is caused by nature itself or through human intervention. The law cannot condemn or punish the actions of an actor that they cannot identify. The law often times finds it difficult to judge if the disease outbreak is result of nature or if it was caused through the intended deployment in bio warfare. As a result of this unsettling ambiguity, this category of weapons has a more limited history of global condemnation (Khawaja, 2023). There have been only a few cases where the culprit or the aggressor state has been identified, caught and condemned.

The 1972 Biological Weapons Convention, the latest legislation concerning biological weapons, prohibits the production, manufacturing, and stockpiling of any microbial or biological agents, or toxins, regardless of their type or quantity, unless they are solely intended for peaceful purposes. Additionally, the use of weapons, equipment, or delivery systems designed to deploy such agents or toxins in hostilities or armed conflicts is also prohibited. This Convention, however, lacks efficient verification mechanisms. Its laws do not stipulate how to verify if a biological agent is intended to be used for biological warfare or not. It thus can neither prevent biowarfare or punish the actor who initiated it.

### **Technological Advancements and Ethical Challenges**

Biotechnology advancements pose new ethical and moral challenges. Gene editing and synthetic biology raise concerns about potential discrimination based on genetic traits and the development of designer pathogens specifically targeting certain populations. These advancements necessitate continual reinterpretation and application of existing principles of the International Humanitarian Law (IHL). The distinctive nature of biological weapons extends to the varied means and mediums through which they can be weaponized. Explain more. Additionally, in the realm of biological weapons, discerning a clear boundary between research and development is challenging; a nation can develop warfare agents within research facilities. Once created, these agents can be swiftly manufactured in substantial quantities (Khawaja, 2023).

It is impossible or at the least, very difficult to know if a bio agent is being developed just for research or for widespread dissemination in bio warfare. Given that most medicines that are being developed to combat viruses and other disease causing organisms are themselves biological and chemical in nature, and usually themselves viruses, it is hard to figure out if that medicine would be later used as a medicine or would be used as bio weapons later on.

## Ambiguities in International Humanitarian Law(IHL) Regarding Biological Weapons

### Novel Biological Agents

Despite a strong legal framework condemning biological weapons, the ambiguities within IHL create concerning loopholes and undermine its effectiveness. Recognizing these ambiguities is crucial to strengthen the legal shield against these lethal weapons. The Biological and Toxin Weapons Convention (BTWC), often known as the Biological Weapons Convention (BWC), was the first international agreement to specifically prohibit bio-weapons. Any production, storage, transportation, or use of biological agents and poisons in "types and quantities" that are not necessary for defence or peaceful ends is prohibited under the treaty. Furthermore, it is forbidden by the convention to develop instruments, weapons, or delivery systems used to disperse these poisons or agents. It also stipulates that nine months after the pact goes into force, a state has the option to either destroy any agents, poisons, or delivery systems it may have on hand or to employ them for non-lethal reasons. Moreover, The existing definition in the Biological Weapons Convention (BWC) focuses on "living organisms, or other biological agents," potentially leaving room for synthetically created pathogens or genetically modified organisms outside its ambit.

### Dual-Use Agents

Biological weapons (BWs) frequently cloak themselves in the semblance of legitimate research and development endeavors, creating a complex tapestry where the boundaries between permissible and prohibited activities become indistinct. In general, technology with dual civilian and military applications are typically referred to by this name. The term "dual-use research dilemma" describes the problem of conducting and disseminating life sciences research that aims to enhance animal or public health, or increase agricultural productivity, but that could potentially be used by a terrorist organization, rogue state, or individual to harm public health. The first viral vaccination and the use of the virus as a bioweapon date back to the 18th century, when increased knowledge of the smallpox virus led to these developments (*Biotechnology Research in an Age of Terrorism*, 2004). Understanding the intricate network of intentions and assessing the potential for scientific findings to be used for both beneficial and harmful purposes are challenging endeavours, especially considering the alarming prospect of weaponization. The distinctive attributes of biological weapons also extend to the many methods and avenues via which they might be transformed into weaponry. Moreover, establishing a clear distinction between research and development in the context of biological weapons might be challenging due to the potential for countries to produce harmful diseases within research organisations. Once created, these agents may be rapidly and extensively manufactured (Khawaja, 2023).

### Verification and Compliance

There is no formal verification regime to monitor compliance ("Biological Weapons Convention (BWC)," n.d.). International Humanitarian Law (IHL) lacks a robust verification mechanism, hindering effective monitoring and enforcement. Investigating suspected violations can be hampered by limited access and lack of clear thresholds for proof. Because of the very insidious nature of bio weapons and their usages in bio warfare, it is very hard to uniformly make every agent comply with the IHL rules and regulations. It is also immensely difficult because no agent will willingly shed or give proofs of its own complicity in bio warfare.

### Blurred Lines in Armed Conflict

The introduction of biological agents as a "new weapon" in contemporary warfare has generated notable apprehensions regarding their implications within the context of IHL. Addressing the

concerns arising from the present scenario hinges on two fundamental concepts within the realm of IHL. Initially, the changing landscape of military operations has given rise to novel interpretations of 'warfare.' The utilization of biological weapons blurs the distinction between armed conflict and non-war situations, posing a challenge in defining an 'armed conflict' under IHL within the context of these 'new wars' that exist in the ambiguous space between armed conflict and non-war scenarios.

## Conclusion

To sum up, this research highlights the intricate dynamics between IHL and the relentless evolution of biological weapons and the pressing and evident need for continuous adaptation of legal frameworks to contend with the ever-changing nature of this threat. The tension between IHL and the growing sophistication of biological weapons forms the crux of this study. Through a critical exploration into the interpretation of International Humanitarian Law's core principles in the context of increasingly potent and diverse biological weapons, this paper stresses the crucial importance of reevaluating existing legal paradigms. This study provides a comprehensive overview of the complexities within the interplay of IHL and biological weapons, thus offering valuable insights into the current state of regulations. As we confront the daunting prospect of the ongoing evolution of biological weapons, the findings of this paper guide us toward potential pathways for fortifying legal frameworks charting the future course necessitates not only a steadfast commitment to adapting IHL but also a collaborative, interdisciplinary approach to address the nuanced challenges posed by this dynamic and formidable threat to humanity.

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