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THE RESTRICTION OF RIOT CONTROL AGENTS UNDER THE CHEMICAL WEAPONS CONVENTION OF 1993: LEGAL PROBLEMS AND FUTURE PERSPECTIVES

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Abstract
The article examines the formation and development of the international legal regime of riot control agents as a specific type of chemical weapons and the prohibition of their use in hostilities. It emphasizes the awareness of States of the need to prohibit chemical weapons and further addresses the balance which the Chemical Weapons Convention tried to achieve in the definition of substances that were potentially subject to prohibition. The study includes a step-by-step analysis the formation of the legal regime of prohibition of chemical weapons from the 1925 Chemical weapons protocol to the 1993 Chemical Weapons Convention. The article explains the difference in the chemical properties of chemical weapons and riot control agents and notes that no absolute distinction can be drawn between the two, since the lethality of chemical weapons (including riot control agents) is determined not by their chemical compound, but by concentration and the circumstances of their use. The article further addressed the rationale behind the prohibition of riot control agents in hostilities and permission of their use for law enforcement purposes. The article analyzes the different approaches of States towards the prohibition or restriction of use of riot control agents in hostilities. Special attention is paid to the question of escalation risk, which may arise in case of legal use of riot control agents, that may be perceived as illegal or treacherous by the adversary. It arrives to a conclusion, that available State practice demonstrates insufficiency of approaches to the restriction of riot control agents due to absence of clear-cut prohibition of riot control agents in hostilities in the instruments regulating the conduct of armed forces. In addition, the study concludes that existing domestic regulations require improvement in order to establish clear rules on the use of riot control agents by the armed forces for law enforcement purposes. Finally, the article proposes the avenues for further research of the topic, which lie in the analysis of application of riot control agents in threshold situations, like peacekeeping missions or non-international armed conflicts, as well as in the development of concrete criteria for the determination of escalation risk in cases of lawful use of riot control agents.

Keywords: arms control, chemical weapons, chemical weapons ban, Chemical Weapons Convention, riot control agents, weapons in international law, definition of weapons, legality of weapons.

Introduction

The Russo-Ukrainian armed conflict, which began in February 2014 and escalated into a full-scale invasion of Ukraine on 24 February 2022 has resulted in numerous violations of the most basic prescriptions of international law by the aggressor. One out of many such violations is the breach of the 1993 Convention on the prohibition of the development, production, stockpiling and use of chemical weapons and on their

destruction (hereinafter – CWC). There are numerous reports about the use of certain chemical weapons by the armed forces of the Russian Federation (for example, Terajima, 2024), most notably – of riot control agents (Tramazo, 2024). Remarkably, both Russia and Ukraine are parties to the CWC, and neither has made a reservation or attempted to withdraw from it. Therefore, the obligations under the Convention are in full force for both parties, and the actions of the Russian Federation (as will be further argued in more detail) constitute a clear violation of the conventional commitment.

This cannot but bring about the question which actions should be considered a breach of the 1993 CWC in relation to riot control agents. These are especially hard to control due to their legality for law enforcement purposes and the fact, that such weapons can be lawfully adopted by the armed forces and applied in certain situations. Furthermore, the lethality or the degree of damage or injury caused by the riot control agents highly depends on their concentration, which, in turn, is dependent on the circumstances of their use.

In contrast to combat asphyxiating gases, riot control agents are not prohibited entirely. Some States did declare themselves free of any chemical weapons including riot control agents, but the majority of States, including Ukraine and the Russian Federation did not. This raises the question of whether and under which circumstances riot control agents can be lawfully used by the armed forces.

The theoretical approaches to compliance with the CWC are relatively well-described in literature, starting from early writings by W. Krutzsch and R. Trapp (2006) to more recent publications by B. Kastan (2012). The works of W. Krutzsch and R. Trapp present an extensive commentary on the CWC provisions, covering, among other things, the issues of ensuring compliance as a part of the general description of the CWC origins, purposes and provisions. One can also mention the scholarly writings preceding the CWC, including W. Verwey (1977) and D. Jones (1978), who covered some of the emerging issues, including the use of chemical weapons for environment modification purposes and the emerging prohibition of riot control agents in hostilities. Some questions connected to the control over chemical weapons have also been addressed in more general publications like the writings on customary international law by J. Henckaerts and L. Doswald-Beck (2005). Most recently, some aspects of compliance with CWC were touched upon by O. Dvurechenska (2020), who described the mechanism of the OPCW, its structure and activities, and O. Shamsutdinov (2022), who described the prohibition of chemical weapons from the point of view of Ukrainian law. Yet there appear to be no publications addressing the issue of compliance with the CWC in the use of riot control agents. The need to overcome this gap, which is addressed in this paper, determines its novelty.

The purpose of this paper is to outline the legal basis of the prohibition of riot control agents in hostilities under international law and domestic implementing regulations of states in the light of the recent developments on chemical agents. This purpose is supported by three objectives:

- To establish the legal basis of prohibition of riot control in hostilities agents under international law;
- To outline the practical rationale behind the prohibition of riot control agents in hostilities;
- To determine the state of implementation of that obligation by States.

Materials and Methods

The process of the research included four stages, namely:

- Establishment of the historical roots, genesis and development of the international legal norms on the prohibition of riot control agents in hostilities. This stage enabled creation of understanding of the general idea standing behind the norm;
- Research of technical aspects connected to the definition of the term “riot control agent” and its differentiation from a chemical weapon *per se*;
- Study and analysis of national legislation implementing international legal norms on riot control agents;
- Summarizing the outcome of the study and final analysis.

The progress through these stages was made possible by the use of an array of general scientific and special legal methods. In particular, the historic method enabled tracing the development of legal norms which resulted in the adoption of the CWC, as well as its further development. The historical and contemporary documents were compared using the comparative legal method, thus determining the similarities and differences in their formulation, as well as practices of their application. For instance, the comparison has been drawn between the 1899 Declaration on asphyxiating gases, 1925 Protocol on asphyxiating gases and the CWC in order to trace the development and improvement of regulations relative to enforcement of international legal norms on chemical weapons control. The article broadly utilizes

the method of formal logic for the determination of the scope of definitions of chemical weapons, including riot control agents, and for the establishment of the content of existing prohibitions and limitations of such weapons. These are combined with the methods of hermeneutics utilized to determine the meaning of treaty and customary terms and for the interpretation of their content. Furthermore, a method of systemic analysis was used to analyze the mutual interrelation of particular provisions of treaty and customary law. In addition, the article relies on general scientific methods used in the exploration of concrete prohibitions imposed on States concerning particular chemical substances prohibited or limited under the law on chemical weapons. In order to investigate the particular approaches of States and particular instances of use of nuclear weapons, the article relies on the method of case studies used for the analysis of both historical examples of the use of nuclear weapons and recent practices of States in relation to riot control agents.

Results

One of the key questions in the process of adoption of the CWC was the matter of the broadness of limitations foreseen by the treaty. This issue had several dimensions. Firstly, whether the prohibition should be complete, or States should be allowed to retain a certain amount of chemical weapons for the case of an attack by other States using chemical weapons. Secondly, should the limitation concern only some types of chemical agents, or should the Convention be applicable to all chemical substances with military application, and whether restrictions can be less strict for some types of substances. The negotiators managed to reach an agreement as to the scope of such restrictions, most importantly on the definition of chemical weapons in a manner to cover not only weapons per se, but also precursors, as well as weapons, munitions, and devices intended for their delivery (Trapp, 2006).

This method of definition of a weapon is different from the practice of other international treaties in a sense that chemical weapons were defined as a composition of all its components characterized by more or less objective criteria allowing to determine whether a particular substance in question is prohibited under the CWC or not. Previous international agreements like the 1899 Declaration concerning Asphyxiating Gases or the 1925 Protocol on asphyxiating gases mentioned only a certain type of weapons without an exact description of what is meant under that weapon. According to CWC, every concrete element of such weapons can be viewed as a type of weapon prohibited under the Convention.

However, probably the most remarkable element of the Convention relates to the peculiarities of the definition of chemical weapons. Toxicity is viewed as its basic characteristic; however, this criterion is itself insufficient for the purposes of the definition. This is especially important for the definition of dual-use chemical substances, i.e. the substances which may have a legal use or such, that were lawfully used in the past, for example, chlorine, which is applicable in the chemical industry or other chemical substances which can have industrial, agricultural, scientific, medical, pharmaceutical or other use (Shamsutdinov, 2022). Thus, Article II of the CWC does not utilize the toxicity criterion and relies exclusively on the designation criterion. Any chemical substance or its precursor can be considered as chemical weapons, if they were not created, accumulated or used for purposes that are not prohibited and in the quantities that correspond to such non-prohibited purposes.

Notably, in the course of negotiations, the toxic chemical substances were classified into supertoxic and lethal, other lethal, and other harmful substances. This distinction dates back to the Soviet-American negotiations of the late 1970s and the resulting Joint report on the progress of bilateral negotiations on the prohibition of chemical weapons (Godblat, 1980). During the expert meetings, the discussions focused primarily on standardization of methods of determination of toxicity of certain chemical substances for their future classification based on lethality. However, these attempts proved to be futile due to political discrepancies and the nature of chemical weapons itself, since many of the substances were of dual use. The final version of Article II, in combination with the responsibilities of States under Article I, enabled the creation of a comprehensive guarantee against chemical weapons, including chemical substances not yet known as of the time of the conclusion of the Treaty.

Despite active control measures and the destruction of chemical weapons, States, including their armed forces, legally retain supplies of riot control agents. The Convention provides a legal regime for such agents. Thus, according to paragraph 7 of Article II, a riot control agent means “any chemical not listed in a Schedule, which can produce rapidly in humans’ sensory irritation or disabling physical effects which disappear within a short time following termination of exposure”. According to paragraph 5 of Article I, States-parties undertook not to use chemical riot control agents as means of warfare. Instead, the Convention allows the use of such means for law enforcement purposes, including domestic riot control purposes.

This brings about the question of the logic of States in conclusion of the Convention, which led them to allow the use of riot control agents for law enforcement purposes, but prohibit their use in hostilities. The response to this question lies in the context of their use. As stated by S. Longuet (2016), riot control agents can easily become lethal in combat operations. To understand this difference, it is expedient to refer to toxicological features of such means.

The quantity of chemical substance in gaseous state or in drops present in the air and absorbed by human body is determined by its dosage. Its level depends on the concentration of a chemical substance in the air inhaled by a person and the duration of time during which a person is subjected to the influence of a chemical substance. This influence is measured in milligrams per minute per cubic meter ($mg/min/m^3$) (Sharanova, 2023). This means that a chemical will have equal effect on a person subjected to its impact under a certain concentration for a certain period of time, or a concentration ten times less for a period of time ten times longer, Therefore, every chemical substance has a dosage which incapacitates a person (i.e. an affected person is unable to continue their actions) and lethal concentration (i.e. concentration which results in the death of an affected person). Such concentrations are normally determined based on statistics, which evaluates a certain impact on more than 50% of persons (taking into account the differences in their health and their reactions to the impact of a chemical weapon). In other words, the incapacitating or lethal dosage is the one that results in the corresponding consequences for more than 50% of the affected individuals. The lower the dosage is, the more toxic a chemical is. For example, yperite (mustard gas) has a lethal dosage of 1500 $mg/min/m^3$, while sarine – only 70 $mg/min/m^3$ (Skaletskyi, & Misula, 2003).

According to the CWC, States-parties are obliged to openly declare the chemical substances which they store. As of 2022, 137 States declared that they possess chemical riot control agents (mostly tear gas), while 53 declared the absence of such chemicals (Conference of the States Parties to the OPCW, 2022).

Most States declared that they possess chlorobenzalmalononitrile (CS), chloroacetophenone (CN) and mustard gas. Although these substances have different impact on human body, they normally create a sense of burning in the eyes, respiratory tract and skin, forcing the affected person to escape, and can temporarily incapacitate that person (Longuet, 2016). At that, the incapacitating dosage makes 01-10 $mg/min/m^3$ for CS and 20-40 $mg/min/m^3$ for CN. A lethal dose for CS makes 25 000-60 000 $mg/min/m^3$ and 8500-11000 $mg/min/m^3$ for CN. Thus, a lethal dose of CS is 2500 higher than the incapacitating one, which makes the probability of overdosage very low. However, the existence of lethal dosage itself demonstrates that riot control agents are not non-lethal in their nature. They may become lethal in high concentrations.

Thus, the use of chemical riot control agents as a means of method of warfare creates a risk that, despite of security measures, they still can be used in lethal dosages. For instance, irritating substances were used during World War One, making around one tenth of all chemical weapons used in that armed conflict (Olajos, & Stopford, 2004). During the War in Vietnam the USA used chemical riot control agents engendering a risk of their overdosage. Thus, American soldiers were instructed not to use certain chemical substances in military operations that did not foresee lethal consequences for the adversary. However, even in the cases of use of relatively safe chemical substances, like the CS, the risk of overdosage often exists. For example, such substances were not to be used on closed spaces such as bunkers and tunnels, since the US servicemen, who used chemical grenades and dispensers, did not know the size of rooms (bunkers, tunnels), where they used chemical substances (Verwey, 1977).

One should point at the purely legal side of the question, that such gases could be considered as asphyxiating in the meaning of the 1925 Protocol. Considering the impact of such gases, which resulted in serious impairment or termination of breath, that could lead to death, they can hardly be categorized other than as asphyxiating gases.

Discussion

In view of the experience of the War in Vietnam, 1970s witnessed the development of an understanding of the necessity of the prohibition of chemical riot control agents as means of warfare. This was justified, among other things, by the fact that chemical riot control agents were considered a “threshold” weapon, the use of which could technically, legally, and morally facilitate the use of other types of chemical weapon, which could be lethal (Kastan, 2012). The escalation risk can also be linked to the risk of overdosing, where seemingly non-lethal dosages could lead to death. This correspondingly undermined the difference between lethal and non-lethal chemical means, as they would be considered simply as “gases” without further specification.

In practice, such escalation has occurred on several occasions in the 20th century, as exemplified by the Italian invasion of Ethiopia in 1935-1936, the Japanese invasion of China in 1937, the interference of the UAE with the war in Yemen in 1962-1967, the Iran-Iraq war of 1980-1988. In all of these cases, the use of lethal chemical weapons, for example, of yperite and sarin followed the use of irritating gases. Precisely the escalation risk resulted in the conviction that riot control agents should be banned as means of warfare (Henckaerts, & Doswald-Beck, 2005).

Another argument against military use of riot control agents is the possibility of mutual escalation in case of use by one of the parties. Thus, it is sometimes argued that the first use of chemical substances during World War One was the German gas attack near Ypres in 1915, while the use of CN by the French troops in August 1914 convinced the Germans that asphyxiating gases are used against them, and the prohibition is no longer in force as a result of their use by the adversary (Jones, 1978). The research of customary international law completed by the ICRC in 2005 pointed at overwhelming evidence of use of chemical weapons in armed conflicts as retaliation (Henckaerts, & Doswald-Beck, 2005). Correspondingly, the prohibition of chemical riot control agents as means of warfare should be viewed as an additional security mechanism, which is to break the vicious circle of use of chemical weapons for retaliation purposes.

Thus, it can be asserted that a complete prohibition of riot control agents eliminates the conditions under which a party to an armed conflict may wish to rely on them. The risk of escalation can be connected to the risk of overdosage. The symptoms of poisoning by a chemical riot control agent, in case of its high concentration, can be analogous to the symptoms of poisoning by a combat chemical like a nerve agent (Verwey, 1977), especially considering that it can be complicated to determine which particular substance has been used on a battlefield. A notable example of such a mistake took place in 2013, when the US Department of State informed about the use of 3-Quinuclidinyl benzilate near the city of Homs in Syria. This substance is prohibited under the Annex to the 1993 Convention. However, the next day, the Department of State clarified that in reality a chemical riot control agent has been used (Robinson, 2013).

Certainly, there exists no risk of escalation in the context of law enforcement activities. As for the possible escalation of criminal actions, the police, obviously, do not have military chemical substances. As for the possible mutual escalation, it appears highly improbable in the context of law enforcement that a mob would respond with the use of chemical weapons against the police. This makes the situation fundamentally different from the use of military asphyxiating gases in the context of an armed conflict.

It should also be stressed that the CWC does not prohibit riot control agents as such and does not contain provisions on their destruction. They are prohibited only in the context of warfare, but can be used for law enforcement purposes. The distinction should be drawn between the use of chemical riot control agents as means of warfare and for law enforcement purposes. This engendered certain discrepancies. For example, according to Executive order 11850, in 1975 the USA decided not to use chemical weapons in hostilities, but determined the procedure of use of chemical riot control agents, namely:

– the use of chemical riot control agents against riots in the zones under the US control or against riots among the POWs;
– the use of riot control agents in situations where civilians are used as live shields for camouflaging or cover of attacks, if the use of riot control agents might prevent or minimize civilian losses;
– the use of riot control agents in rescue operations or in remote or isolated areas;
– the use of riot control agents outside of the battle zones for the protection of convoys from civilian riots, attacks by terrorist or paramilitary organizations.

According to some American researchers, the provisions of Executive order 11850 are fully compliant with the CWC (Fidler, 2005). Among other things, they correspond to the duty of the occupying power to maintain law and order in the occupied territory. As noted by D. Fidler (2005), this duty implies the right to use normal means of maintaining order, including chemical riot control agents. The legal writers also assume that chemical riot control agents may be used in POW camps to suppress riots (Krutzsch, & Trapp, 1994). Indeed, the relations between the belligerents and civilians in the occupied territory or enemy combatants after their capture cannot be considered as a part of hostilities, which means that hostile acts of the civilian population or captured combatants may be suppressed using riot control agents. Thus, such use of riot control agents cannot be equated to the use of combat gases.

However, some methods of use of chemical riot control agents may still prove to be problematic. For example, the abovementioned Executive order describes their possible use against civilians acting

as a live shield. Such use is apparently a part of hostilities against the armed forces of the adversary, which means that it does fall under the definition of hostilities. Under such circumstances, an attack with riot control agents may result in mistakes in identification of a chemical substance use, and thus the use of combat asphyxiating gases in response.

It deserves noting that when the USA ratified the CWC, its government realized the discrepancies between the Convention and Executive order 11850. This did not prevent the US President stating that the implementation of the Convention would no mean changes in the Executive order. However, the fact that the USA has internal legislation, which provides for such actions, does not make these actions lawful under international law. Here it should be recalled that under the Articles on responsibility of States for international wrongful acts prepared by the International Law Commission, "the characterization of an act of State as internationally wrongful is governed by international law. Such characterization is not affected by the characterization of the same act as lawful by internal law".

In addition, the Executive order 11850 designates the protection of military convoys as lawful use of riot control agents. However, it should be taken into account that such protection may take place under different conditions, ranging from use against an unarmed civilian mob to repulsing an armed attack or counter-ambush actions against enemy combatants. In the former case, such use can be considered as a law enforcement activity, while in the latter it takes the form of hostilities, which means that chemical riot control agents turn into a means of warfare, and its use can result in similar actions on the side of the enemy.

There are few examples of regulations similar to Executive order 11850 in other States. Thus, the UK Joint Service Manual on the Law of Armed Conflict contains only a brief reference to the applicability of riot control agents in non-combat situations. The German Law of Armed Conflicts Manual permits the use of riot control agents for law enforcement purposes, including by the Bundeswehr, but does not go deeper into details. Finally, the Ukrainian Instruction on compliance with international humanitarian law in the Armed Forces of Ukraine avoids mentioning riot control agents. It follows that States do not pay much attention to regulating the application of riot control agents by their armed forces.

This may seem to be especially surprising in the light of the provisions of the Rome Statute of the International Criminal Court (1998). Article 8(2)(b)(xviii) of the Statute specifically prohibits "employing asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices". Therefore, it is exactly the escalation risk that explains the prohibition of chemical weapons, as well as the prohibition of the use of riot control agents in armed conflicts.

Conclusions

The Chemical weapons convention marked a notable step forward in the definition of chemical weapons and in the establishment of a comprehensive prohibition of chemical weapons defined as chemicals that can cause death, temporary incapacitation or permanent harm to humans or animals. The Annex on Chemicals serves for verification purposes and should be viewed as a guideline rather than a complete list of prohibited chemicals. However, the prohibition does not entirely cover riot control agents, which remain permitted for law enforcement purposes and prohibited only in the context of hostilities. At that, there exists no absolute distinction between prohibited chemicals and riot control agents, and the difference is determined not by their toxic features per se, but by the context of their use, including circumstances and concentrations.

The rationale behind the prohibition of riot control agents in hostilities is based primarily on the escalation risks. Several armed conflicts exemplify that the use of riot control agents by one party can provoke another party to resort to toxic combat asphyxiating gases, thus undermining the prohibitions established by previous agreements, including the 1925 Protocol. As a consequence, the CWC is designed to exclude the possibility of such escalation by banning the use of any toxic substances in armed conflicts regardless of their mortality.

States differ in their positions on riot control agents. While some States declared themselves free of any chemical weapons, including riot control agents, others seem to believe that there exist certain combat scenarios where riot control agents can be lawfully applied. Some of these scenarios appear to be connected to law enforcement purposes, while others seem to be of a purely combat nature, which puts the system of chemical prevention at risk. There have been no recorded cases of such limited use of riot control agents for the purposes of waging the war, but such a scenario cannot be completely excluded. Indeed, the military manuals and instructions approved by States contain only superficial description of a general ban on most chemical weapons and a brief description (or no description at all) of riot control agents. This may indicate that States tend not to allow their armed forces to use riot control agents in hostilities. At the same time,

however, this demonstrates the liability of the CWC regime, within which the prohibition of some toxins and the permission of the use of others for limited law enforcement purposes creates a risk of a serious breach, which is capable of jeopardizing the existence of the entire Convention regime.

There appear to be two open questions remaining. The first is connected with technical developments bringing more sophisticated munitions on the battlefield and the development of various non-lethal substances, which may be used for both law enforcement and warfare. This question becomes especially complicated in the context of non-international armed conflicts, peacekeeping operations and internal disturbances, where it may be practically complicated or virtually impossible to draw a concrete distinction between law enforcement (for which riot control agents are valid) and hostilities (in which riot control agents are prohibited). The second question logically follows from the first one and concerns the escalation risk. There appears to be a need for a better conceptualization of this notion and, possibly, establishment (at least on the expert level) of the criteria for determination of whether a certain situation is likely to create an escalation risk. This may provide States with a concrete understanding of situations in which riot control agents should or should not be used, enabling the development of corresponding domestic legislation and policies. These two questions may be subject to future research.

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