



TOXIC CHEMICALS AS WEAPONS FOR LAW ENFORCEMENT: A threat to life and international law?

SYNTHESIS

Introduction

During the past ten years there has been much discussion and analysis of so called “incapacitating chemical agents” and of the use of these toxic chemicals as weapons for law enforcement. The International Committee of the Red Cross (ICRC) has raised concerns and highlighted significant risks associated with the development and use of these weapons. A small number of countries have raised their own concerns at meetings of States party to the Chemical Weapons Convention.

The ICRC has held two international expert meetings on “incapacitating chemical agents”, involving government and independent experts. The first meeting, in March 2010, explored a range of issues, including: the history of interest and use; human impact and technical feasibility; ethical issues; operational contexts of use; and implications for international law. The second meeting, in April 2012, incorporated perspectives from law enforcement, human rights law, drug control law, as well as a wide ranging discussion of potential policy choices. In September 2011 the Swiss and Finnish governments held a technical workshop focusing on the underlying scientific and technical questions. Relevant reports and analyses have also been published by international experts and eminent organisations such as the British Medical Association and the Royal Society.

From the ICRC’s perspective, the main dimensions of this subject – scientific and technical, operational, legal, and policy – have now been explored in detail in these settings.

This document is the ICRC’s synthesis of the subject. (A two-page summary is also available). It summarises the issue and describes the toxic chemicals in question, the relevant international law, the main risks, and the broad policy choices available to States. It is intended to inform and encourage national policy development, and to raise broader awareness of the ICRC’s concerns.¹

What is the issue?

There has been continued interest in some countries in the development and use of certain toxic chemicals as weapons for law enforcement. This interest has focused on toxic chemicals that incapacitate through causing sedation or unconsciousness. These weapons have been described as “incapacitating chemical agents”, “incapacitating agents”, “knock-out

¹ This document is not a report of the April 2012 ICRC expert meeting, which will be published separately.

gas”, “calmatives”, “pharmacological weapons”, and “drugs as weapons”.

Past military chemical weapons programmes weaponised a range of toxic chemicals as weapons to cause incapacitation or death, including nerve agents (e.g. sarin), blister agents (e.g. mustard gas), blood agents (e.g. cyanide), choking agents (e.g. phosgene), and incapacitating agents (e.g. BZ).

From the late 1940’s onwards weapons researchers sought to develop these “incapacitating agents” as chemical weapons that would incapacitate the victims for hours or days but with a relatively low risk of death. The focus throughout was on chemicals that altered or impaired the functioning of the brain. However, the search was an unsuccessful one. Hallucinogenic agents such as LSD and deliriant chemicals such as BZ were ultimately excluded because of their ineffectiveness and unpredictable effects. Toxic chemicals which were effective at causing incapacitation in small ‘doses’, such as derivatives of the powerful anaesthetic drug fentanyl, were excluded because they were too dangerous.

In 1993 the Chemical Weapons Convention was adopted. It banned the development, production, stockpiling and use of chemical weapons. However, the convergence of military and police operational requirements – military forces taking on more policing-type roles and police forces taking on counter-terrorism missions – provided a context for the development of toxic chemicals as weapons to continue, with focus again on dangerous anaesthetic and sedative drugs, but for use in law enforcement.

The development and use of so called “incapacitating chemical agents” as weapons raises a contradiction that has not been adequately addressed by government policy makers. On the one hand, in agreeing the Chemical Weapons Convention, States are “determined for the sake of all mankind, to exclude completely the possibility of the use of chemical weapons”. On the other hand, the development of toxic chemicals as weapons for use in law enforcement has continued.

Which toxic chemicals?

Toxic chemicals

The toxic chemicals in question, and that have been considered or used as weapons for law enforcement in recent years, are mostly powerful anaesthetic and sedative chemicals that degrade the functioning of the brain. In developing these as weapons for law enforcement the aim has been to acquire a capability to cause mass anaesthesia or sedation in certain tactical situations.

The opioid chemical fentanyl and its variety of similar derivatives have been subject of most attention, as well as benzodiazepines such as midazolam, and alpha-2 adrenergic agonists such as dexmedetomidine. The effects of these toxic chemicals on humans are to cause sedation, unconsciousness and death by severely impairing the functioning of the brain. The severity of the effects is dependent on the 'dose' to which a person is exposed, which is an important concept in both pharmacology and toxicology. Victims will generally require medical attention to recover.

There is no dividing line, on a technical basis, between the types of toxic chemicals considered as "incapacitating chemical agents" for law enforcement and the toxic chemicals developed and used as "lethal" chemical warfare agents in past conflicts to incapacitate and kill. When used as weapons, some of the toxic chemicals considered for law enforcement can exert a potentially lethal effect in similarly small quantities to chemical warfare agents.

Not riot control agents

It is important to be clear that this issue is not about riot control agents such as CS, CN, OC or 'pepper spray', and PAVA, which are often referred to collectively as 'tear gas' and have long been considered legitimate means for law enforcement. They are in widespread use both in hand-held spray devices targeted at individuals and in larger dispersal devices which are targeted at groups of people.

These irritant chemicals cause rapid irritation and pain in the eyes, respiratory tract, and skin, which lasts for a relatively short duration (15 to 30 minutes) after exposure. Their use is not without risks but, unlike many anaesthetic and sedative chemicals, there is a large difference between the 'dose' of a riot control agent that will cause pain and irritation and the amount that will be fatal. Medical attention is normally not required for victims to recover.

Put simply, riot control agents cause people to flee or to be temporarily compromised by the pain caused whereas toxic chemicals described as "incapacitating chemical agents" cause people to collapse and become extremely vulnerable to suffocation and further injury, whether intentional or unintentional. Riot control agents tend to be used where the use of conventional force is not appropriate or as an alternative to it, whereas "incapacitating chemical agents" are sometimes promoted as enablers for subsequent use of conventional force.

What is the applicable legal framework?

Deliberate poisoning has long provoked public abhorrence. This abhorrence has spanned several millennia as even ancient civilisations banned poisoning in warfare. It was first codified in modern international law in 1899 when countries met in The

Hague to prohibit "poison or poisoned arms" including "projectiles, the only object of which is the diffusion of asphyxiating or deleterious gases".

After the First World War, with vivid images of the horrors of chemical warfare fresh in their minds, the international community sought to reinforce and expand the prohibition. Countries agreed the 1925 Geneva Protocol, which banned the use of chemical and biological weapons.

In armed conflict there is an absolute prohibition on the use of toxic chemicals as weapons under the 1925 Geneva Protocol, the 1993 Chemical Weapons Convention, and customary international humanitarian law. This includes a prohibition on the use of riot control agents as a method of warfare.

Outside armed conflict, the diverse legal framework of the Chemical Weapons Convention, the 1972 Biological Weapons Convention, international human rights law, and international drug control law regulates any use of toxic chemicals as weapons for law enforcement.

Chemical Weapons Convention

The Chemical Weapons Convention prohibits the development, production, stockpiling and use of chemical weapons, and makes provisions for the destruction of existing weapons stockpiles. Even though eight countries remain outside the Convention, customary international humanitarian law prohibits the use of chemical weapons by any party to an armed conflict.

Under the Convention, a specific provision is made for "law enforcement including domestic riot control" as one of the "purposes not prohibited". However, there is ambiguity on which toxic chemicals may be used as weapons for law enforcement and which "types and quantities" are consistent with these purposes.

Riot control agents are defined under the Convention² and are clearly permitted for law enforcement. However there is no other category of chemicals defined specifically. For the purposes of the Convention, all other chemicals, whether used to cause temporary incapacitation or to kill, are grouped together as toxic chemicals.³

The Convention does not make explicit which toxic chemicals other than riot control agents, if any at all, may be used as weapons for law enforcement. As a result, there remain differing interpretations of what this provision allows. Some take the view that only riot control agents may be used for this purpose. Others argue that an unspecified wider range of toxic

² The Chemical Weapons Convention defines riot control agents as: "Any chemical not listed in a Schedule, which can produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short time following termination of exposure."

³ The Chemical Weapons Convention defines a toxic chemical as: "Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals."

chemicals may be used, up to but not including toxic chemicals on Schedule 1 of the Convention.

Biological and Toxin Weapons Convention

The Biological and Toxin Weapons Convention prohibits the development, production and stockpiling of biological and toxin weapons. Unlike the Chemical Weapons Convention, there is no provision permitting the use of any biological agents as weapons for law enforcement. Given suggestions that some biological agents, such as peptides, might be considered as “incapacitating agents” for law enforcement, it is important to recall the comprehensive nature of this prohibition.

International human rights law

International human rights law is the primary area of law constraining the use of force and weapons for law enforcement. It safeguards the right to life by placing strict constraints on the use of force and weapons that are ‘potentially lethal’.

Under international human rights law, the toxic chemicals that have been described as “incapacitating chemical agents” must be considered as potentially lethal given current knowledge about their effects on humans and the significant risk of death and permanent disability.

Under human rights law the use of potentially lethal force should be avoided. It is a measure that must be absolutely necessary, meaning a measure of last resort, and strictly unavoidable to protect life or physical integrity. It must be preceded by other measures, following an escalation of force procedure. It must be proportionate to the aim pursued.

In the scenarios in which these toxic chemicals have been proposed for use, as weapons to incapacitate groups of people, it is not possible to control their effects or to target them solely at the persons who are threatening life. In these situations, such as hostage scenarios, the toxic chemicals will pose the same risks of death and permanent disability to aggressors and innocent bystanders alike (see below under “What are the risks for life?”).

In light of the certainty that bystanders will also come to harm, the question to be asked is whether such a means is absolutely necessary to save the lives of those who are threatened, that is whether there are any other means available that would achieve the same aim while posing less of a danger to life; and whether this is an unavoidable measure of last resort, the State having exhausted all feasible less harmful means before it resorts to this means.

The only legal case decided to date relating to the use of these types of toxic chemicals as weapons for law enforcement is that of *Finogenov and others vs Russia* at the European Court of Human Rights. This case relates to the Moscow theatre siege incident of 2002, where Russian special forces pumped toxic chemicals into a theatre auditorium to incapacitate hostage takers

and hostages alike in an attempt to resolve this difficult situation.

In 2011 the European Court of Human Rights found that the Russian government violated the right to life of the hostages through inadequate planning and implementation of the rescue operation. However, it judged that use of the toxic chemicals itself did not violate the right to life, accepting the argument that they were not intended to kill.

There are a number of open questions about this judgement. For example, the Court was not provided information about the specific toxic chemicals used and thus was in a difficult position to judge whether the adverse effects of their use should have been foreseen. The dangerous effects of anaesthetic and sedative chemicals are well known, and were illustrated by the deaths of 129 hostages in this incident and permanent disabilities suffered by survivors. In addition, it is evident that the ‘dose’ of a chemical delivered cannot be controlled in such a tactical situation and that it is extremely difficult, if not impossible, in such situations to provide the immediate medical care that might be characterised as adequate to protect life.

International drug control law

The international drug control treaties are another area of international law that governs the uses of certain toxic chemicals. The 1961 Single Convention on Narcotic Drugs and the 1971 Convention on Psychotropic Substances place strict controls on certain toxic chemicals with few exceptions.

The lists of drugs controlled under these two treaties include some of the toxic chemicals that have been considered as weapons for law enforcement. Fentanyl and many of its derivatives are among the list of controlled substances under the 1961 treaty and many benzodiazepines are among the list of controlled substances under the 1971 treaty.

Article 4 of the 1961 Convention and article 5 of the 1971 Convention require that the production, manufacture, export, import, distribution of, trade in, use and possession of controlled drugs must be limited exclusively to “medical and scientific purposes”.

In summary, this overlapping legal framework leaves little room, if any, for the legitimate use of toxic chemicals – other than riot control agents – as weapons for law enforcement under international law.

What are the risks to life?

There is no such thing as a safe “incapacitating chemical agent” used as a weapon, and this will not change with foreseeable advances in science and technology. Sedative and anaesthetic chemicals are used safely as drugs in medicine. However, the use of these toxic chemicals as weapons to cause effective incapacitation of a group of people will inevitably cause deaths and serious injuries among some, including permanent disabilities and other long term effects. In

theory, the user of these toxic chemicals as a weapon would seek to render all those targeted temporarily unconscious and then enable them to make a full recovery. In reality, it is not possible to carry out this mass anaesthesia safely in a tactical situation.

In a medical setting these chemicals are administered by consent on an individual basis by medical professionals, and in a highly controlled environment. Precautions are necessary to limit the risk of death and other adverse health effects. The dose of a chemical used is calculated and administered precisely according to the individual characteristics of the patient (e.g. age, weight, health, and existing medication). While a person is unconscious their vital signs are monitored and their breathing is supported because it can often be impaired during anaesthesia. Even then the risks cannot be eliminated.

In a tactical situation, when the same types of chemicals are used as weapons against a group of people without their consent, none of these safeguards are feasible. It is not possible to control the 'dose' of the chemical that each victim is exposed to, let alone make adjustments for wide variations in effects due to differences in age, weight and health among those targeted. It is extremely difficult, if not impossible, to provide the necessary immediate medical care including support for breathing, which is often impaired during anaesthesia.

The risks of death and permanent disability are greatly increased due to this inability to prevent overdose or to ensure breathing and other vital signs are monitored and supported. Secondary risks to life and health arise due to airway obstruction, the impact of falling, and the inability of those rendered unconscious to protect themselves from other dangers in the surrounding environment.

The tactical utility of using these toxic chemicals as weapons for law enforcement is also questionable. It is a common misconception that incapacitation can ever be instant. Even an intravenous injection of an anaesthetic in a consensual medical setting will take 15 to 30 seconds to have effect. In a tactical situation, when such a chemical is delivered through the air as a weapon it will take at least several minutes to cause complete incapacitation in all those targeted. Therefore, their use will never immediately prevent aggressors from using force. The ease of countermeasures may also be overlooked. Gas masks and antidotes for certain toxic chemicals may be available to aggressors for protection but not to innocent bystanders.

What are the other potential risks, in particular to international law?

Erosion of the prohibitions of chemical and biological weapons

A major risk to upholding international law is that the development and use of these toxic chemicals as

weapons for law enforcement will erode the historic prohibition of poisoning and the specific prohibition of chemical weapons set out in the Chemical Weapons Convention. The Convention is the result of international political decisions forgoing weapons deemed abhorrent to the public conscience. It is the foundation for ensuring that the ban on chemical weapons endures, and continuing interest in the use of toxic chemicals as weapons for law enforcement endangers its integrity.

With increasing convergence of chemistry and biology, and any consideration of biological agents, such as peptides, as "incapacitating agents", this erosion could also extend to the prohibition of biological weapons as well.

Proliferation

The continued development and use of toxic chemicals as weapons for law enforcement is likely to present broad and unpredictable risks for security, including inevitable proliferation. Research, development, production, stockpiling and use of toxic chemicals as weapons that are prohibited in warfare will proceed within a law enforcement framework. Acquisition of weapons by specialised police units or special forces, and even by military forces in international operations such as peacekeeping, could be expected. Use of these weapons, or demand for such use, may range from limited domestic law enforcement scenarios to wider military operations in which the boundaries between law enforcement and conduct of hostilities in armed conflict can become blurred.

Proliferation will likely occur among different forces within countries and among a growing circle of countries. This spread will be unpredictable and is unlikely to be uniform. Different countries may develop different toxic chemicals with different effects as weapons for use in a variety of circumstances. Such proliferation could be expected over time to extend to non-state and criminal groups.

Depending on the extent of proliferation there could be the risk of an "arms race" of new chemical weapons and defensive countermeasures, which would be accentuated by any military acquisition of these weapons. Those without access to new chemical agents may revert to traditional chemical warfare agents as chemical weapons are seemingly re-legitimised. It is likely perceptions would emerge that acquisition of chemical weapons for a wide range of law enforcement operations was being used to justify military acquisition, or even as a cover for wider military chemical weapons programmes.

Hostile exploitation of 'dual-use' science and technology

Any continuing programmes to develop and weaponise toxic chemicals for law enforcement are likely, by default, to establish a pathway for the application of advances in science and technology to the development of new chemical weapons.

Developments in legitimate scientific research, in particular those in the pharmaceutical health sector, might be explored for weapons applications. Concerns over the misuse of legitimate 'dual-use' science and technology might become reality as new drugs developed to facilitate medical treatment become candidates for weapons development.

Contemporary interest in toxic chemicals as weapons for law enforcement has focused on using anaesthetic chemicals to cause unconsciousness. However, incapacitation can be achieved through manipulating or impairing various processes in the body, or through causing effects such as convulsions. If programmes to develop toxic chemicals as weapons for law enforcement are established and expand, there is a risk that a range of toxic chemicals would be explored and weaponised with various adverse effects on human metabolism, consciousness, behaviour, and identity. A desire to attempt temporary incapacitation may not be sought by all weapons developers. Some could exploit this to focus on new highly "lethal" agents, or chemicals that cause long term injury or disabilities.

A 'slippery slope' back to chemical warfare

The development and use of toxic chemicals as weapons for law enforcement creates a 'slippery slope' that will increase the likelihood that chemical weapons could be reintroduced to armed conflicts. Although current interest in these weapons is for certain law enforcement operations, if acquired and used by special forces or military forces for law enforcement operations, it might generate an interest to use such means for law enforcement within the context of an armed conflict, possibly even in the conduct of hostilities. Several trends could accentuate the risk of their use during the conduct of hostilities.

Firstly, particularly within non-international armed conflicts that are the prevalent types of armed conflict today, there will be operations that amount to conduct of hostilities and others that are part of law enforcement and such situations may change rapidly, leading to an increased blurring of lines. Secondly, there will be situations where it is difficult to establish with precision when the threshold to an armed conflict is crossed. Thirdly, there may be situations in which the existence of an armed conflict is denied by a party to a conflict. And, lastly, the notion of law enforcement can carry different meanings for different actors.

If the use of these toxic chemicals as weapons in armed conflict did occur then there may be an additional risk of retaliation and escalation to other chemical weapons, as occurred in many previous incidences of chemical warfare. The initial use and any retaliation would constitute unambiguous violation of the Chemical Weapons Convention. The regime "to exclude completely the possibility of the use of chemical weapons", which took most of the 20th century to construct, would have been breached, perhaps irreparably.

What are the policy choices for States?

There are four broad policy choices that can be envisaged. The first two assume that it can be legitimate under international law to use certain toxic chemicals – other than riot control agents – as weapons for law enforcement in some circumstances; a subject on which there remain differing views. The second two approaches can be taken independently of whether the use of toxic chemicals as weapons for law enforcement is assessed to be legitimate or not under international law:

- **Continuing ambiguity** on the use of toxic chemicals as weapons for law enforcement.
- **Regulation** of the use of toxic chemicals as weapons for law enforcement.
- **Moratorium** on the use of toxic chemicals as weapons for law enforcement.
- **Prohibition** of the use of toxic chemicals as weapons for law enforcement.

In reviewing policy choices individual States will first need to recall their existing legal responsibilities and obligations. They will also need to assess the risks to life, the risks to international law, and the risks to security against any perceived benefits of developing and using toxic chemicals as weapons for law enforcement. In particular, States will need to consider the potential implications of their policy choices on reducing or increasing these risks.

Continuing ambiguity

This is the approach currently being implemented where ambiguity remains on which toxic chemicals are permitted as weapons for law enforcement, and in which circumstances. In the absence of national policy decisions, there is room for different interpretations among countries. State practice in response to a variety of unpredictable events will determine what is acceptable, and the extent of the resulting risks.

A variation of this approach is to attempt further clarification of ambiguities through continued discussion among a wider group of actors and States. However, it is submitted that the existing body of analysis provides sufficient information to make informed policy decisions.

Regulation

This approach would aim to set internationally agreed boundaries on the types and quantities of toxic chemicals and their means of delivery that would be considered acceptable as weapons for law enforcement, or at least to increase transparency about States' views in this regard, including any current holdings of such weapons.

Defining these boundaries would require a degree of international negotiation and the development of a consensus that does not currently exist. Since there is no dividing line, on a technical basis, between the toxic chemicals proposed as "incapacitating chemical

agents” and those developed as “lethal” chemical warfare agents, from a practical perspective it may not be possible to set meaningful boundaries about what is acceptable.

Moratorium

This approach would involve States enacting a moratorium on the research, development, stockpiling and use of toxic chemicals (other than riot control agents) as weapons for law enforcement. A moratorium would provide a means of temporarily limiting the risks posed by continuing ambiguity. It would be an intermediate measure that could lead either to prohibition or to regulation.

A moratorium would provide time for a wider variety of States, particularly those that have not been involved in discussions to date, to understand the issues at hand and to develop longer term decisions on national policy while at the same time demonstrating recognition of the risks of continuing ambiguity. Any moratorium would need to be accompanied by a process within and among States to clarify existing legal constraints, assess risks and benefits, and either to decide on prohibition or regulation.

An internationally agreed moratorium could be more effective due to wider participation. However, individual States or like-minded groups could enact moratoria independently as a means of acknowledging the risks and highlighting these to other States.

Prohibition

This approach would involve States enacting a prohibition on the research, development, stockpiling and use of toxic chemicals (other than riot control agents) as weapons for law enforcement. It would clarify that only riot control agents would be used for these purposes. National prohibitions could be established independently as a matter of national policy, and without the need for international agreement, as at least one State has already done.⁴ As more States enacted prohibitions, either individually or as a like-minded group, they would set an example for others in responding to the risks associated with the use of toxic chemicals as weapons for law enforcement.

For States that have concerns about the development of toxic chemicals as weapons for law enforcement, and that have no intention of pursuing such weapons themselves, enacting an explicit national prohibition would contribute to lessening the risks associated with continuing ambiguity.

Ultimately an international prohibition could be agreed at the multilateral level that either clarified an existing prohibition under international law, or developed the existing legal framework to exclude current ambiguity.

⁴ Germany (1994) *German CWC Implementation Act (Ausführungsgesetz zum Chemiewaffenübereinkommen – CWÜAG)* 2 August 1994, amended 11 October 2004.

What action is needed?

There is an absolute prohibition on the use of chemical weapons in armed conflict. However, it has been a subject of debate whether the use of toxic chemicals as weapons for law enforcement is desirable, and whether it could be consistent with international law. A lack of clarity on this issue over the past ten years presents serious risks to life, to international law, and to security.

Significant efforts have been made to examine relevant scientific and technical, operational, legal, and policy issues, including during two expert meetings held by the ICRC. States that have been involved in these discussions⁵ now have the information required to make informed policy decisions. Leadership is needed from individual States – or a like-minded group – to take national policy decisions and promote them at the multilateral level.

At a time when attention is turning from completing chemical disarmament to preventing the re-emergence of chemical weapons, policy development on the issues raised here should be a high priority. In addition, the third Review Conference of the Chemical Weapons Convention in April 2013 provides an important opportunity to build and shape international consensus.

*International Committee of the Red Cross
Geneva, September 2012**

Further reading

International Committee of the Red Cross, Geneva (forthcoming, 2012) *Report of an Expert Meeting. “Incapacitating chemical agents”: law enforcement, human rights law, and policy perspectives.*

Spiez Laboratory, Swiss Federal Office for Civil Protection (2012) *Report of a technical workshop on incapacitating chemical agents.*

The Royal Society, London (2012) *Brain Waves 3: Neuroscience, conflict and security.*

International Committee of the Red Cross, Geneva (2010) *Report of an Expert Meeting. “Incapacitating chemical agents”: implications for international law.*

British Medical Association (2007) *The use of drugs as weapons: the concerns and responsibilities of healthcare professionals.*

⁵ States that participated in one or both ICRC Expert Meetings are: Australia, China, Czech Republic, Finland, France, Germany, India, Norway, Pakistan, Russia, South Africa, Switzerland, United Kingdom, and United States.

* For further information please contact the Arms Unit, Legal Division, International Committee of the Red Cross.