



RIOT CONTROL AND INCAPACITATING CHEMICAL AGENTS UNDER THE CHEMICAL WEAPONS CONVENTION

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Abstract

In October 2002, Russian Special Forces employed an incapacitating chemical agent to rescue hundreds of hostages held by Chechen terrorists in the Dubrovka Theatre in Moscow. Since that time, the Organisation for the Prohibition of Chemical Weapons, the States Parties to the Chemical Weapons Convention, and a plethora of academics and non-governmental organizations have attempted to address the ambiguity in the Convention governing the circumstances under which riot control and incapacitating chemical agents may legally be used. This report examines this question and concludes that riot control agents may be used domestically; that, subject to certain key constraints, riot control agents may be employed on operations abroad; that incapacitating chemical agents should only be used for law enforcement purposes within a state's legal jurisdiction; that transparency in this area could be enhanced through voluntary declarations concerning incapacitating chemical agents; and that like-minded States Parties may consider it in their interest to develop and promulgate a shared understanding of what, in their view, constitutes legitimate versus illegitimate use of these agents.

Résumé

En octobre 2002, des forces spéciales russes ont employé un agent incapacitant pour secourir des centaines d'otages retenus par des terroristes tchétchènes dans le théâtre Dubrovka, à Moscou. Depuis ce temps, l'Organisation pour l'interdiction des armes chimiques, les États parties de la *Convention sur les armes chimiques* et une pléthore d'universitaires et d'organisations non gouvernementales ont tenté de dissiper l'ambiguïté de la Convention concernant les circonstances dans lesquelles on peut recourir aux agents de lutte antiémeute et aux agents incapacitants en toute légalité. Ce rapport étudie cette question et conclut que les agents de lutte antiémeute peuvent être utilisés sur le plan national; que, sous réserve de certaines contraintes clés, les agents de lutte antiémeute peuvent être employés dans le cadre d'opérations à l'étranger; que les agents incapacitants ne devraient être utilisés qu'à des fins d'application de la loi dans les limites des compétences juridiques d'un État; que la transparence dans ce domaine pourrait être améliorée au moyen de déclarations volontaires sur les agents incapacitants; et que les États parties aux vues similaires pourraient considérer qu'il est dans leur intérêt d'élaborer et de promulguer une définition commune de ce qui constitue, selon eux, une utilisation légitime et une utilisation illégitime de ces agents.

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Executive summary

In October 2002, Russian Special Forces employed an incapacitating chemical agent (ICA) to aid Special Forces in rescuing hundreds of hostages held by Chechen terrorists in a theatre in Moscow. The operation re-opened the international debate concerning the legal, operational and ethical considerations attending the use of toxic chemicals to enforce domestic law. While most states declined to comment, some openly supported the right of the state to employ non-lethal weapons to defeat domestic terrorism and facilitate military operations abroad. Others (supported by many academics and non-governmental organizations) criticized Russia, arguing that any employment of toxic chemicals, domestic or international, lethal or otherwise, violates both the spirit and the letter of the *Chemical Weapons Convention* (CWC). The problem of handling incapacitating chemical agents under the Convention became a major topic of discussion at the First CWC Review Conference some six months after the Moscow incident. Four years later the subject remains open, with no solution to this thorny question in sight, and few States Parties prepared to engage in substantive discussions aimed at identifying a way ahead.

The ICA problem bears some superficial similarities to the ongoing debate over what constitutes legitimate use of toxic chemicals that meet the definition of “riot control agent” (RCA) under the CWC. The Convention contains limited declaration requirements for RCA, and its language concerning the “purposes not prohibited” to which RCA may be put is ambiguous, with the result that some groups advocate a restrictive application of the Convention text, while others prefer a more liberal interpretation. The majority of observers find themselves caught between the two extremes.

Riot control and incapacitating chemical agents pose many legal, operational and ethical challenges that are not subject to easy resolution. As the war on terror continues, however, incidents like the Dubrovka Theatre, the 2004 Beslan siege, and the routine use of hostages and “human shields” will doubtless continue, increasing the pressure to identify new means of conducting hostage rescue and counter-terrorist operations promising higher probabilities of mission success, and lower probabilities of incidental civilian casualties. This report investigates one small aspect of the problem, by attempting to clarify the circumstances under which police and military forces should, or should not, be permitted to employ riot control or incapacitating chemical agents. In pursuit of this aim, the report examines the definitions and interpretations contained in the Convention’s text, then discusses potential “purposes not prohibited” to which riot control and incapacitating chemical agents may legitimately be put. It then addresses whether these are permitted or prohibited by the Convention’s text, and looks at some of the guidance that may be derived from academic studies and the comprehensive body of international law, in particular the law of armed conflict.

The report then proposes a series of four principles to guide the use of riot control and incapacitating chemical agents, and offers a summary of these principles, and the underlying analysis, in graphical format. The report concludes that riot control agents may be used domestically; that, subject to certain key constraints, riot control agents may be employed on operations abroad; that incapacitating chemical agents should only be used for law enforcement purposes within a state's legal jurisdiction; that transparency in this area could be enhanced through voluntary declarations concerning incapacitating chemical agents; and that like-minded States Parties may consider it in their interest to develop and promulgate a shared understanding of what, in their view, constitutes legitimate versus illegitimate use of these agents. Finally, the paper suggests a number of areas where progress on this complex issue might benefit from further research.

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Sommaire

En octobre 2002, des forces spéciales russes ont employé un agent incapacitant pour secourir des centaines d'otages retenus par des terroristes tchétchènes dans le théâtre Dubrovka, à Moscou. Cette opération a relancé le débat international concernant les considérations juridiques, opérationnelles et éthiques que soulève l'utilisation de produits chimiques toxiques pour faire appliquer les lois nationales. Alors que la plupart des États ont refusé de se prononcer, certains ont ouvertement appuyé le droit de l'État à employer des armes non létales pour faire obstacle au terrorisme national et faciliter les opérations militaires à l'étranger. D'autres (appuyés par beaucoup d'universitaires et d'organisations non gouvernementales) ont critiqué la Russie en soutenant que l'emploi de produits chimiques toxiques, létaux ou non, à l'échelon national ou international, contrevient à la fois à l'esprit et à la formulation de la *Convention sur les armes chimiques* (CAC). Le problème de la manipulation d'agents incapacitants conformément à la Convention est devenu un sujet de discussion majeur à la première Conférence d'examen, qui a eu lieu environ six mois après l'incident de Moscou. Quatre ans plus tard, le sujet n'est toujours pas clos, il n'y a aucune solution en vue à ce problème épineux et quelques États parties se sont préparés à engager des discussions de fond visant à déterminer une voie à suivre.

Le problème des agents incapacitants présente certaines similarités superficielles avec le débat en cours sur ce qui constitue une utilisation légitime de produits toxiques chimiques répondant à la définition d'agent de lutte antiémeute dans la CAC. La convention contient des exigences de déclaration limitées en ce qui concerne les agents de lutte antiémeute, et la formulation relative aux « fins non interdites » est ambiguë, ce qui a pour conséquence que certains groupes soutiennent une application plus restrictive de la Convention alors que d'autres préfèrent une interprétation plus libérale. La majorité des observateurs se retrouve prise entre les deux extrêmes.

Les agents de lutte antiémeute et les agents incapacitants posent plusieurs problèmes juridiques, opérationnels et éthiques qui ne sont pas faciles à résoudre. Alors que la guerre contre la terreur se poursuit, les incidents comme celui du théâtre Dubrovka et le siège de Beslan, en 2004, et l'utilisation courante d'otages et de « boucliers humains » se poursuivront sans doute, ce qui augmentera le besoin pressant de cibler de nouveaux moyens de mener des libérations d'otages et des opérations de lutte contre le terrorisme, afin d'augmenter les chances de réussite des missions et de diminuer les probabilités de pertes accidentelles chez les civils. Ce rapport examine un aspect limité du problème en tentant de clarifier les circonstances dans lesquelles les forces policières et militaires devraient, ou ne devraient pas, employer des agents de lutte antiémeute ou des agents incapacitants. Sous cette optique, le rapport étudie les définitions et les interprétations contenues dans la Convention et analyse les « fins non interdites » possibles pour lesquelles on pourrait permettre l'utilisation légitime des agents de lutte antiémeute et des agents incapacitants. Il indique ensuite si ceux-ci sont autorisés ou interdits par la Convention et jette un coup d'œil sur certaines lignes directrices tirées d'études théoriques et d'un ensemble complet de lois internationales, plus particulièrement le droit des conflits armés.

Le rapport propose ensuite quatre principes en vue d'orienter l'utilisation des agents de lutte antiémeute et des agents incapacitants. Il présente également un sommaire de ces principes ainsi que l'analyse sous-jacente en format graphique. Le rapport conclut que les agents de lutte antiémeute peuvent être utilisés sur le plan national; que, sous réserve de certaines contraintes clés, les agents de lutte antiémeute peuvent être employés dans le cadre d'opérations à l'étranger; que les agents incapacitants ne devraient être utilisés qu'à des fins d'application de la loi dans les limites des compétences juridiques d'un État; que la transparence dans ce domaine pourrait être améliorée au moyen de déclarations volontaires sur les agents incapacitants; et que les États parties aux vues similaires pourraient considérer qu'il est dans leur intérêt d'élaborer et de promulguer une définition commune de ce qui constitue, selon eux, une utilisation légitime et une utilisation illégitime de ces agents. Enfin, le document indique un certain nombre de secteurs où d'autres travaux de recherche pourraient faire progresser ce dossier complexe.

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INTRODUCTION

In October 2002, Russian Special Forces stormed the Dubrovka Theatre in Moscow to free hundreds of hostages held by more than four dozen Chechen terrorists. The operation featured the first public use of a “calmative” – a type of chemical agent designed to incapacitate both hostages and terrorists prior to a conventional assault. Although more than a hundred of the hostages succumbed to the agent (which Russian government officials, after much international pressure, claimed was derivative of fentanyl, a synthetic opioid analgesic), the operation resulted in the liberation of the majority of the hostages and the deaths of the terrorists, and was accordingly judged a success, albeit a qualified one, not only by the Russian government,¹ but also by international experts familiar with counter-terrorist and hostage rescue operations.²

While it succeeded in its principal aims, however, the rescue operation also re-launched a worldwide debate on the legal, moral and operational questions surrounding the use of incapacitating chemical agents (ICA) for domestic law enforcement.³ The incident polarized the international community. On one end of the spectrum are those professing the right of the state to employ novel, non-lethal weapons to defeat domestic terrorism and facilitate military operations abroad,⁴ while on the other end are those claiming that any employment of toxic chemicals, domestic or international, lethal or otherwise, violates both the spirit and the letter of the fundamental international agreement prohibiting the development, production, stockpiling and use of chemical weapons – the *Chemical Weapons Convention* (CWC).⁵ From the point of view of the Convention, the Dubrovka Theatre operation was timely, occurring as it did only six months before the First Chemical Weapons

¹ Peter Baker, “Russia Defends Actions Taken in Theatre Siege”, *The Washington Post*, 1 November 2002, A30.

² For reasons of classification, government experts cannot be identified. Numerous analyses of the operation have appeared in the open media, however, many of them by qualified commentators expressing qualified or general approval. E.g., Major John J. Donahoe, United States Marine Corps, “The Moscow Hostage Crisis: An Analysis of Chechen Terrorist Goals”, *Strategic Insights*, Vol. II, Issue 5, May 2003; and “Moscow: Hostage Situation Ends, but With Mixed Results”, *Stratfor*, October 27 2002 [www.stratfor.com/products/premium/read_article.php?id=207236].

³ Stephen R. Bowman, “Chemical Weapons Convention: Issues for Congress”, Congressional Research Service, code IB94029, 7 January 2003, CRS-1.

⁴ In May 2006 former U.S. Secretary of Defense Donald Rumsfeld directed DoD to “significantly increase” spending on non-lethal weapons “for counter-terrorism operations and homeland defense.” Jason Sherman, “DoD: Spend More on Non-Lethal Weapons”, *InsideDefense.com*, 24 May 2006.

⁵ Federation of American Scientists Working Group on Biological and Chemical Weapons, “Position Paper: The Threat of Chemical Incapacitating Agents”, March 2003. This position paper was prepared for and submitted to the First CWC Review Conference in April 2003.

Convention Review Conference. As a result, Moscow's actions provided ample fodder for discussion, both before and after the Conference.⁶

None of the discussion seems to have helped. Nearly five years after the Dubrovka Theatre incident, neither the Organisation for the Prohibition of Chemical Weapons (OPCW) nor the States Parties to the Convention are any closer to answering the many questions that these agents pose. Quite the contrary; the ICA debate, along with the war in Iraq, seems to have deepened an existing quandary concerning what constitutes legitimate use of those toxic chemicals that meet the Convention definition of "riot control agent" (RCA). Apart from the definition, a prohibition against their use "as a method of warfare", the inclusion of "domestic riot control" under the aegis of "law enforcement" as a "purpose not prohibited", and a number of minor reporting obligations, the Convention is notably silent on riot control agents. This ambiguity has led some to speculate that the Convention's restrictions on the use of riot control agents were intended to be far narrower than reflected in the actual text, while others argue that the document should be interpreted as it is written, if not more liberally.

The vast majority of observers, not surprisingly, find themselves caught between these two extremes. RCA and ICA pose many legal, operational and ethical challenges that are not subject to easy resolution; as one U.S. Government official noted in testifying to Congress on the potential use of riot control agents in Iraq, "in many instances, our forces are allowed to shoot somebody and kill them but they're not allowed to use a non-lethal riot control agent, under the law. It is a very awkward situation."⁷ Coupled with long-standing international interest in "calmatives", it is a situation that demands resolution.

The aim of this report is to clarify the circumstances under which police and military forces should, or should not, be permitted to employ riot control or incapacitating chemical agents. This is only one small area of the overarching debate concerning these agents; there are many others that would benefit from further research. Some of these will be identified in the conclusion.

⁶ Indeed, the topic was raised official at the Organisation for the Prohibition of Chemical Weapons, in the report of the Scientific Advisory Board to the First Review Conference. RC-1/DG.2 "Report of the Scientific Advisory Board on Developments in Science and Technology", 23 April 2003, paragraph 3.14.

⁷ Donald Rumsfeld, U.S. Secretary of Defence, Testimony to the House Armed Services Committee, 5 February 2003.

THE CONVENTION DEFINITIONS

The Chemical Weapons Convention entered into force on 29 April 1997 and, at time of writing, comprised 182 member states. Only 13 countries remain outside the regime.⁸ Pursuant to Article VII (“National Implementation Measures”), member states agree to implement the Convention’s obligations and prohibitions by enacting domestic legislation and regulations to enforce its provisions.⁹ The Convention requires that member states not permit any of the activities prohibited by the Convention to take place under their jurisdiction, and that implementing legislation prohibit any natural or legal person from taking any action prohibited by the Convention, either on its territory or anywhere else.¹⁰ Among the Convention’s numerous provisions and obligations is the prohibition of the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons,¹¹ which lies at the heart of the regime. States Parties are also prohibited from engaging in any military preparations to use chemical weapons.

One of the Convention’s novelties, and the foundation of much of its success, is the fact that “chemical weapons”, and all of the prohibitions against them, are defined on the basis of intent. Chemical Weapons are defined as (a) toxic chemicals or their precursors, except where intended for purposes not prohibited by the Convention, as long as the types and quantities are consistent with such purposes; (b) munitions and devices specifically designed to cause death or other harm through the toxic properties of those toxic chemicals referred to in (a); and (c) any equipment specifically designed for use directly in connection with the employment of the munitions and devices referred to in (b).¹² The Convention defines “toxic chemical” as any chemical, regardless of its origin or method of production, which, through chemical action on life processes, can cause death, temporary incapacitation or permanent harm to humans or animals.¹³ Given that toxicity is a function of dosage, and that, therefore, any chemical can become toxic in sufficient quantity, States Parties accept the principle that “no type of toxicity against man or animal should be

⁸ At time of writing, signatory states included Bahamas, Congo, the Dominican Republic, Guinea-Bissau, Israel and Myanmar; non-signatories included Angola, DPRK, Egypt, Iraq, Lebanon, Somalia and Syria.

⁹ Canada’s *Chemical Weapons Convention Implementation Act* (1995) and *Schedule 1 Chemicals Regulations (Chemical Weapons Convention)* (2004) are examples.

¹⁰ *Chemical Weapons Convention*, Article VII, paragraph 1. At this point, it is appropriate to apologize for some of the convoluted language in this report. Where the language is somewhat tortured, citations will indicate the source, usually the Convention. Uncited tortuous language is the author’s fault.

¹¹ *Chemical Weapons Convention*, Article I, paragraph 1.

¹² *Chemical Weapons Convention*, Article II, paragraph 1.

¹³ *Chemical Weapons Convention*, Article II, paragraph 2.

exempted from the meaning of toxic chemical” under the Convention.¹⁴ While it has been argued that this definition is too broad – after all, water, in sufficient concentration, is toxic to humans¹⁵ – it clearly indicates that the intent of the negotiators was to cast as wide a net as possible, in order to capture and prohibit any conceivable misuse of toxic chemicals.

The definitions and prohibitions combine to produce the “general purpose criterion” that constitutes the heart of the Convention: any toxic chemical is automatically considered a chemical weapon **unless** it is intended for purposes not prohibited under the Convention, **and** it is produced and/or held in types and quantities consistent with those purposes. The Convention defines “purposes not prohibited” as including (a) industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes; (b) protective purposes, namely those purposes directly related to protection against toxic chemicals and to protection against chemical weapons; (c) 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; or (d) law enforcement, including domestic riot control purposes.¹⁶

The Convention defines as a riot control agent any chemical not listed on a schedule, which can produce rapidly in humans sensory irritation or disabling physical effects, which disappear within a short time following termination of exposure,¹⁷ and prohibits States Parties from using riot control agents as a “method of warfare”.¹⁸ In respect of riot control agents, States Parties are obliged to declare the chemical name, structural formula and Chemical Abstracts Service registry number (if assigned) of each chemical held for riot control purposes.¹⁹ The Convention provides no definition or specific requirements for “incapacitating chemical agents” as such, although all discrete organic chemicals are subject to production limits beyond which the facilities producing them must be declared and inspected. The lack of a definition and specific declaration and inspection requirements for ICA is considered by some to constitute a significant and ever-widening gap in the Convention’s verification and compliance.

¹⁴ Dr. Thomas Stock, “History of the Negotiations on the CWC – Short Overview”, paper #13 submitted to the SIPRI-Saskatchewan-Frankfurt Research Group conference on implementation of the Chemical Weapons Convention, Hamburg, 8-10 September 1995, p. 37.

¹⁵ Hyponatremia, which is common in infants and athletes, is caused by over-hydration, resulting in dilution of sodium levels in the bloodstream leading to swelling of tissues, irregular heartbeat, fluid buildup in the lungs and a host of other, potentially fatal, symptoms [<http://chemistry.about.com/cs/5/f/blwaterintox.htm>].

¹⁶ *Chemical Weapons Convention*, Article II, paragraph 9.

¹⁷ *Chemical Weapons Convention*, Article II, paragraph 7.

¹⁸ *Chemical Weapons Convention*, Article I, paragraph 5.

¹⁹ *Chemical Weapons Convention*, Article III, paragraph 1(e).

INTERPRETING THE CONVENTION

While many things are defined within the Convention, many more are not, and interpreting the *lacunae* in the context of what the Convention actually says, what its drafters likely intended, and what common sense demands, requires some thought. Extrapolating from the Convention language in order to clarify ambiguities and fill in gaps is a logical prerequisite, aimed at assisting policy-makers achieve a common understanding of poorly-defined or undefined terms mean, and where they fit. This will provide a base upon which to construct consensus as to what constitutes legitimate versus illegitimate use of riot control and incapacitating chemical agents; and this consensus will, in turn, serve as the foundation for individual States Parties to develop policy and, where appropriate, doctrine.

Incapacitating chemical agents

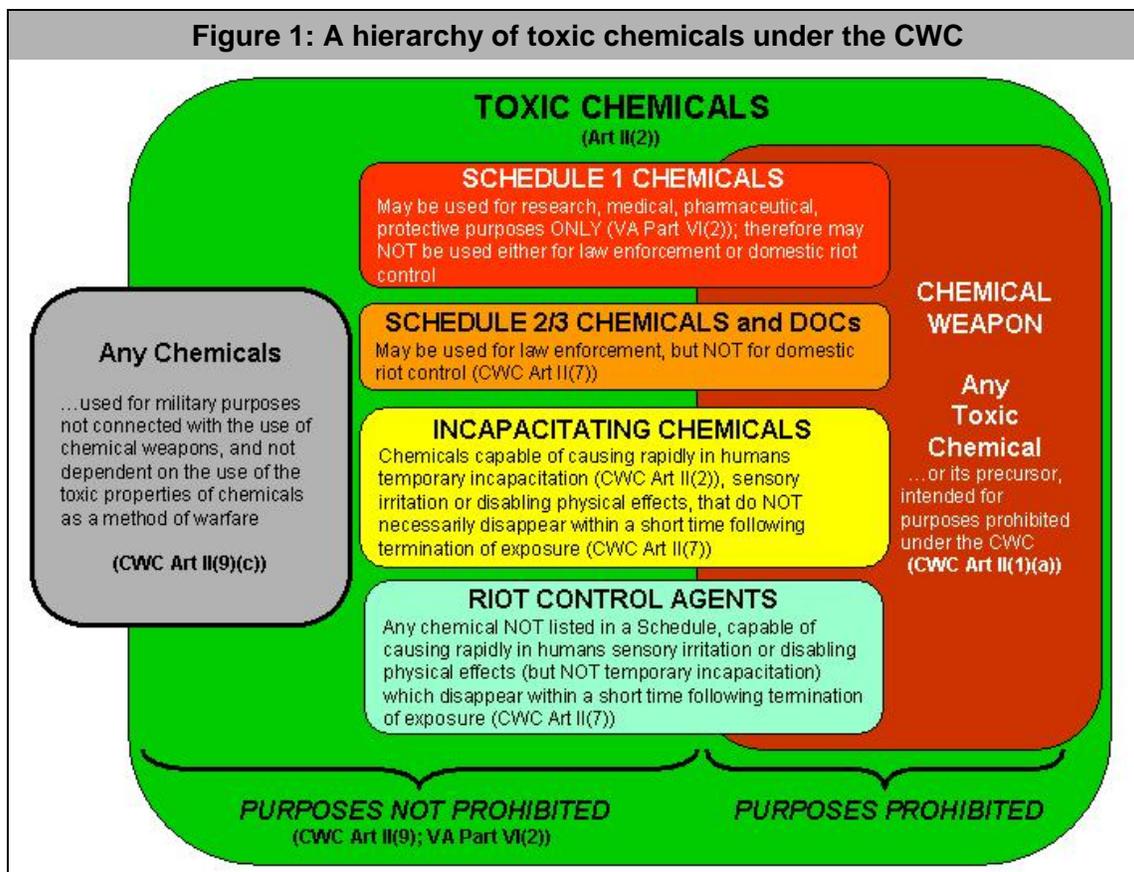
While the Convention provides definitions for “toxic chemical” and “riot control agent”, the term “incapacitating chemical agent” is not defined. On the basis of the nature and duration of effect of a toxic chemical, however, it is possible to assign “incapacitating chemical agents” a place in the hierarchy. Incapacitating chemical agents may be deemed to be members of a subset of toxic chemicals, that are capable of causing temporary incapacitation, but not normally death or permanent harm, to humans or animals; but whose effects are too pronounced (exceeding the RCA definition of “sensory irritation or disabling physical effects”), or whose duration is too prolonged (exceeding the RCA definition of “effects which disappear within a short time following termination of exposure”), to meet the definition of riot control agents. Figure 1 represents a graphical attempt to fit incapacitating chemical agents into the hierarchy of toxic chemicals outlined by the Convention. There is a wide variety of pharmacological products, many of them in everyday use (particularly in the practice of anesthesiology), that could potentially be employed as incapacitating chemical agents,²⁰ and a long history of government²¹ and military²² interest in compounds of this nature.

²⁰ Ladislav Hess, Institute for Clinical and Experimental Medicine, Prague; Jitka Schrieberova, Department of Anesthesia, University Hospital, Hradec Kralove; and Josef Fusek, Military Medical Faculty, University, Hradec Kalove, “Pharmacological non-lethal weapons”, n.d., p.14.

²¹ Martin Furmanski, MD, offers a good overview of past programs examining these sorts of agents, in “Military Interest in Low-lethality Biochemical Agents: The Historical Interaction of Advocates, Experts, Pragmatists and Politicians” (Background paper for the Scientist’s Working Group on Chemical and Biological Weapons, Center for Arms Control and Non-Proliferation, n.d.).

²² A U.S. Army Field Manual published in 1990 includes “the Fentanyl” on the list of potential military chemical agents likely to be used by an adversary against U.S. forces. Army Field Manual No. 3-9, *Potential Military Chemical/Biological Agents and Compounds* (Washington D.C.: Department of the Army, 12 December 1990), p.50.

Figure 1: A hierarchy of toxic chemicals under the CWC



Malodorants

It should be noted that the Convention does not define or address malodorants, which are chemicals designed to target human olfactory receptors in order to provoke a physiological response, ranging from simple aversion, to – in more extreme cases – symptoms such as nausea and vomiting. While malodorant formulations, which usually consist of an active organic compound dissolved or suspended in a relatively inert carrier fluid, have been investigated for riot control purposes,²³ they have not been widely deployed. However, as the effects and duration of those that have been investigated and discussed in the open literature are similar to the effects and duration of some of the classical irritant and sternutating compounds, it is appropriate to group the malodorants with the riot control agents, at least for the purpose of discussing what might constitute legitimate as opposed to illegitimate use.

²³ Terrie Boguski, Lisha Breuer and Larry Erickson, “Environmental Issues Associated with Malodorants”, presentation to the Non-lethal Technology and Academic Research Symposium, Kansas State University, 9 November 2001. Some candidate compounds include isovaleric acid (which produces a “sweaty, putrid, swine odor” reminiscent of rancid cheese); skatole (“putrid, fecal”); n-caproic acid (“sharp, sour, rancid, goat”); and t-butyl mercaptan (“skunk, sulphurous”). There is perhaps reason to be grateful that these agents have not yet been developed to the point of being deployable.

Method of warfare

The Convention also fails to define “method of warfare”. However, the term “warfare” is generally agreed to be analogous to “armed conflict” as it is understood in the comprehensive body of international law, including the First Additional Protocol (1977) to the Geneva Conventions.²⁴ Accordingly, the use of any toxic chemicals (for their toxic properties, as opposed to for their ancillary military value) against “combatants” as these are defined in Article 44 of the Protocol, would constitute a violation of the Convention. What this means in practical terms is that short of a domestic insurgency meeting the Protocol definition of “armed conflict” (e.g. where the insurgents control a span of territory and routinely conduct military operations), it is unlikely – at least in most developed countries – that any domestic operation by police or military forces would normally meet the definition of “warfare”. By the same token, with the exception of clearly defined types of operations short of actual combat, most instances of extra-territorial military operations would probably satisfy the Protocol definition of “warfare”; thus, the use of toxic chemicals against an adversary would be prohibited.

Law enforcement

Finally, while the Convention permits the use of toxic chemicals for “law enforcement, including domestic riot control,” it does not further define “law enforcement”. A common sense interpretation is that “law enforcement” is something that police forces do, supported, in exceptional circumstances, by military personnel. International legal authorities understand law enforcement to include the enforcement of domestic law (whether by police, military or other competent authority) within areas subject to the jurisdiction of the state.²⁵ With respect to domestic law enforcement, the only Convention restriction, stemming from the industry verification provisions of the Verification Annex, is that Schedule 1 Chemicals (the traditional chemical warfare agents and their precursors) may not be used for law enforcement purposes.²⁶ This also is a common sense provision, as it is difficult to envision circumstances where nerve agents, blister agents or biological toxins would make useful law enforcement tools. Notwithstanding this constraint, and despite considerable philosophical discomfort on the part of states and organizations opposed to capital punishment, it was agreed during the Convention negotiations that the “domestic law enforcement” provision contained in paragraph 9 of Article II permits the use of lethal chemicals for law enforcement (e.g., for judicial execution, whether by lethal injection or via the gas chamber).²⁷

²⁴ *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of International Armed Conflicts* (Protocol 1), 8 June 1977.

²⁵ David P. Fidler, “Incapacitating Chemical and Biochemical Weapons and Law Enforcement Under the Chemical Weapons Convention”, *Background Paper prepared for the Symposium on Incapacitating Biochemical Weapons*, Geneva, 11 June 2005, paragraph 39.

²⁶ *Chemical Weapons Convention, Verification Annex*, Part VI(A), Paragraph 2: “A State Party shall not produce, acquire, retain, transfer or use Schedule 1 chemicals unless (a) The chemicals are applied to research, medical, pharmaceutical or protective purposes.”

²⁷ Fidler (2005), paragraph 19.

If the Convention permits the use of toxic chemicals with lethal intent in order to enforce domestic law, then it would seem odd to argue that the same language prohibits the use of toxic chemicals with **non-lethal intent** to enforce domestic law.²⁸ Accordingly, it is reasonable to interpret the Convention to permit the use of both riot control and incapacitating chemical agents for law enforcement purposes in any area under the legal jurisdiction of the state.²⁹ This may be understood to include not only the national territory of the state over which it exercises jurisdiction, but also the sovereign territory occupied by an embassy or ambassadorial residence, as well as “state aircraft”, warships and nationally-flagged vessel on the high seas (or even, pursuant to the *United Nations Convention on the Law of the Sea*, located in the coastal waters of another state). Fidler, for example, opines that the Convention “recognizes the legitimacy of RCA use by military forces undertaking extraterritorial law enforcement activities that are permitted by international law.”³⁰

The argument that incapacitating chemical agents may legitimately be used for law enforcement purposes has been challenged on the grounds that because incapacitating chemical agents, with one exception, are not scheduled,³¹ they escape all of the Convention’s provisions except the general purpose criterion, which (as noted above) prohibits any activities involving toxic chemicals except for purposes not prohibited by the Convention.³² Chayes and Meselson, for example, citing “the purposes of the Convention and...international human rights standards”, argue that, “a toxic chemical used by virtue of its toxic properties is only of a type consistent with the purpose of law enforcement...if it meets the Convention’s definition of a ‘riot control agent’.”³³ This argument would render illegal any development, production, stockpiling, acquisition, retention or use of an incapacitating chemical agent for law enforcement purposes.³⁴ Under Chayes and Meselson’s interpretation, published in 1997, the

²⁸ Yet this is precisely what many analysts continue to argue (see below). None of them seem to understand that member states will enforce their domestic laws, and that if toxic chemicals are prohibited, then the only fallback option is lethal force. The same calculus, of course, applies to peace support operations abroad.

²⁹ This interpretation is supported by experts in legal issues pertaining to implementation of the Convention: “the CWC does not limit the use of toxic chemicals for domestic law enforcement purposes to RCAs.” David P. Fidler, “On Law Enforcement Under the Chemical Weapons Convention”, Memorandum to the Federation of American Scientists Working Group on Chemical-Biological Weapons, Open Forum on the CWC, 1 May 2003, p. 35.

³⁰ Fidler (2003), p. 35.

³¹ The exception is BZ, 3-quinuclidinyl benzilate, which is a schedule 2(A) chemical.

³² *Chemical Weapons Convention*, Article II, paragraph 1.

³³ Abram Chayes and Matthew Meselson, “Proposed Guidelines on the Status of Riot Control Agents and Other Toxic Chemicals under the Chemical Weapons Convention”, *Chemical Weapons Convention Bulletin*, Issue 35, March 1997, p. 17.

³⁴ A similar position has been taken by Dr. Walter Krutzsch, who argues that “Only riot control agents are exempted by the purpose ‘law enforcement including domestic riot control’, citing “the result of 22 years of discussion and negotiation”. Dr. Walter Krutzsch, “ ‘Law enforcement including domestic riot control’: the intent of the CWC negotiators”, paper prepared for the 11th Conference of CWC States Parties, 6 December 2006. It is worth noting that despite being written in 2006, Dr. Krutzsch’s paper

Russian operation at the Dubrovka Theatre would have been a violation of the Convention.³⁵ The fact that, in the wake of the Dubrovka incident, no member state accused Russia of violating the CWC suggests that Chayes' and Meselson's interpretation is not shared by any of the States Parties to the Convention. Quite the contrary; many Western governments, including the U.S., the U.K.,³⁶ and the European Union, openly supported Moscow's approach to resolving the standoff,³⁷ laying the blame for the deaths of hostages squarely on the shoulders of the terrorists who had initiated the crisis.

It could be argued that the same concept of legitimacy should extend to the use of riot control agents (and, arguably, incapacitating chemical agents) for law enforcement purposes in areas normally considered to be **outside** of a state's jurisdiction, subject to the acquiescence of the state in which the toxic chemicals are to be used. Examples of such circumstances could include enforcement of national laws by foreign police or military personnel at the request of a host state, a common occurrence during UN-sanctioned peace support operations; boarding of ships suspected of carrying contraband in contravention of a UN-mandated embargo; or even outside of the UN context, for example in executing the reciprocal rights of boarding and search accorded by member states of the *Proliferation Security Initiative*. In all such cases, of course, permission to use toxic chemicals would have to be accorded before the fact by the state normally exercising jurisdiction.

There is rather less agreement concerning the extent to which a state's own domestic laws can be "enforced" in areas **beyond** its national jurisdiction. Fidler argues that, under certain circumstances consistent with international law, military forces may legitimately use riot control agents in an international setting. Such circumstances could include fulfilling the obligations accruing to an occupying power under the law of armed conflict in the absence of local authority (e.g., to enforce local laws, protect persons and property, and maintain public order); controlling prisoners of war; enforcing domestic law at the request of a host state during consensual peace-keeping operations; or when engaged in peacekeeping operations sanctioned by the United Nations pursuant to Chapter VII of the UN Charter. This latter provision constitutes an important concession when viewed in the context of the Convention's permissions and prohibitions, as the phrase "law enforcement, including domestic riot control" (Article II, paragraph 9) has been taken by some of the more aggressive proponents of ICA and RCA as an argument that the Convention implicitly acknowledges the

makes no mention of the Dubrovka Theatre incident, which, according to his lights, constituted a clear and unequivocal violation of the Convention.

³⁵ Indeed, by their line of argument it constituted six distinct violations. In addition to 'using' a toxic chemical that exceeds the parameters of a riot control agent for law enforcement purposes, Moscow had obviously 'developed', 'produced', 'stockpiled', 'acquired' and 'retained' it as well.

³⁶ "West backs Russia over rescue tactics", *BBC News*, Monday 28 October 2002 [<http://news.bbc.co.uk/1/hi/world/europe/2370101.stm>].

³⁷ Paul Reynolds, "Putin: Foreign support but also concern", *BBC News*, Monday 28 October 2002 [<http://news.bbc.co.uk/1/hi/world/europe/2367735.stm>]. The EU statement argued that the Russian government had displayed "all possible restraint in this extremely difficult situation."

existence of an “enforceable international law”, and that, therefore, “international law enforcement” permits the use RCA or ICA. As will be seen further along, care must be exercised in stretching the Convention’s language too far. Fidler himself, for example, argues that the Convention “excludes from “law enforcement” the use of toxic chemicals to enforce...international law.”³⁸

The use by military forces of riot control agents for law enforcement purposes is clearly permissible when these forces are acting domestically in accordance with national legislation (e.g., in “aid of the civil power” operations), or internationally, on behalf and at the explicit request of a host nation. In such circumstances, it would be vital to specify clearly whose law was being enforced, and to recognize that the military personnel of most Western nations tend, by virtue of national legislation and the complex web of international status-of-forces agreements, to remain subject to the provisions of their own national criminal legislation even when operating in, and on behalf of the government of, a foreign country. This caveat is particularly relevant for nations engaged in operations in non-CWC member states. Members of UN or coalition forces deployed in Israel, Syria, Egypt, and Iraq, for example, would remain subject to the CWC implementing legislation of the sending state, even though the host state has no such legislation, because the implementation obligations contained in Article VII of the Convention require each State Party to ensure that its penal legislation *vis-à-vis* breaches of the Convention prohibitions covers violations that occur “anywhere by natural persons, possessing its nationality, in conformity with international law.”³⁹

Due to their severity and duration of effect, incapacitating chemical agents pose a far greater risk of inadvertent overdose than riot control agents (as seen in the deaths through overdose of 127 out of the 129 Dubrovka Theatre hostages who perished during the rescue operation). Accordingly, states that intend to make use of these agents face a proportionally greater obligation to ensure strict dosage and exposure control. Depending on the nature of their own domestic criminal legislation, they may also face a legal responsibility (the aforementioned “duty of care”) to ensure that all possible precautions are taken to minimize harm to innocent persons, and to ensure that adequate medical attention is provided to persons exposed to the effects of a toxic chemical.⁴⁰ Clearly, even if the use of incapacitating chemical agents is deemed appropriate and necessary, the decision to do so will invariably pose complex and daunting legal, ethical, and practical challenges.

³⁸ Fidler (2003), p. 35.

³⁹ *Chemical Weapons Convention*, Article VII, paragraph 1(c).

⁴⁰ Fidler (2005), paragraphs 23-25.

Finally, the use, without the explicit permission of the host government, of any toxic chemical of any sort, against humans or animals (or for that matter, against plants or even matériel) on the territory of another state, would likely be viewed with considerable disfavour by the international community, and could be deemed not only a violation of the Convention's general obligations, but also an act of war. Obviously, the stakes involved when contemplating the use of riot control or incapacitating chemical agents outside of one's own legal jurisdiction are considerable.

OTHER CONSIDERATIONS

There are a number of other considerations pertaining to the use of riot control or incapacitating chemical agents by military forces that affect the ongoing debate, and that therefore must be addressed.

Types and Quantities

The quantities and natures of any riot control or incapacitating chemical agents, and any munitions or dissemination devices designed for use in conjunction with them and held for purposes not prohibited by the Convention (e.g., law enforcement), must be “consistent” with those purposes.⁴¹ A chemical could not be considered appropriate for non-lethal law enforcement purposes if its biological activity cannot be countered or reversed (i.e., if it has no medical countermeasure), or if the difference between the incapacitating dose and the lethal dose is too small to be able to administer the former with a reasonable degree of confidence, while avoiding the latter.⁴²

Similarly, some munitions and delivery systems, such as hand-thrown thermal dispersion grenades, hand-held spray disseminators, and single-shot grenade launchers, are consistent with law enforcement purposes, while others – e.g., aerial bombs, mortar bombs and artillery shells – clearly are not.⁴³ As a general rule of thumb, it is not appropriate to disseminate a non-lethal agent using a mechanism whose ancillary effects could easily be lethal (e.g., a large, high-velocity carrier shell or a bursting device producing shrapnel); or whose gross capacity and interoperability with conventional military equipment (e.g. in mortars, howitzers, rocket projectiles or by high-speed aircraft) would render it rapidly adaptable for use as a “method of warfare”. Finally, while it is difficult to precisely determine what quantity of a

⁴¹ *Chemical Weapons Convention*, Article I, paragraph 1(a). This, incidentally, is another instance of the often convoluted nature of “Convention language”.

⁴² The gap between “incapacitating concentration” (IC_{t50}) and “lethal concentration” (LC_{t50}) has been referred to as the “therapeutic index” (TI), and is often expressed in terms of the former divided by the latter. In the case of CS (“tear gas”), the IC_{t50} is 10-20 mg-min/m³, while the LC_{t50} is 61,000 mg-min/m³, for a TI of 3050-5100. This makes CS a very safe agent for non-lethal use. In the case of DM (“Adamsite”), a sternutating or “vomiting” agent, the TI is (11,000/22 to 150) or approximately 73-500, making an accidental overdose more likely. Army Field Manual No. 3-9, *Potential Military Chemical/Biological Agents and Compounds* (Washington D.C.: Department of the Army, 12 December 1990), pp. 58-59 and 65-66. The “therapeutic index” calculation is employed by Lynn Klotz, Martin Furmanski and Mark Wheelis to argue that no current pharmaceutical product offers a high enough “safety margin” for use as an incapacitating chemical agent (“Beware the Siren’s Song: Why ‘Non-Lethal’ Incapacitating Chemical Agents are Lethal”), March 2003, Federation of American Scientists [http://www.fas.org/bwc/papers/sirens_song.pdf].

⁴³ As noted in one analysis of this issue, “there appears to be no legitimate application of howitzer shells for ‘law enforcement including domestic riot control purposes’...”. Abram Chayes and Matthew Meselson, “Proposed Guidelines on the Status of Riot Control Agents and Other Toxic Chemicals under the Chemical Weapons Convention”, *Chemical Weapons Convention Bulletin*, Issue 35, March 1997, p.14.

chemical is, or is not, consistent with law enforcement purposes, orders of magnitude are instructive. A few tonnes of a highly toxic incapacitating chemical agent should be sufficient for law enforcement purposes (as well as the requisite testing and training) even for a state with a population of many millions; whereas hundreds or thousands of tonnes would not, as this would constitute a militarily significant quantity.

These are, of course, unwritten, common sense principles that would benefit greatly from debate and codification into a body of what might be considered acceptable “types and quantities” of chemicals, munitions and dissemination systems for riot control or law enforcement use.

Research

While the CWC does not prohibit research on “chemical weapons” as such, the general purpose criterion clearly prohibits producing or retaining toxic chemicals for purposes prohibited by the Convention. States Parties are nonetheless entitled to conduct research on toxic chemicals for industrial, agricultural, research, medical, pharmaceutical or other peaceful purposes; for purposes directly related to protection against toxic chemicals and to protection against chemical weapons; and for law enforcement, including domestic riot control purposes.⁴⁴

The nature of research aimed at producing new riot control or incapacitating chemical agents must be consistent with the purpose for which it is ostensibly being conducted, and that purpose must be one not prohibited by the Convention. Shortly before the Dubrovka Theatre incident, *Science* magazine noted that the U.S. Marine Corps’ Joint Non-Lethal Weapons Program was sponsoring research into the potential utility of pharmaceutical products such as diazepam (Valium), fluoxetine (Prozac) and sertraline (Zoloft) at the Institute for Emerging Defence Technologies at Pennsylvania State University⁴⁵ (the research report, incidentally, concluded that “the development and use of non-lethal calmativive techniques is achievable and desirable”).⁴⁶ Because it is the intent for which research is being done that determines its legitimacy, such research, as one academic correctly noted, would only violate the Convention “if the intent is to use these weapons in international military conflict.”⁴⁷

Declarations and Inspections

States Parties are obliged to declare facilities that produce Scheduled and discrete organic chemicals if the quantities produced exceed certain limits. All known riot control, and most, if not all, conceivable candidates for incapacitating chemical agents would normally fall into the category of non-Scheduled discrete organic chemicals

⁴⁴ *Chemical Weapons Convention*, Article II, paragraph 9.

⁴⁵ Alexander Stone, “U.S. Research on Sedatives In Combat Sets Off Alarms”, *Science*, Vol. 297, 2 August 2002, p. 764.

⁴⁶ Dr. Joan M. Lakoski, Dr. W. Bosseau Murray, and Dr. John M. Kenny, “The Advantages and Limitations of Calmativives for Use as a Non-Lethal Technique” (The Pennsylvania State University College of Medicine, 3 October 2000), p. 49.

⁴⁷ Stone (2002), p. 764.

(with the above-noted exception of BZ, which is a Schedule 2(A) chemical). Accordingly, any CWC member state producing riot control or incapacitating chemical agents in quantities exceeding 200 tonnes annually (or 30 tonnes in the case of DOCs containing phosphorous, sulfur or fluorine) is required to declare that production and, if it exceeds certain defined limits, must open the production facilities to international inspection. These limits are delineated at Figure 2.

Figure 2: Production Limits for Declaration / Inspection			
Chemical Type	Annual Production Limit for...		Aggregate limit within State Party
	...declaration	...inspection	
SCHEDULE 1 CHEMICALS			1 t
Single Small-Scale Facility	1 tonne	Automatic	
Other Facility for Protective Purposes	not exceeding 10 kg	Automatic	
Research, Medical, Pharmaceutical labs	more than 100 grams, but not exceeding 10 kg	Automatic	
Research, Medical, Pharmaceutical, but NOT protective	less than 100 grams	None	
SCHEDULE 2.A.(*)⁴⁸	1 kg	10 kg	None
SCHEDULE 2.A.	100 kg	1 tonne	
SCHEDULE 2.B.	1 tonne	10 tonne	
SCHEDULE 3⁴⁹	30 tonne	200 tonne	None
DOC (PSF)	30 tonnes per chemical	200 tonnes per chemical	None
DOC (Non-PSF)	200 tonnes	200 tonnes	

⁴⁸ The only Scheduled incapacitating chemical agent is BZ (3-quinuclidinyl benzilate), which is a (in fact, the only) Schedule 2.A.(*) chemical.

⁴⁹ The only Scheduled former riot control agent is PS (chloropicrin). As this is a Schedule 3.A. chemical, pursuant to Article II(7), it can no longer be declared or used as a riot control agent.

LEGITIMATE USE OF TOXIC CHEMICALS

Based on the definitions, prohibitions and boundaries described in the Convention and elsewhere, the circumstances under which toxic chemicals may or may not, and should or should not, be employed, can be defined or extrapolated. The following section addresses this question from the perspective of the different “categories” into which toxic chemicals have been subdivided for purposes of consideration in this paper. The first two categories are riot control agents and malodorants, and incapacitating chemical agents. For the sake of comparison and clarity, and in order to delineate clearly what is and is not permissible under the Convention, two further categories will be considered: chemicals not on Schedule 1; and Schedule 1 chemicals. With the exception of the last, these four categories are not defined in the Convention or in any other legal text; rather, they are an artifact of the legal constraints imposed by the Convention and associated legal texts, and are useful in the context of this paper because all chemicals that fall under a single category are subject to the same legal constraints.

Despite the fact that, as noted above, the Convention’s general purpose criterion is based on the purpose for which a given toxic chemical is intended rather than upon the absolute toxicity of the chemical itself, as will be seen, the practical effect of the Convention’s prohibitions (and those imposed by other elements of international law) is that the scope of what is, and what is not, permissible with a given chemical is more or less inversely proportional to its absolute toxicity. In other words, in general, the more toxic a chemical is, the greater the restrictions on its use. This is as it should be.⁵⁰

The four categories of chemicals are evaluated against an array of potential uses, grouped into two categories of their own: domestic uses (i.e., employment in areas subject to the legal jurisdiction of the member state); and international uses (i.e., employment in areas beyond the legal jurisdiction of the member state). Potential domestic uses include, in increasing order of severity: protective research (which includes protective training); developmental research; police functions; hostage rescue; aid of the civil power (e.g., the use of military forces to quell armed disturbances and/or fulfill what would normally be police functions); domestic counter-terrorist operations; domestic counter-insurgency operations; and judicial execution. Potential international employment is also evaluated in increasing order of severity, from execution of police functions on behalf of a host state, through rescue operations; the maintenance of public order and safety while fulfilling the obligations of an occupying power; controlling prisoners of war; consensual peacekeeping or peace support operations pursuant to Chapter VI of the UN Charter; non-consensual

⁵⁰ This principle, of course, breaks down in the face of non-Scheduled chemicals more toxic than those on Schedule 1, e.g., the “novichoks” alleged to have been produced by the former Soviet Union. But that is a subject for another report. Jonathan B. Tucker, *War of Nerves: Chemical Warfare from World War I to Al Qaeda* (New York: Pantheon Books, 2006), pp. 253-254 *et al.*

peacekeeping or peace support operations pursuant to Chapter VII of the UN Charter; and armed conflict.

Finally, before proceeding with this analysis, it is necessary to emphasize two points. First, because the aim of this report is to delineate boundaries applicable in principle to all CWC member states, it does not address the impact of domestic legislation or decision-making, which obviously may, on a case-by-case basis, impose further constraints upon those deriving from international law. Second, and for the same reason, this paper attempts no moral or ethical value judgments vis-à-vis either the desirability of employing less-than-lethal chemicals to reduce the human cost of military operations, or the darker side of some of the potential uses to which toxic chemicals may, by virtue of what the Convention says or does not say, be put. For example, the administration of toxic chemicals in lethal concentrations for judicial execution was deemed a “purpose not prohibited” during the Convention negotiations; the fact that few member states allow capital punishment has no bearing on what is, or is not, permissible according to a strict, literal reading of the Convention. The following analysis is aimed solely at developing an understanding of what, according to the Convention, constitutes legitimate and illegitimate use of the chemicals that fall into the categories of riot control agents and malodorants; incapacitating chemical agents; lethal chemicals not on Schedule 1; and Schedule 1 chemicals. It should not be taken as an endorsement of any of those activities. For ease of reference, the results are compiled graphically at Figure 3.

Category 1: Riot control agents and malodorants

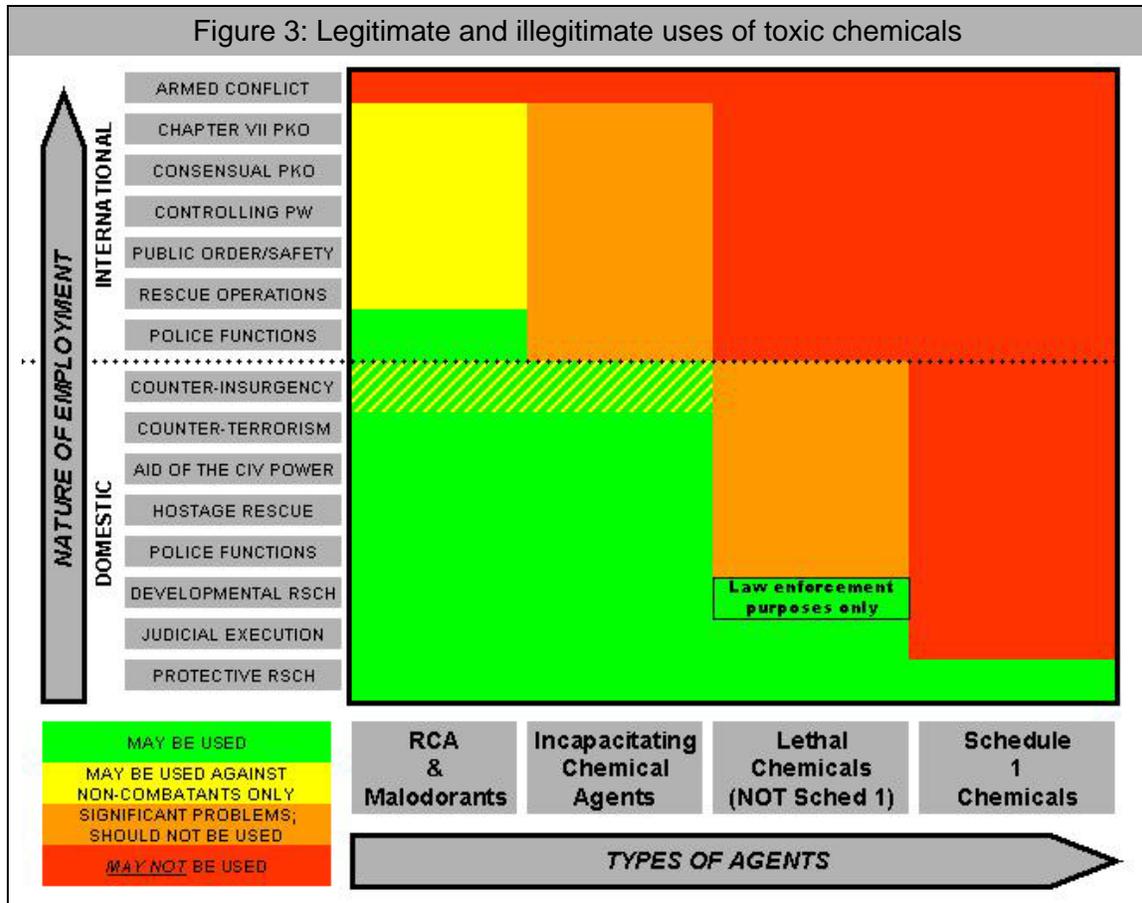
As noted above, while malodorants are not addressed in the Convention, riot control agents are clearly defined in Article II, and that definition is sufficiently broad to encompass the majority of candidate malodorant compounds. Accordingly, it is appropriate to group the two sub-sets of toxic chemicals for purposes of determining what might constitute legitimate or illegitimate use.

Properly used, riot control agents and malodorants would normally pose no threat of death by overdose, even in elevated concentrations, and therefore the restrictions on their use under the Convention are minimal. The only clear prohibition is that contained in paragraph 5 of Article I, under which States Parties undertake “not to use riot control agents as a method of warfare.”⁵¹ As noted above, when coupled with the legitimacy of use of toxic chemicals for “law enforcement, including domestic riot control purposes”,⁵² it is clear that there is no bar to the employment by a CWC member state of riot control agents or malodorants for any of the above-mentioned domestic purposes.

⁵¹ *Chemical Weapons Convention*, Article I, paragraph 5.

⁵² *Chemical Weapons Convention*, Article II, paragraph 9(d).

Figure 3: Legitimate and illegitimate uses of toxic chemicals



This qualification is necessary because counter-insurgency operations are subject to international humanitarian law, which specifies that if an insurgency, “under responsible command,” exercises control over part of a state’s territory and carries out “sustained and concerted military operations”, it may be deemed to be an “armed conflict”.⁵³ Any military action against participants in an armed conflict could logically be considered to constitute “warfare” under the Convention. While it is unclear whether the definitions of “control over part of [one’s] territory” and “sustained and concerted military operations” are subject to national or international adjudication (and, as Russia’s campaign in Chechnya demonstrates, governments facing internal unrest are loathe to accept foreign attempts to designate such outbreaks “armed conflicts”), any CWC member state that found itself in such circumstances would invite international obloquy if it employed riot control agents or malodorants against individuals who might reasonably be construed to be members of a domestic insurgency meeting the international legal definition of a “combatant”.⁵⁴

⁵³ *Protocol Additional to the Geneva Conventions of 12 August 1949, and Relating to the Protection of Victims of Non-International Armed Conflicts* (Protocol II), 8 June 1977, Article 1.

⁵⁴ It remains unclear whether “insurgents” forfeit their status as combatants, and therefore the prohibitions on the use of riot control or incapacitating chemical agents against them, if they violate the law of armed conflict, e.g. through openly flouting the prohibitions against the taking of hostages, cruel

Accordingly, the use of riot control agents or malodorants in domestic counter-insurgency operations must be approached with some caution.

Operations outside of the legal jurisdiction of a state pose an entirely different array of problems, as the “law enforcement” principle may only be applied in specific circumstances, and not all authorities agree where the line should be drawn. There is some precedent in recent years for police or military personnel of one state carrying out law enforcement operations at the behest of a host government (e.g., UN peace support operations in Bosnia, Croatia, Kosovo, Haiti and elsewhere). Such functions could involve the use of riot control agents commonly used by police forces throughout the Western world (e.g. tear gas, pepper spray and Mace). Indeed, it undermines the purpose of dispatching police (or military) forces to provide law enforcement assistance to other states if they are denied the option of using non-lethal means to execute their mandate. There should therefore normally be no restriction on the use of riot control agents (and for the same reasons, malodorants), by law enforcement personnel for law enforcement purposes, who are executing their duties at the invitation of a host government.

A greater degree of caution is warranted when a military rather than law enforcement agency is involved, particularly as, in many countries, military forces normally have no mandate or training to engage in riot control operations other than in self-defence.⁵⁵ The governing concern in this context is the general prohibition against the use of riot control agents (and, therefore, malodorants) as a “method of warfare”. The use of riot control agents by military forces for law enforcement purposes in an international context should be considered permissible, so long as the agents are used with the express permission of the host state (assuming that a legitimate government, capable of granting such permission, exists), and the purpose for which the agents are used (1) does not advance a military objective, and (2) does not involve the use of toxic chemicals against anyone who could be construed as an enemy combatant. Accordingly, military forces should be permitted to use riot control agents or malodorants as an alternative to lethal force, to execute law enforcement functions at the behest of a host nation; to control riots, prevent looting and restore public order or

treatment, outrages upon personal dignity, torture, mutilation and murder contained in Article 3 of the *Geneva Convention Relevant to the Protection of Civilian Persons in Time of War* (4th Geneva Convention), 12 August 1949.

⁵⁵ This is the case in Canada. “The [Canadian Forces] has no mandate for civilian crowd and riot control tasks within Canada, other than to act in self-defence.” B-GL-300-007/FP-001 *Land Force Firepower* (Ottawa: Department of National Defence, 1999), p. 105.

safety; to control prisoners of war;⁵⁶ and to protect themselves, their bases, and their vital equipment against civil disturbances.⁵⁷

As a point of comparison, U.S. armed forces are permitted, by virtue of Executive Order 11850 (signed by President Ford in 1975) to employ riot control agents defensively, to control rioting prisoners of war; to prevent enemy forces from using civilians as “human shields”; in combat search and rescue operations; and for force protection operations (also known as “rear area security”). The Senate ratified the Convention on the understanding that Executive Order 11850 would not be undermined thereby, and this has led U.S. military legal staffs to conclude that toxic chemicals may be used for anti-material purposes (e.g., depolymerization compounds to target vehicle tires); for anti-personnel purposes in order to enforce the law; or where the chemicals are not being employed for some military purpose other than their human or animal toxicity (e.g., “sticky foams”).⁵⁸ Many elected officials in the United States continue to view with disfavour any policy that would further restrict the latitude of the US armed forces to use non-lethal force during UN-sanctioned peace support operations.⁵⁹

The governing principle in each case remains, of course, that chemical agents may never be used against combatants. This is a challenging proposition when military forces are facing heterogeneous crowds of agitated civilians, some armed and some not, amongst whom there may be armed or unarmed “combatants”; or when terrorists employ hostages or human shields to mask their own attacks or to deter more principled forces from attacking them. The difficulties involved in distinguishing between “combatants” and “non-combatants” has led some CWC member states to simply prohibit the use of riot control agents under any circumstances – with the perverse result that soldiers must use lethal force where non-lethal force would have been both feasible and preferable, in order to avoid and possibility of breaching international legal obligations.⁶⁰

⁵⁶ The task of controlling prisoners of war does not extend to cover recapturing escaped prisoners of war. The law of armed conflict recognizes that combatants who become prisoners of war do not relinquish their right to the status of combatant, and it is accepted that, if they escape, they become active combatants once again, and must be treated as such. Accordingly, attempts to recapture escaped prisoners of war constitute a “method of warfare”, and as such, the use of riot control or incapacitating chemical agents to support such attempts would be prohibited under the Convention.

⁵⁷ Fidler (2005), paragraphs 72-89.

⁵⁸ Joseph A. Rutigliano Jr., “Overview of Legal Issues Affecting Non-Lethal Weapons”, presentation to the Naval Studies Board Assessment on NLW Science and Technology, 3-4 April 2001. The same paper noted that it remained an open question whether U.S. forces could legally use “calmatives”.

⁵⁹ Michael Nguyen, “Senate Struggles with Riot Control Agent Policy”, *Arms Control Today*, January/February 2006, n.p.

⁶⁰ On 17 February 1993, during Operation Deliverance in Somalia, Canadian Forces personnel shot and killed two Somalis during a riot. While the Somalia Commission of Inquiry was terminated before it addressed this incident, the Commissioners noted that the Commander of the Unified Task Force denied permission to use tear gas to disperse the riot; and that they would have preferred to investigate “whether the failure to obtain advance approval for the use of chemical or other riot control agents, and

The fine distinctions of international law would probably be lost on civilians who find themselves facing the business end of an assault rifle because legal experts have decided that authorizing the use of riot control agents would be “too risky”. The problem is only slightly less thorny for a soldier who, before taking defensive measures, must accept a far higher degree of threat from rioters in order to justify the use of potentially lethal force, because the use of tear gas has been denied. Some nations have taken steps to untangle this dilemma. The German Armed Forces, for example, had long been banned from using riot control agents on overseas operations, but after a series of incidents involving crowd violence in Kosovo (where German troops formed part of the NATO-led and UN-sanctioned Kosovo Force, or KFOR) in March 2004, the Germany Parliament overturned the previous policy, and authorized the use of riot control agents abroad.⁶¹ Nations have, perhaps regrettably, not rushed to emulate Berlin’s common-sense approach.

International law is of course a two-edged sword, and it would be perverse to insist that its constraints should operate only to the detriment of those nations that obey them faithfully. The use of human shields, for example, amounts to, and is arguably more egregious than, the taking of hostages, and as such is one of the activities expressly outlawed under the law of armed conflict.⁶² Under the *Third Geneva Convention* (1949) and the *First Additional Protocol* thereto (1977), a “combatant” is generally understood to forfeit that status if he or she engages in perfidious acts or activities contrary to the laws of armed conflict. For example, according to Article 43 of the latter document, in order to be considered a member of an “armed force” in the first place, an individual must at all times remain “subject to an internal disciplinary system which, *inter alia*, shall enforce compliance with the rules of international law applicable in armed conflict.”⁶³

A case could be made that participants in a conflict who routinely violate the laws intended to regulate the brutality of war, and who obey no chain of command to which an adversary, a Protecting Power, or indeed the International Committee of the Red Cross could appeal for redress, are not members of an “armed force” as defined by international law. Accordingly, military action against individuals who are engaged in perfidious or illegal conduct that places the lives of innocent civilians at

for the type of agents that could be used, reflected planning deficiencies.” The Commissioners opined that it might have been preferable to avoid the use of deadly force when possible in the context of a mission designed “to deliver supplies to a starving population.” *Dishonoured Legacy: The Lessons of the Somalia Affair*, Report of the Commission of Inquiry into the Deployment of Canadian Forces to Somalia, Vol. 5 (Ottawa: Ministry of Public Works and Government Services Canada, 1997), pp. 1411-1412.

⁶¹ Captain Massimo Annati, Italian Navy, “Military Use of Chemical Riot Control Agents: A Case for Legal Assessment”, paper for the European Working Group on Non-Lethal Weapons, n.d., p.5.

⁶² A non-exhaustive list of war crimes is provided at Article VI of the Charter of the International Military Tribunal established at Nuremburg in 1945. *Agreement for the Prosecution and Punishment of the Major War Criminals of the European Axis, and Charter of the International Military Tribunal*. London, 8 August 1945, Charter, Article VI.

⁶³ *Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol 1)*, adopted 8 June 1977, Article 43.

risk should not automatically be considered “warfare” as such; rather, it could be construed to be enforcement of the international laws prohibiting illegal or inhumane conduct in war, or crimes against humanity. There is an obvious parallel in the *United Nations Convention on the Law of the Sea*, which obliges states to cooperate in the repression of piracy, and permits any state to seize a pirate ship or aircraft, and arrest the persons and seize the property found on board.⁶⁴ Because apprehension of pirates clearly constitutes enforcement of international law, naval, police and Coast Guard personnel would be justified in employing toxic chemicals to facilitate boarding, search and seizure operations.

The philosophical gap between terrorism and piracy is narrow, deriving principally from the vestigial tendency to ascribe to terrorists some laudatory motive other than profit (usually ideology, whether political or theological). This gap is gradually vanishing as the compendium of terrorist atrocities grows and the body of international law evolves.⁶⁵ As a result, military action against terrorists is likely, over time, to come to be seen in the same light as military action against pirates: as nothing more than enforcement of international laws and norms. It is therefore not unrealistic to postulate that, at some point, States Parties to the Convention might be willing to underwrite this evolution by agreeing that military forces are entitled to employ toxic chemicals to facilitate the enforcement of international law against terrorists, especially in circumstances involving hostage-taking, the use of human shields, torture, murder or mutilation of captives, or any of the other tactics that characterize the contemporary terrorist’s *modus operandi*, but that are deemed universally abhorrent by civilized peoples.

Category 2: Incapacitating chemical agents

Because the Convention does not define “incapacitating chemical agents” and therefore does not explicitly proscribe their use (except negatively, as incapacitating chemical agents are neither included on Schedule 1 nor intended to be lethal), the primary parameter governing their employment in a domestic context is the fact that the use of toxic chemicals “for law enforcement” is one of the “purposes not prohibited” under Article II of the Convention.⁶⁶ Accordingly, it would seem that a CWC member state could make use of incapacitating chemical agents for all of the same array of domestic tasks for which riot control agents and malodorants may legitimately be used, observing the same restriction – that the use of incapacitating chemical agents in domestic counter-insurgency operations would be legitimate only so long as the insurgency does not qualify as an “armed conflict” under international law.

The situation is a little different in the international milieu. While in theory there should be no bar to using incapacitating chemical agents as freely in an international

⁶⁴ *United Nations Convention on the Law of the Sea, 10 December 1982*, Section VII, Article 105. Article 99 of the same section of the UNCLOS applies similar provisions to ships transporting slaves.

⁶⁵ The 13 anti-terrorism conventions adopted by the UN over the course of the past several years are evidence of the evolution of international law vis-à-vis terrorists.

⁶⁶ *Chemical Weapons Convention*, Article II, paragraph 9(d).

setting as riot control agents might be used, two important concerns, neither of which are dealt with adequately in international law, must be addressed. First, unlike incapacitating chemical agents, riot control agents have in fact been authorized by some nations (including NATO nations) for use on international operations without sparking an outcry; thus there is at least precedent to serve as a guide. Until and unless an incapacitating chemical agent is used in an international scenario without sparking widespread international condemnation, there will continue to be a “first-use deterrent effect” auguring against crossing that particular Rubicon.⁶⁷

Second, because incapacitating chemical agents are by definition more severe in their physiological effects and longer-lasting than riot control agents, there is an implied “duty of care” attending their use. Any government that employs an incapacitating chemical agent would be morally, and in most cases legally, obliged to take all reasonable steps to ensure that the agent’s effects are non-lethal, in effect as well as in intent. This means that reasonable operational and medical precautions must be taken in order to prevent, for example, the lethal overdoses that caused the vast majority of the hostage deaths in the Dubrovka Theatre incident. Persons exposed to an overdose of tear gas may be expected to recover without assistance, whereas persons exposed to an overdose of a synthetic opioid like Fentanyl are likely to suffer respiratory suppression, lowered heart rates and muscular paralysis, and are unlikely to recover without administration of an opioid antagonist (e.g., Naloxone), and the provision of respiratory support while the medical countermeasures take effect.

Both of these concerns are as valid for the domestic as for the international use of incapacitating chemical agents. However, as the international response to the Dubrovka Theatre incident demonstrates, governments are more sanguine about “collateral damage” when they occur in other countries. One need only imagine a scenario wherein Russian Special Forces used the same method to rescue Russian hostages held by terrorists on the territory of another state. In such a circumstance, it is unlikely that the international community would view favourably an outcome that involved hundreds of civilian fatalities.

Category 3: Lethal chemicals not on Schedule 1

As noted above, while Article II of the Convention permits the use of toxic chemicals for law enforcement, it does not further define “law enforcement”, nor does it provide any guidance as to the absolute toxicity of the chemicals that may or may not be used for such purposes. This ambiguity was deliberate, because it permits the use of toxic chemicals in lethal concentrations for judicial execution.

The Convention explicitly permits the use of toxic chemicals for “purposes directly related to protection against toxic chemicals and to protection against chemical weapons”;⁶⁸ accordingly, there is no bar to conducting protective research on toxic

⁶⁷ Precedent is of course never a wholly satisfactory guide. Prior to the Dubrovka Theatre incident, no State Party to the Convention had ever made unambiguous and unapologetic use of an incapacitating chemical agent for law enforcement purposes – and yet States Parties have subsequently, and unanimously, judged Moscow’s actions to have been legitimate.

⁶⁸ *Chemical Weapons Convention*, Article II, paragraph 9(c).

chemicals regardless of whether they appear on the Schedules. Developmental research – that is to say, research aimed at developing toxic chemicals with a view to using them in lethal concentrations – would logically only be permissible if the purpose for which the research is intended is not prohibited by the Convention. As noted above, the only “purpose not prohibited” that fits that description is law enforcement.

While there is no explicit bar in the Convention to using toxic chemicals in lethal concentrations for domestic law enforcement purposes, obviously there would be significant problems associated with such use, ranging from domestic legislation to international humanitarian law. Thus, while not strictly prohibited, the use of lethal chemicals for any law enforcement purpose other than judicial execution would pose so many operational, legal and ethical difficulties that most governments would more than likely eschew it as a practical option.

The Convention does not recognize any legitimate use of non-scheduled lethal chemicals for law enforcement purposes outside of the national jurisdiction of a state.

Category 4: Schedule 1 Chemicals

The constraints on “purposes not prohibited” are most restrictive with respect to the traditional chemical warfare agents and their precursors that are listed in Schedule 1. This select list includes the nerve agents tabun, sarin, soman and VX, along with all conceivable chemical analogues; the nine different types of sulfur mustard; the three nitrogen mustards; the three Lewisites; and the biological toxins ricin and saxitoxin. Also included are four key precursors: DF, a sarin/soman precursor, and its analogues; QL, a VX precursor, and its analogues; chlorosarin; and chlorosoman. Collectively, these compounds comprise the Schedule 1 chemicals.

In addition to the restrictions imposed by paragraph 9 of Article II, Schedule 1 chemicals are subject to further constraints described under the Verification Annex, Part VI of which specifies that a State Party to the Convention may not “produce, acquire, retain, transfer or use Schedule 1 chemicals unless...the chemicals are applied to research, medical, pharmaceutical or protective purposes”.⁶⁹ Even if a law enforcement role could be conceived for Schedule 1 chemicals (a highly dubious proposition), this provision would preclude any such use. Accordingly, Schedule 1 chemicals may only be used by police or military forces for defensive training, scientific research designed to evaluate or develop protective equipment and medical countermeasures, and for other “purposes directly related to protection against toxic chemicals and to protection against chemical weapons.”⁷⁰

⁶⁹ *Chemical Weapons Convention*, Verification Annex, Part VI, paragraph 2.

⁷⁰ *Chemical Weapons Convention*, Article II, paragraph 9(b).

CONCLUSIONS

A number of conclusions are immediately evident from the foregoing analysis. The first and most obvious is that, apart from protective research and training, military and police forces should have little or nothing to do with lethal chemical agents, regardless of whether they are on Schedule 1 or not. With respect to the other two categories, it is clear that there is a wide range of legitimate military and police uses for riot control agents and malodorants, particularly for domestic operations, but also – subject to some important caveats – in operations outside of the normal legal jurisdiction of a state.

It is in the area of incapacitating chemical agents that more thought and work are required. The Convention clearly allows the use of incapacitating chemical agents for law enforcement purposes within areas subject to a state's jurisdiction (including law enforcement functions executed by military agencies); and although this paper concludes that legal and operational impediments auger against it, an argument could be made that incapacitating chemical agents could, under certain circumstances, be employed outside of a state's normal jurisdiction. Because the Convention does not explicitly address the vast majority of these compounds, however, there remain irreducible uncertainties as to what types of employment might, and might not, be considered legitimate.

Some analysts and non-governmental organizations have attempted to stretch the Convention's text or revive arguments raised decades ago during the negotiating process in order to impose upon the potential use of these agents constraints that do not actually exist in the treaty as it was signed by member states.⁷¹ Others have attempted to stigmatize – on the basis of the unintentional casualties resulting from the Dubrovka Theatre operation – incapacitating chemical agents as being, on average, on a par with conventional weapons in terms of their potential lethality.⁷² Well-intentioned though they may be, these arguments are misguided. The contemporary enemy deliberately violates the laws of armed conflict in order to negate the conventional advantages enjoyed by Western police and military

⁷¹ Dr. Walter Krutzsch, “ ‘Law enforcement including domestic riot control’: the intent of the CWC negotiators”, paper prepared for the 11th Conference of CWC States Parties, 6 December 2006.

⁷² Peter Herby, “Toxic Chemicals and Law Enforcement: Implications for the CWC”, paper prepared for the 11th Conference of CWC States Parties, 6 December 2006. In this paper, the author argues that because the incapacitating chemical agent used in the Dubrovka Theatre killed 120 out of some 700 hostages (the actual number is 129 hostage deaths out of about 900 hostages), its lethality in this one instance – c. 17% according to Herby, actually 14.3% - places the “Fentanyl derivative” on a par with assault rifles (20% lethal) and large explosions (25% lethal). This analysis is deeply flawed, as it is based on comparing entirely different things. The purpose of using an incapacitating chemical agent in a hostage-rescue scenario, after all, is to **avoid** killing non-combatants surrounding the target. In this light, the Russian agent was, in fact, 86% effective at **not killing** the hostages it was used on. Given that this is more than four times as effective as rifle bullets are at killing their targets (assuming Herby's assault rifle statistics are reliable), it seems to me that this is a strong argument in favour of, rather than against, the use of incapacitating chemical agents in hostage rescue scenarios.

organizations. Incapacitating chemical agents could offer governments additional tactical options to respond to adversaries who take hostages, hide themselves and their equipment in places of great cultural significance, or place innocent civilians deliberately at risk by using non-combatants to mask their operations. As the Dubrovka Theatre incident demonstrates, incapacitating chemical agents are both a reality, and a potentially useful tool in the arsenals of governments facing a growing array of asymmetric threats.

These potential advantages notwithstanding, any State Party to the Convention, in evaluating the potential utility of incapacitating chemical agents, must take care to stop short – preferably **well** short – of the inviolable Convention prohibition outlawing the use of any toxic chemical as a “method of warfare”.

A common understanding of principles governing RCA and ICA

Perhaps the first step in coming to grips with the ambiguities surrounding riot control and incapacitating chemical agents should be a concerted effort by like-minded CWC member states to attempt to develop a consensus as to what constitutes, and what does not constitute, legitimate use of riot control and incapacitating chemical agents in a domestic and international context.⁷³ The key prerequisite to any such initiative would be development of a list of parameters to guide States Parties in their thinking on how to operationalize riot control or incapacitating chemical agents. Based on the foregoing analysis, it is possible to derive a list of principles to guide states that are thinking about embarking on this complex and narrow road.

PRINCIPLE #1: A STATE PARTY TO THE CWC MAY DEVELOP, PRODUCE, OTHERWISE ACQUIRE, STOCKPILE, RETAIN AND TRANSFER BOTH RIOT CONTROL AND INCAPACITATING CHEMICAL AGENTS FOR PURPOSES NOT PROHIBITED BY THE CONVENTION, PROVIDED THAT THE TYPES AND QUANTITIES OF AGENTS, MUNITIONS AND DELIVERY SYSTEMS ARE CONSISTENT WITH THOSE PURPOSES, AND THAT THE STATE PARTY COMPLIES WITH ALL OF THE DECLARATION AND INSPECTION OBLIGATIONS CONTAINED IN THE CONVENTION AND ITS ANNEXES.

PRINCIPLE #2: WITHIN THE BOUNDARIES IMPOSED BY THE CONVENTION AND OTHER RELEVANT ELEMENTS OF INTERNATIONAL LAW, AND SUBJECT TO ANY ADDITIONAL CONSTRAINTS IMPOSED BY THE EMPLOYING AND/OR HOST GOVERNMENTS, MILITARY AND POLICE FORCES MAY EMPLOY

⁷³ In a paper issued in February 2003, immediately before the First CWC Review Conference, the Federation of American Scientists called for States Parties to attempt to come to an agreement “on the constraints that apply to “law enforcement””. Federation of American Scientists Working Group on CBW, “Urgent Advisory to the CWC States Parties on Law Enforcement under the Chemical Weapons Convention”, February 2003.

RIOT CONTROL AGENTS ON DOMESTIC AND INTERNATIONAL OPERATIONS.

PRINCIPLE #3: THE MILITARY AND LAW ENFORCEMENT ORGANS OF A STATE PARTY MAY USE INCAPACITATING CHEMICAL AGENTS FOR PURPOSES NOT PROHIBITED BY THE CONVENTION, IN TYPES AND QUANTITIES CONSISTENT WITH THOSE PURPOSES, IN PLACES SUBJECT TO THE LEGAL JURISDICTION OF THAT STATE.

PRINCIPLE #4: A CWC MEMBER STATE THAT PERMITS THE USE OF RIOT CONTROL OR INCAPACITATING CHEMICAL AGENTS BY ITS POLICE OR MILITARY FORCES IS OBLIGED TO ISSUE AND ENFORCE RULES OF ENGAGEMENT THAT CLEARLY ESTABLISH WHERE THESE AGENTS FIT ON THE CONTINUUM OF FORCE,⁷⁴ AND TO ENSURE THAT THE EMPLOYMENT OF TOXIC CHEMICALS IS CONSISTENT NOT ONLY WITH THE CONVENTION AND OTHER INTERNATIONAL LEGAL OBLIGATIONS, BUT ALSO WITH THE DOMESTIC LEGISLATION OF THE STATE, AND – IF APPROPRIATE – THE DOMESTIC LEGISLATION OF ANY HOST STATE WITHIN WHICH THE EMPLOYMENT OF TOXIC CHEMICALS OCCURS.⁷⁵

It would also be useful for like-minded States Parties to seek to develop a common understanding of the limits of what is meant by “law enforcement”, particularly with respect to how, and under what circumstances, law enforcement differs from “warfare”; how “law enforcement” relates to “riot control”; and the extent to which the “duty of care” must be respected and applied even when (or perhaps especially when) toxic chemicals are employed for permissible purposes, e.g. law enforcement.

Voluntary declarations under the CWC

A second step might be to launch a program of voluntary declarations in the area of incapacitating chemical agents. As the Dubrovka Theatre incident demonstrates, the decision by any CWC member state to develop, stockpile or use incapacitating chemical agents inevitably leads to expressions of consternation and requests for clarification by other member states. Like-minded member states could pre-empt such concerns by identifying ways of increasing confidence and transparency in this area. One near-term means of doing so would be for States Parties engaged in developing and deploying such capabilities to submit voluntary declarations similar to

⁷⁴ This principle is espoused in B-GL-300-007/FP-001 *Land Force Firepower* (Ottawa: Department of National Defence, 1999), p. 121.

⁷⁵ The requirement for clear rules of engagement is a must for any type of non-lethal weapon system – not just those based on the toxic properties of chemicals. *The Use of Non-Lethal Weapons in Operations Other Than War*, Defence Science Advisory Board Report 98/2 (Ottawa: Department of National Defence, October 1998), 13.

those required with respect to riot control agents pursuant to Article III(1)(e) of the Convention.⁷⁶

In order to provide a useful degree of confidence and transparency, any declarations submitted with respect to incapacitating chemical agents would have to differ slightly from those required with respect to riot control agents. Because the greatest concern is not the nature of the chemicals themselves, but rather the possibility that incapacitating chemical agents might provide a means of circumventing the Convention's prohibitions on the use of chemicals in warfare, voluntary declarations should include the generic names and quantities (or quantity ranges) of agents produced and held for law enforcement purposes, and the types of munitions and/or delivery systems stockpiled for use in conjunction with such agents.

Voluntary declarations have been criticized as problematic, because they are non-binding, and can therefore give States Parties a false sense of security. This is unfortunately unavoidable. Governments would for a variety of reasons be understandably reluctant to voluntarily disseminate sensitive information concerning their law enforcement capabilities. First, while the OPCW has an enviable reputation for respecting the requirements of the Annex on the Protection of Confidential Information, all declarations submitted by States Parties to the Convention are available to all other member states on request. Second, there is the possibility that information could leak out, enabling terrorist organizations to attempt to synthesize previously unknown agents, expanding the spectrum of the threat they already pose.⁷⁷ And third, disclosure of any new capability can compromise its future utility by enabling would-be adversaries to design tactical or technological countermeasures to obviate it, as may have been the case with the 2004 Beslan school siege in Russia.⁷⁸ Member states advocating or participating in any program of voluntary declarations will have to balance the gains that might be realized through increased transparency and confidence against the national security concerns of those making the declarations.

⁷⁶ There were many calls for implementation of such a declaration requirement after the Dubrovka Theatre operation, occurring, as it did, in the run-up to the First CWC Review Conference in the spring of 2003. "“law enforcement” and the CWC”, editorial, *The CBW Conventions Bulletin*, Issue No. 58, December 2002, 2.

⁷⁷ This could also be a concern with respect to any incapacitating chemical agents that, like Fentanyl, might conceivably have value as a “street drug”.

⁷⁸ The jihadists responsible for the 2004 Beslan massacre, for example, reportedly brought gas masks to prevent intoxication and dogs to act as “canaries” to provide advance warning of a chemical attack; and broke windows to prevent a repeat of the tactics used at the Dubrovka Theatre [<http://newsfromrussia.com/main/2004/09/06/55917.html>]. Indeed, they may have deliberately chosen an elementary school in order to deny Moscow the incapacitating chemical agent option. Because dosage is body-mass dependent, the concentration of an aerosolized synthetic opioid necessary to immediately incapacitate full-grown adults could easily be lethal to young children. Premature disclosure of the nature and characteristics of any operational capability can obviate that capability.

Directions for further research

There are a number of areas where further research is required in order to clarify what types of employment of riot control and incapacitating chemical agents may, or may not, be considered legitimate. Pharmaceutical research can identify candidate compounds and medical countermeasures (and can screen out compounds that are too toxic or for which medical countermeasures do not exist). Defence scientific research can investigate development and production of munitions and/or dispersal devices to be employed in conjunction with candidate agents, and can assist in the development of training and safety procedures for their use. Operational research can assist by developing operational scenarios where the use of these compounds might be desirable (crowd control, force protection, counter-terrorist and hostage rescue operations are some obvious candidates), and these scenarios can guide the development of policies, doctrine, tactics, training and safety procedures. And legal experts with operational experience can guide the development of rules of engagement designed to allow sufficient freedom of action to ensure that these agents may be used safely and in a manner designed to spare human life, without unduly compromising either mission success or the safety and security of friendly personnel or non-combatants.

Before any of these areas for further research can be investigated, however, it is necessary as a prerequisite to ensure that there is, in fact, a “critical mass” of like-minded CWC member states who agree that there are circumstances under which states may legitimately use riot control and incapacitating chemical agents. Perhaps the very first step should be to determine whether such a political consensus exists – because if it does not, then further action on this challenging topic will not be possible. The best way ahead, therefore, may be for interested States Parties to initiate bilateral contacts and attempt to generate the consensus necessary to enable steps to be taken towards resolving this challenging and complex issue.

List of abbreviations, acronyms and terms

Aggregate Limit	The total quantity of chemicals that may be held by the State Party at any one time.
CWC	<i>Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction</i> (aka Chemical Weapons Convention)
“Declarable”	A facility that meets the Convention’s criteria requiring that it be declared to the OPCW
DG	Director-General (of the OPCW TS)
DOC	Discrete Organic Chemical
EC	Executive Council (CWC decision-making body, subordinate to the CSP, consisting of 41 member states serving 2-year rotating terms, pursuant to Section C of Article VIII of the CWC).
ICA	Incapacitating Chemical Agent
“Inspectable”	Subject to systematic on-site verification by the OPCW
IUPAC	International Union of Pure and Applied Chemistry (the OPCW uses IUPAC chemical nomenclature)
NA	National Authority
OCAD	OPCW Central Analytical Database
OCPF	Other Chemical Production Facilities
OFPP	Other Facility for Protective Purposes
OPCW	Organization for the Prohibition of Chemical Weapons
PSF	A DOC containing one or more of the elements phosphorous, sulphur or fluorine
RCA	Riot Control Agent
SSSF	Single Small-Scale Facility
TIC	Toxic Industrial Chemical
TS	Technical Secretariat (of the OPCW)
VA	Verification Annex

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In October 2002, Russian Special Forces employed an incapacitating chemical agent to rescue hundreds of hostages held by Chechen terrorists in the Dubrovka Theatre in Moscow. Since that time, the Organisation for the Prohibition of Chemical Weapons, the States Parties to the *Chemical Weapons Convention*, and a plethora of academics and non-governmental organizations have attempted to address the ambiguities in the Convention governing the circumstances under which riot control and incapacitating chemical agents may legally be used. This paper examines this question and concludes that riot control agents may be used domestically; that, subject to certain key constraints, riot control agents may be employed on operations abroad; that incapacitating chemical agents should only be used for law enforcement purposes within a state's legal jurisdiction; that transparency in this area could be enhanced through voluntary declarations concerning incapacitating chemical agents; and that like-minded States Parties may consider it in their interest to develop and promulgate a shared understanding of what, in their view, constitutes legitimate versus illegitimate use of these agents.

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Arms Control
Chemical Weapons
Chemical Weapons Convention
Disarmament
Incapacitant
Incapacitating Chemical
Incapacitating Chemical Agent(s)
Non-Lethal Weapon(s)
Non-Proliferation
Organization for the Prohibition of Chemical Weapons (OPCW)
Riot Control Agent(s)
Toxic Chemicals



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