

EXPERT MEETING

INCAPACITATING CHEMICAL AGENTS

IMPLICATIONS FOR INTERNATIONAL LAW

MONTREUX, SWITZERLAND
24 TO 26 MARCH 2010



ICRC



ICRC

International Committee of the Red Cross
19, avenue de la Paix
1202 Geneva, Switzerland
T +41 22 734 60 01 F +41 22 733 20 57
E-mail: shop@icrc.org www.icrc.org
© ICRC, October 2010

"INCAPACITATING CHEMICAL AGENTS": IMPLICATIONS FOR INTERNATIONAL LAW

EXPERT MEETING

MONTREUX, SWITZERLAND
24 to 26 MARCH 2010

CONTENTS

Introduction and Background to the Meeting	3
➤ Interest in "incapacitating chemical agents"	4
➤ Feasibility of "incapacitating chemical agents"	5
➤ Desirability of "incapacitating chemical agents"	6
➤ Previous initiatives regarding "incapacitating chemical agents"	7
➤ Rationale for the meeting	7
List of Acronyms used in the report	9
Structure of the report	10
Programme	11
Session 1 – History of "incapacitating chemical agents"	14
➤ "Inappropriately hilarious": an historical overview of the interest in and use of "incapacitating chemical agents" (John Walker)	14
➤ Discussion	17
Session 2 – Human impact of "incapacitating chemical agents"	20
➤ Feasibility of "incapacitating chemical agents" (Mark Wheelis)	20
➤ Discussion	22
➤ Practical implications of human incapacitation by "incapacitating chemical agents" (Ben Steyn)	23
➤ Discussion	27
➤ Ethical issues for health professionals (Vivienne Nathanson)	29
➤ Discussion	30
Session 3 – Contexts of "incapacitating chemical agent" use	33
➤ Operational contexts: how could these agents be used and against whom? (Mark Steinbeck)	33
➤ Discussion	34
➤ Unforeseen operational contexts: what risks are associated with "incapacitating chemical agents", particularly with regard to proliferation or falling into the "wrong hands"? (Alex Vines)	36
➤ Discussion	38

Session 4 – International Law and "incapacitating chemical agents"	40
➤ Potential implications for international humanitarian law (Dominique Loyer)	40
➤ Clarification	42
➤ Potential implications for disarmament and other areas of international law (Michael Crowley)	42
➤ Clarification	53
➤ Potential implications for human rights law (Françoise Hampson)	53
➤ General discussion	57
Session 5 – Potential strategies and recommendations for addressing potential negative implication from the development and use of "incapacitating chemical agents"	61
➤ Speaker's summary (Stefan Mogl)	61
➤ Discussion	63
➤ Speaker's summary (Graham Pearson)	64
➤ Discussion	65
➤ Speaker's summary (Ralf Trapp)	65
➤ Discussion	69
 Summary points prepared by the International Committee of the Red Cross	 71
Final remarks of the International Committee of the Red Cross	74
Annex 1: Speaker and chairperson biographies	76
Annex 2: List of participants	80

ICRC EXPERT MEETING ON "INCAPACITATING CHEMICAL AGENTS"

Montreux, 24 – 26 March 2010

Introduction and background to the meeting

The International Committee of the Red Cross (ICRC) convened an expert meeting entitled "Incapacitating Chemical Agents: Implications for International Law" from 24 to 26 March 2010 in Montreux, Switzerland. The meeting brought together a group of 33 government and independent experts who were joined by ICRC staff members.

There has been an interest in chemicals that can incapacitate human beings for some time; some authors cite a period of over 50 years.¹ Recent use of such agents has also drawn attention to the reality of the existing interest in and capacity to use these chemicals.² There is clearly an ongoing attraction to "incapacitating chemical agents" but it is not easy to determine the extent to which this has moved along the spectrum from academia and industrial circles into the law-enforcement, security and military apparatuses of States.

The ICRC meeting focused on chemicals that act on the central nervous system to incapacitate a person or to alter a person's mood, emotion, cognition or perception. These are not chemicals such as riot-control agents that act peripherally to irritate mucous membranes or to cause tear formation. It might be appropriate to think of "incapacitating chemical agents" as chemicals that can calm or control individuals or groups of people, in contrast to riot-control agents, which are used to disperse groups or crowds of people.³

¹ For a discussion about past and present programmes, see the August 2007 Bradford Science and Technology Report No. 8 "'Off the Rocker' and 'On the Floor': The Continued Development of Biochemical Incapacitating Weapons", Davison, N.

² The hostage crisis at the Dubrovka Theatre in Moscow in October 2002 focused, or refocused, the attention of many people on incapacitating agents.

³ The meeting used working definitions from NATO and from the Chemical Weapons Convention as follows:

(A) Extracts from the "NATO Glossary of Terms and Definitions" [AAP-6 (V), Modified version 02 (Parts II and III), dated 07 August 2000]:

incapacitating agent

A chemical agent which produces temporary disabling conditions which (unlike those caused by riot control agents) can be physical or mental and persist for hours or days after exposure to the agent has ceased. Medical treatment, while not usually required, facilitates a more rapid recovery. *See also chemical agent; riot control agent.1/3/82*

chemical agent

A chemical substance which is intended for use in military operations to kill, seriously injure, or incapacitate personnel through its physiological effects. The term excludes riot control agents, herbicides and substances generating smoke and flame. *See also chemical ammunition; chemical defence; chemical dose; chemical environment; riot control agent.1/12/93*

riot control agent

A substance which produces temporary irritating or disabling physical effects that disappear within minutes of removal from exposure. There is no significant risk of permanent injury and medical treatment is rarely required. *See also incapacitating agent. 1/12/93*

Interest in "incapacitating chemical agents"

The August 2007 University of Bradford report (see footnote 1) describes a number of programmes involving incapacitants. These include both Cold War programmes and contemporary programmes.

It is also evident that there have been major advances in modern drug development, in scientific processes, and in our understanding of how the mind works and therefore how it can be affected. Many of these advances occurred after the 1972 Biological and Toxin Weapons Convention came into force and a significant number have occurred since the Chemical Weapons Convention (CWC) came into force. These advances include but are not limited to synthetic biology, an increasing convergence between biology and chemistry, and genomics.

In addition, the tragic events of 11 September 2001, and subsequent terrorist attacks, have increased States' interest in new counter-terrorism tools. Many experts see a role in counter-terrorism for "incapacitating chemical agents". The Dubrovka Theatre siege in Moscow in 2002 reinforced this view, and refocused attention on "incapacitating chemical agents" as a class of weapon that is purported to be a "non-lethal". Accordingly, there is sustained interest in "incapacitating chemical agents" on the part of the law enforcement and security communities.⁴ It is also easy to appreciate this interest with regard to dealing with hostage situations, managing prison riots, and controlling individuals who pose a danger to themselves or to others.

Ongoing academic research on "incapacitating chemical agents" has regularly been presented in public fora⁵ and there have been reports that indicate military interest in these agents.⁶

It is also necessary to consider entities other than States that might be interested in such agents. Once they became widely available to police or security forces, it might only be a matter of time before other actors, including insurgent, terrorist or criminal groups, would have the capacity to use such chemicals.

(B) The Chemical Weapons Convention contains the following relevant definitions:

riot control agent

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.

toxic chemical

Any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.

⁴ US Department of Justice Solicitation: Less Lethal Technologies, CFDA No. 16.560 (accessed 26 January 2010 at <http://www.ncjrs.gov/pdffiles1/nij/s100810.pdf>). It was later reported in the National Institute of Justice (NIJ) Journal that the Institute had funded research to "explore the potential of operationalizing calmatives and to examine possible pharmaceuticals and legal issues" ("Calming Down: Could Sedative Drugs Be a Less-lethal Option?" Danielle M. Weiss, J.D., NIJ Journal, Issue No.261, pp 42-46).

⁵ Hess, L. et al, "Drug induced Loss of Aggressiveness in the Macaque Rhesus", presented at the 4th European Symposium on Non-Lethal Weapons, May 21-23, 2007, Ettlingen, Germany.

⁶ Davison, N., "Non-Lethal Weapons", Palgrave Macmillan, 2009, section 5.3.1.2, pp 127-128.

Feasibility of "incapacitating chemical agents"

So-called lethal weapons are not lethal one hundred percent of the time⁷. "Lethal" force is not equivalent to everyone being killed, and "non-lethal" force⁸ is not equivalent to no one being killed.

"Incapacitating chemical agents" are proposed as "non-lethal" agents. Some experts argue that such agents, even if they are described as "non-lethal", are in fact lethal⁹. Some admit that, with rapid advances in science, it is possible that an "incapacitating chemical agent" may be developed in time that can be used in a consistently non-lethal manner. This may involve combining such an agent with an antidote and/or a new means of delivering it to the targeted individual or individuals. The medical analogy is that not all opioid drug overdoses are necessarily lethal. Their fatality, or lethality, will be a function of the physiology of the victim, the actual dose of the drug, the proximity of appropriate medical care and the availability of the necessary antidote.

To carry the medical analogy further, some of the chemical groups that have been investigated for use or that have been used as "incapacitating chemical agents" are anaesthetic agents or derivatives of anaesthetic agents. However, it is extremely important to recognize that anaesthetic agents are used therapeutically in very controlled circumstances. These include specific precautions such as the patient fasting for a period of time to limit the risk of inhalation by the patient of stomach contents while they are in an altered state of consciousness. The use of an anaesthetic agent also involves a calculation of the dose for an individual patient based on a number of factors including the patient's weight, past medical history and any current medications. Finally, the actual use of the anaesthetic is carefully monitored, sometimes involving constant recording of various physiological parameters such as heart rate and blood levels of oxygen.

The medical protocols under which anaesthetics are used recognize the patient as an individual and that no two patients' physiologies are equivalent. During administration of an anaesthetic, there are countermeasures available in case something does go wrong and also to reverse the anaesthetic state. Even after the anaesthetic state has been reversed, the patient is continually monitored and given care in a recovery area, and may well remain in hospital for further monitoring that includes how the patient has responded to the anaesthetic. The medical safeguards required for the use of anaesthetic agents reflect the danger of their use with inadequate levels of monitoring and control.

The NATO definition of an incapacitant indicates that medical treatment is "not usually required" although it "facilitates a more rapid recovery" from the effects that may "persist for hours or days after exposure to the agent has ceased". This is inconsistent with the medical use of anaesthetic agents. Accordingly, any proposal to use anaesthetic agents as "incapacitating chemical agents" would seem to require different anaesthetic agents from those currently available, as well as agents that can be safely, or relatively safely, deployed at a distance against multiple individuals, all with their unique states of health and physiologies.

⁷ In combat, the lethality of firearms is generally assessed to be 15-25%.

⁸ So called "non-lethal" weapons have also been termed "less-than-lethal" weapons. These terms have been applied to a wide range of technologies and it is noted that lethality or lack of lethality are also functions of context and use, not just weapon technology.

⁹ Klotz, L., Furmanski, M. and Wheelis, M. "Beware the Siren's Song: Why "Non-Lethal" Incapacitating Chemical Agents are Lethal", 2003 (accessed 26 January 2010 at http://www.fas.org/bwc/papers/sirens_song.pdf).

With regard to the feasibility of "incapacitating chemical agents" that can be consistently used in a non-lethal manner, it is vitally important to keep in mind the previously unimagined advances in general science, the spectacular advances in the neurosciences in particular and the convergence of biology and chemistry. These include the current and growing knowledge concerning neurotransmitters, central nervous system receptors, and bioregulators.¹⁰ What some may now see as not being feasible may very well become feasible in the not too distant future.

Desirability of "incapacitating chemical agents"

Even if "incapacitating chemical agents" are feasible, there is a divergence of views as to their desirability. They have been described as a "Faustian Bargain",¹¹ while others have argued for their development and deployment as a "non-lethal" technology to help ensure the effectiveness of law-enforcement, security or military forces in contexts where the distinction between criminals and non-criminals, or between combatants and civilians,¹² is blurred. With regard to armed conflict, the potential use of these agents poses particular challenges from the perspective of the principle of distinction between combatants and civilians and the rules related to that principle.¹³ These challenges are most evident in situations where combatants intermingle with civilians, or are in close proximity to civilians, such as in an urban environment and in contexts involving human shields or hostages.

There might be cogent arguments in favour of "incapacitating chemical agents" that can be used in a consistently non-lethal manner in law-enforcement and security operations. These could include their use as a weapon for counter-terrorism, to facilitate the arrest process, and for crowd control. However, the view has been expressed that the "lure of non-lethality may thus be opening up a fault line that has always existed in the CWC regime"¹⁴ associated with the interpretation of the words "law enforcement"¹⁵ and with the development of "non-lethal" chemical agents that are not riot-control agents. Then there is the "slippery slope" argument: if "incapacitating chemical agents" are deployed with peace-keeping troops for "law-enforcement" purposes, which some States consider permitted by the CWC, they will inevitably find their way into armed conflict and be used for prohibited purposes.¹⁶ While it may be argued that crowd control is a justification for equipping peace-keeping troops with such incapacitating agents, those same peace-keeping troops might deploy those agents in a situation that might be, or might develop into, combat, thus resulting in the use of a chemical weapon in an armed conflict.

Once a weapon system has been produced, transferred and deployed, it becomes widely available. It must then be anticipated that it would fall into the hands of those – including insurgent, terrorist or criminal organizations – who will use the weapons to commit unlawful acts. This possibility is likely to be no different for "incapacitating chemical agents". The policy implications of the widespread availability of these agents have not yet been examined in publicly accessible fora.

¹⁰ Pearson, G. and Dando, M. "The Danger to the Chemical Weapons Convention from Incapacitating Chemicals", First CWC Review Conference paper No 4, Department of Peace Studies, University of Bradford, 2003.

¹¹ Wheelis, M. "'Nonlethal' Chemical Weapons: A Faustian Bargain", *Issues in Science and Technology*, Spring 2003 (accessed 26 January 2010 at <http://www.issues.org/19.3/wheelis.htm>).

¹² Alexander, J., "Future War: Non-Lethal Weapons in 21st Century Warfare", St. Martin's, 2000.

¹³ 1977 Protocol I additional to the Geneva Conventions of 12 August 1949, Articles 51.1, 51.2, 51.4, 51.5 and 57.2.

¹⁴ Perry Robinson, J., P., "Non Lethal warfare and the Chemical Weapons Convention", a Harvard Sussex Program submission to the OPCW Open-Ended Working Group on Preparations for the Second CWC Review Conference, 2007.

¹⁵ Article II 9 (d)

¹⁶ Wheelis, M. *op. cit.*

As there is a divergence of views concerning the feasibility of using "incapacitating chemical agents" in a consistently non-lethal manner, there is also a divergence of views as to their desirability.

Previous initiatives regarding "incapacitating chemical agents"

Some States party to the CWC have consistently sought to bring the issue of "incapacitating chemical agents" for consideration by the Convention's mechanisms. A notable example has been Switzerland, which produced a working paper for the CWC's Second Review Conference entitled "Riot Control and Incapacitating Agents under the Chemical Weapons Convention". This working paper noted that "incapacitating chemical agents" could "undermine the object and purpose" of the CWC. Pakistan also raised this issue; its statement to the Second Review Conference noted that Pakistan was "particularly concerned about ... what have on different occasions been called either non-lethal agents or incapacitating agents". In addition, the Scientific Advisory Board of the Organisation for the Prohibition of Chemical Weapons noted the issue of "incapacitating chemical agents" in its report to both the First and the Second Review Conferences of the CWC. Nevertheless, the issue of those agents has not been formally addressed within the Conferences of States Parties or Review Conferences of the CWC.

However, during his opening statement to the Fourteenth Session of the Conference of States Parties to the CWC, the then Director-General of the Organisation for the Prohibition of Chemical Weapons, Ambassador Rogelio Pfirter, noted in his personal capacity that "incapacitants or non-lethal weapons" might be an area of the CWC which might be "ambiguous or have lacunae ... which might impact on the ultimate effectiveness of the ban on chemical weapons". Ambassador Pfirter suggested that the Third Review Conference (scheduled for 2013) "might offer the appropriate context for an initial formal look into" this issue.

Rationale for the meeting

The ICRC has a formal mandate from the States party to the Geneva Conventions to take impartial action to protect the lives and dignity of victims of armed conflict and other situations of violence, and assist them. It also endeavours to prevent suffering by promoting and strengthening international humanitarian law and universal humanitarian principles. In this capacity, the ICRC has been involved for many years in developing legal norms concerning specific weapons and in monitoring new technical developments that may have implications for the existing rules of international humanitarian law.

The ICRC has closely followed recent developments relating to "incapacitating chemical agents" and their potential use in a variety of situations, . It has also monitored the interest of States in "incapacitating chemical agents" and the use such agents. These developments raise a variety of issues in relation regarding the rules of international humanitarian law, international human rights law, and the international law of arms control and disarmament. Although there have been exhortations by some States and by some in academic circles to address these issues, there has been little or no movement to date in the relevant multilateral fora. In 2008 and 2009, the ICRC undertook a wide range of consultations with States and individuals on how issues surrounding "incapacitating chemical agents" may be usefully addressed and was encouraged to proceed with the hosting of an international expert meeting as a means of advancing discussions.

The ICRC's objective in convening the Montreux meeting was to promote in-depth and informal discussion amongst a range of experts. The discussions, conducted under the "Chatham House Rule", examined a range of technical, operational, health and legal issues

related to "incapacitating chemical agents". They sought, in particular, to identify any possible implications for international law arising from the development, deployment and possible use of such agents. In particular they sought to establish whether there may be a risk that existing international rules might be undermined or called into question.

Arthur C. Clarke observed that "any sufficiently advanced technology is indistinguishable from magic". Some policy makers, researchers and tacticians are presumably motivated by the wish to have a "magic potion". Other interested parties, including policy makers, researchers, tacticians, academics and clinicians consider such a possibility to be within the realm of fiction and fairytale.

What is clear is that the issue of "incapacitating chemical agents" deserves and in fact requires further consideration from a number of perspectives. These include the possible use of these agents in law enforcement, potential negative implications for various bodies of law stemming from any development, deployment and possible use of such agents, and ethical issues for a variety of professions.

The ICRC presents this report as a tool for understanding the complex challenges posed by the current interest in "incapacitating chemical agents" and for promoting further, more focused dialogue, and for developing appropriate legal and policy responses to the issues surrounding those agents.

ACRONYMS USED IN THIS REPORT

BTWC	Biological and Toxin Weapons Convention (1972 Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction)
BZ	3-quinuclidinyl benzilate, an early "incapacitating chemical agent" that was weaponized but subsequently withdrawn from arsenals due to unpredictable side effects
CBW	chemical and biological warfare
CDEE	Chemical Defence Experimental Establishment (UK)
CNS	central nervous system
CR	dibenz-1, 4-oxazepine, a tear gas and riot control agent
CS	2-chlorobenzylidene malononitrile, a tear gas and riot control agent
CW	chemical warfare / chemical weapon
CWC	Chemical Weapons Convention (1993 Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction)
HRL	human rights law
ICAs	"incapacitating chemical agents"
ICRC	International Committee of the Red Cross
IHL	international humanitarian law
LOAC	law of armed conflict
LSD	lysergic acid diethylamide
MANPADS	man portable air defence systems
MOD	Ministry of Defence (UK)
NIJ	National Institute of Justice (US)
NRBC	nuclear radiological biological chemical
NSAs	non-State actors
OPCW	Organisation for the Prohibition of Chemical Weapons
POW	prisoner-of-war
SAB	Scientific Advisory Board of the OPCW
SALW	small arms and light weapons

STRUCTURE OF THE REPORT

This report includes sections on each session of the expert meeting that contain summaries of each speaker's presentation and a summary of the ensuing discussions.

The summary of each speaker's presentation has been provided by the individual speaker. The ICRC has taken sole responsibility for summarizing the discussion sessions.

Most of the discussions are reported in the form of summaries of the dialogue and exchanges between participants. These summaries have been made from transcriptions of the recorded sessions and are intended to provide both the substantive content of those discussions as well as a flavour for how those discussions proceeded.

On the final day of the meeting, three experts were invited to suggest a range of possible ways forward based on points of convergence in previous discussions during the meeting, as well as their own expertise. The experts' suggestions were then considered in open discussion among the meeting's participants. Following these discussions, the ICRC synthesized points of convergence and divergence that emerged during the course of the meeting and these were discussed.

The final section of the report contains "summary points" from the meeting prepared by the ICRC. This section highlights key factual findings and presents proposals for further work. These points reflect the ICRC's view of the key results of the meeting which achieved broad though not unanimous support. The "summary points" are presented under the ICRC's sole responsibility.

Expert Meeting
"Incapacitating Chemical Agents": Implications for International Law

Montreux, Switzerland
24-26 March 2010

Tuesday 23 March

17.00-20.00

- Registration open at Hotel Eden Palace au Lac
- Dinner in Montreux at participants' leisure

Wednesday 24 March

08.30-09.15

- Registration

Session 1

Chair: Peter Herby, Head of the Arms Unit, Legal Division, ICRC

09.15-09.45

- Welcome and Opening Remarks

Philip Spoerri, Director for International Law and Cooperation, ICRC

09.45-10.30

- Introductory comments

Peter Herby, Head of the Arms Unit, Legal Division, ICRC

10.30-11.00 Coffee Break

11.00-12.30

Presentation: Historical overview of the interest in and use of "incapacitating chemical agents"

John Walker, Arms Control and Disarmament Research Unit, Foreign and Commonwealth Office, London, UK

- Discussion

12.30-14.00 Lunch

Session 2

Chair: Mark Steinbeck, Medical Adviser on the Effects of Weapons, Arms Unit, Legal Division, ICRC

14.00-15.00

Presentation: Feasibility of "incapacitating chemical agents":

- Delivery and dose issues
- Possible countermeasures

Mark Wheelis, Department of Microbiology/CBS, University of California, USA

- Discussion

15.00-16.00

Presentation: Practical implications of human incapacitation by ICAs:

- Recognition of incapacitation
- Calculation and administration of antidotes
- Potential complications

Ben Steyn, CB Defence Adviser, SAMHS, South African National Defence Force, South Africa

- Discussion

16.00-16.30 Coffee Break

16.30-17.30

Presentation: Ethical issues for health professionals

Vivienne Nathanson, Director for Professional Activities, British Medical Association, UK

- Discussion

Day 1 – Closing remarks

19.00

Dinner

Thursday 25 March

Session 3

Chair: Peter Herby, Head of the Arms Unit, Legal Division, ICRC

09.00-10.30

Presentation: Operational contexts: How could these agents be used and against whom?

Mark Steinbeck, Medical Adviser on the Effects of Weapons, Arms Unit, Legal Division, ICRC

- Discussion

10.30-11.00 Coffee Break

11.00-12.30

Presentation: Unforeseen contexts: What risks are associated with ICAs, particularly with regard to proliferation or falling into the "wrong hands"?

Alex Vines, Research Director, Regional and Security Studies, The Royal Institute of International Affairs, Chatham House, UK

- Discussion

12.30-14.00 Lunch

Session 4

Chair: Knut Dörmann, Head of the Legal Division, ICRC

14.00-16.00

Presentation: Potential implications for international humanitarian law

Dominique Loye, Deputy Head of the Arms Unit and Technical Adviser, Legal Division, ICRC

Presentation: Potential implications for disarmament and other areas of international law

Michael Crowley, Project Coordinator, Bradford Non-Lethal Weapons Research Project, Department of Peace Studies, UK

Presentation: Potential implications for human rights law

Françoise Hampson, Professor, School of Law, University of Essex, UK

- Discussion

16.00-16.30 Coffee Break

16.30-18.30

- Session 4 discussion continued

Day 2 – Closing remarks

19.30 Dinner

Friday 26 March

Session 5

Chair: Peter Herby, Head of the Arms Unit, Legal Division, ICRC

09.00-10.30 Panel: Potential strategies and recommendations for addressing potential negative implications
Ralf Trapp, International Disarmament Consultant CBW, France
Graham Pearson, Visiting Professor of International Security, Department of Peace Studies, University of Bradford, UK
Stefan Mogl, Head of Chemistry, Spiez Laboratory, Spiez, Switzerland
▪ Discussion

10.30-11.00 Coffee Break

11.00-12.30 ▪ Session 5 panel continued

12.30-14.00 Lunch

14.00-16.00 Review of a summary of points of convergence and divergence
▪ Discussion

16.00-16.30 Coffee Break

16.30-17.00 Concluding remarks

Departure

SESSION 1 HISTORY OF "INCAPACITATING CHEMICAL AGENTS"

Speaker's Summary:

“INAPPROPRIATELY HILARIOUS”: AN HISTORICAL OVERVIEW OF THE INTEREST IN AND USE OF "INCAPACITATING CHEMICAL AGENTS"¹⁷

John Walker

Introduction

Vast numbers of toxic materials – whether man-made or of natural origin – have been considered as potential chemical warfare agents.¹⁸ The intent was most often to find a lethal chemical, but a variety of factors meant that whilst many were screened few were ever selected and adopted into national munitions stockpiles. Although many toxic chemicals were tested and used in WWI most of them were far from lethal. A whole new field of CW research and development then began in the late 1950s. Considerable thought was given to the requirements for such agents and concepts of use. Work quickly uncovered that looking for the ideal agent was not going to be easy. Much depended on the intended scenario and factors such as speed of action required, safety margins, the duration of incapacitation and method of delivery all complicated the researchers' task. Questions of dose and variable and lack of predictable effects were major issues that emerged in the research. This paper looks largely at the UK experience based on state papers available in The National Archives.

Definitions and understandings

In August 1963 the UK defined an incapacitating agent as, *“a substance which can render hostile persons incapable of either aggression or resistance for a limited time without permanently injuring them.”*¹⁹ It was also noted that the range of effects that might be produced by incapacitating agents was very wide and that although it was possible to divide them into classes, this was somewhat arbitrary and that some of the potential materials in practice would overlap the divisions. Three categories of agent were defined: harassing agents, physical incapacitating agents and mental incapacitating agents. In the middle category there was a greater risk of causing death or permanent injury in a small percentage of cases. The chance of producing death or injuries in a target population attacked with an incapacitant agent depended on the intrinsic toxicity of the agent; the likelihood of its effects producing some permanent damage and the characteristics of the weapon systems used to deliver it; and the density and nature of the target population. There was, moreover, a further important point to bear in mind – the very great difficulty of predicting the secondary effects produced amongst a non-combatant population after exposure. The prospect of finding an

¹⁷ “Inappropriately hilarious” was a phrase used to describe the condition of some UK soldiers after a field trial of an incapacitating agent when they were under observation in a hospital. See WO 195/16694 Applied Biology Committee: SMALL CHANGE (Field trials with an incapacitant) 1968

¹⁸ In WWI alone some tens of thousands of agents were examined as candidate agents - see SIPRI The Problem of Chemical and Biological Warfare Volume I The Rise of CB Weapons, Almqvist & Wiksell, 1971 page 38

¹⁹ WO 32/20163 Development of defensive chemical warfare capability with incapacitating agents 1962 – 1966. The Operational Use of Chemical Incapacitating Agents by M.A.P.Hogg, CDEE Porton Down 29 August 1963

incapacitating agent exactly suited to all possible operational needs was remote. Final choice of agent would inevitably represent a compromise between conflicting requirements.

History

Little was done on developing incapacitating agents from WWI through WWII and into the early 1950s. The focus was largely on lethal agents. An active interest in incapacitating agents was spurred on by consideration in the Tripartite Conferences on Toxicological Warfare (UK, US and Canadian CBW offensive and defensive CBW collaboration). The Thirteenth Conference held in September 1958 decided that the countries should concentrate efforts on searching for new agents, both incapacitating and lethal.²⁰ And in 1959 the Tripartite Conference agreed that in selection of an incapacitating agent for field use among the various substances available, six characteristics were of paramount importance: biological activity capable of spontaneous or controlled reversibility, producibility, stability, ease of dissemination, reliability of military effectiveness and difficulty of defence.²¹

A new UK policy was agreed by the Cabinet Defence Committee in May 1963. This called for production of an incapacitating agent when one was developed.²² Before the programme could go any further guidance was needed on the type and scale of operations envisaged; the weapons best used; the upper limit of primary lethal casualties that would be acceptable in different categories of operations; the maximum and minimum periods of incapacitation demanded by operational considerations and the best compromise if only a single agent could be accepted and whether a delay of some hours between exposure and onset of symptoms would materially restrict the usefulness of incapacitating agents and if so the particular operational categories affected. A year later and after much discussion the first draft of new requirements on incapacitating agents was put round relevant MOD branches for comment in September 1964. This covered the requirement for a group of agents with differing degrees of incapacitating effect, and included agents with minimal lethal effect. Detailed specifications for two types of agent were set out along with operational requirements ranging from internal security and counter-insurgency to limited and general war.

Agent research

During the period August 1961 and December 1963, for example, 240 new compounds were tested as potential agents.²³ Some of these came from industrial liaison. These tests involved those for toxicity, physiological effects, physical incapacitation and behaviour.²⁴ Some thirteen types of chemicals were investigated: indole derivatives; pyrrole derivatives; aminoxyalkanoic acids and esters; benzimidazoles; phthalimides; tremorine; tremoram and analogues; thebaine or oripavine derivatives; sterically hindered amines and amides; cyanoalkylamines; sulpholanes; hydrazines; natural products and miscellaneous compounds

²⁰ J P Perry Robinson, *Disabling Chemical Weapons. A Documented Chronology of Events, HSP 1945-2003*, November 2003 page 15 citing US Army Chemical Corps Historical Office document January 1960

²¹ WO 195/14773, Chemistry Committee: conclusions and recommendations of the CW Agents group at the 14th tripartite conference, 1959, Ministry of Supply Advisory Council on Scientific Research and Technical Development, Chemistry Committee Conclusions and recommendations of the C.W. Agents Group at the 14th Tripartite Conferences (1959), Conclusion 13.

²² WO 32/20163 Development of defensive chemical warfare capability with incapacitating agents 1962 – 1966, DCDRD to DEP, Incapacitating Agents, 9 September 1963

²³ WO 189/422 Biological Testing of incapacitating agents Part IV 1964, Further Results of screening tests on new compounds R W Brimblecombe Porton Technical Paper No.902 2 October 1964

²⁴ WO 195/15033 Tripartite toxicological warfare; screening methods for incapacitating agents 1960, Fifteenth Tripartite Conference on Toxicological Warfare Screening Methods for Incapacitating Agents UK Discussion Paper Medical Aspects 5 August 1960

not falling into these classes.²⁵ By 1965 CDEE had narrowed down the scope of potential incapacitating agents to some nine materials: glycollates; oripavine derivatives; and other compounds – LSD-25, CS and CR.²⁶ The list was further reduced and LSD-25 was not recommended.²⁷ In the event only CR was taken into service.

Porton recognized that there were problems in finding suitable incapacitating agents. A 1967 review noted that up until that time vigorous efforts to find an ideal CW incapacitant had only qualified success. Sensory irritants had limited utility against determined and well trained troops as they could tolerate the level of personal harassment caused by such substances. High morale could be overcome by using agents that caused physical incapacitation; however, since such agents usually exerted their effect by severe depression of either the cardiovascular system or the central nervous system there was a considerable risk that they would cause death either by their own pharmacological action, or because they exposed the helpless victim to natural and man-made dangers of the environment.²⁸ Despite the research, no decision was taken at Ministerial level to implement the 1963 decision to re-acquire an offensive CW programme in full on either lethal or incapacitating agents.

Conclusions

So what does the British experience tell us about incapacitating agents? Perhaps the following have a contemporary resonance:

- Definitions of what constitutes the ideal incapacitant can depend on the intended use and the operational requirements;
- In UK thinking there were distinctions to be made between different types of incapacitant and this blurred the edge between what were called anti-riot control, irritant and harassing agents; operational requirements and scenarios were critical factors here; although as the specifications show “incapacitating agent” was used in this period as more as an umbrella term – certainly in the 1960s;
- Some compounds of potential interest came from industry and academe, including CR; and assistance from this quarter was seen as essential;
- It was extraordinarily difficult to develop an agent producing almost instant effects, lasting for hours and with no health risks. UK research clearly shows that whilst many compounds had attractive features, virtually all of them could not be used;
- After all the effort only one new agent was brought into service (CR) and controls on its use were considerable. And of course this is not an incapacitating agent as this term would be understood today and even in the minds of contemporaries it was seen as a more effective advance on CS; and
- There were no direct legal constraints impacting on the incapacitants programme from the late 1950s to early 1970s, but the importance ascribed to the 1925 Geneva Protocol is striking since it shaped thinking on what would be permissible and, more

²⁵ WO 189/422 Biological Testing of incapacitating agents Part IV 1964, Further Results of screening tests on new compounds R W Brimblecombe Porton Technical Paper No.902 2 October 1964

²⁶ T numbers were allocated by CDEE to agents under investigation – each one was given a unique number. WO 188/2705 Incapacitating and anti-riot agents 1967-1970, New Agent Applications Working Party Selection of an Incapacitating Agent, 23 August 1965

²⁷ WO 195/16213 Summary of work on lysergic acid diethylamide [LSD]1966, Applied Biology Committee Summary of Work on LSD at Porton in the last five years R.J.Moylan-Jones, 29 March 1966

²⁸ WO 195/16429 Review of concepts of incapacitation 1967, Applied Biology Committee, 26 April 1967 Item 4 A Review of some concepts of Incapacitation, R.W.Brimblecombe, F.W. Beswick and D F Downing

to the point, under what circumstances. The key question for today, therefore, is whether the CWC can act as an effective barrier to renewed interest in incapacitants in the face of new technological possibilities and their creeping legitimization.

DISCUSSION

This presentation concerned historical aspects of "incapacitating chemical agents". The discussion ranged across a number of issues and points, and various opinions, sometimes differing, were expressed. These included but were not limited to the following which have been broadly grouped under the headings "technical / historical" and "legal / general".

Technical / historical

Research into "incapacitating chemical agents" has involved both academic research institutes and the pharmaceutical industry. There has also been military interest.

BZ (3-quinuclidinyl benzilate) was the only "incapacitating chemical agent" that has so far been weaponized for battlefield use. However, negative side effects such as poor predictability of effects were identified at an early stage and eventually lead to the withdrawal of BZ from service. It was noted in this context that unpredictable and erratic behaviour would be of grave concern if the same people exhibiting such complications from BZ had access to lethal weapons, particularly nuclear weapons.

BZ was identified as an "incapacitating chemical agent" through extensive research concerning chemical agents that might be used in the management of mental illness. The enormous body of knowledge concerning the human nervous system is available both to those who seek to better manage mental illness and to those who might want to develop "incapacitating chemical agents" for tactical as opposed to therapeutic reasons.

Research into "incapacitating chemical agents" for law enforcement purposes might involve the private sector; this raises the issue of how research in the private sector can be monitored. This issue would require an understanding of the different equipment development and procurement systems that are used by various police forces. While military procurement systems might be fairly standardized, there may be very broad differences with regard to police forces, particularly if the responsibility for this function lies with political subdivisions within a State and not with the State itself.

It is possible that there is continuing interest on the part of law enforcement communities in "incapacitating chemical agents". It was proposed that the 2007 solicitation by the US National Institute of Justice (NIJ), the research, development and evaluation agency of the US Department of Justice, concerning "Less Lethal Technologies" was evidence for this. It was noted that the solicitation listed "calmatives" as an area of interest for the NIJ in the field of law enforcement (see footnote 4).

Policing and law enforcement duties can be carried out by paramilitary forces. The frequent association of these forces with formal military bodies could facilitate the passage of technology and equipment between these two groups. (ICRC note: The un-stated implication behind this observation was that military personnel might have access to "incapacitating chemical agents".)

Early research programmes looked at "incapacitating chemical agents" as a middle ground between conventional lethal weapons and riot control agents. They were seen as providing

an opportunity to increase the range of options available between lethal force and crowd dispersal with riot control agents.

There was a discussion concerning the use of CS during the conflict in Vietnam and a number of different opinions were expressed. They included the use of CS for "terrain denial" along the Ho Chi Minh trail, to "flush out" combatants from cover or from bunkers, and as a "force multiplier" to disable targeted persons to more effectively expose them to lethal force.

One participant stated that "the US is not developing, stockpiling or using incapacitants for military purposes or for law enforcement".

It was postulated that historically, when force has been applied against a group of humans by another group, be it for national defence or for law enforcement purposes, no chemical agents other than riot control agents have been deemed morally or legally acceptable; furthermore, any use of chemicals in a tactical situation has always lead to critical public comment. This assertion was challenged in relation to the use of a supposed fentanyl derivative during the Dubrovka Theatre siege in Moscow in 2002. In that instance, no State Party to the CWC formally raised the incident although some States made generic comments on "incapacitating chemical agents" during the 2003 CWC Review Conference, and civil society has indeed specifically commented on the situation.

Legal / general

It was generally agreed that any use of a toxic chemical for hostile purposes would be a breach of the CWC. In addition, any use of "incapacitating chemical agents" might be identified by the targeted person or persons as an attack with a classical chemical weapon and that might result in retaliation with a classical chemical weapon.

The CWC regime has significantly changed what can considered as legally acceptable; some of the research lines pursued 50 years ago would, if carried out today, pose a significant threat to the CWC.

The purpose not prohibited under the CWC of "law enforcement including domestic riot control purposes" creates a "gap" or a "slippery slope" that could see the development of a chemical based weapon for riot control that then might be deployed with military personnel carrying out law enforcement. This creates a possibility that such a chemical weapon might later be used by those military personnel in a situation that evolves into a conflict situation.

The weaponization of scientific advances might lead to "incapacitating chemical agents" being used in the contexts of detention or of torture. It was noted that these scenarios are not usually considered under the CWC regime.

Although there is a requirement under the CWC for States Parties to declare the riot control agents that they hold, there is no requirement to declare other toxic chemicals they might hold for law enforcement purposes. Under the CWC's Article II 9 (d) provision for law enforcement, this could be interpreted to allow the development of other toxic chemicals for purposes associated with law enforcement.

Participants who had been members of CWC negotiating teams – from both technical and policy backgrounds – discussed the Article II 9 (d) provision and the lack of a requirement to declare toxic chemicals used for this purpose other than riot control agents. On balance, although there may have been consideration of chemicals other than riot control agents, and although there may have been proposals to include delivery systems for riot control agents, riot control agents were a very polarizing topic. In order to reach a final CWC text, not all possible aspects of riot control agents, "incapacitating chemical agents", and "non-lethal"

agents were explored by the negotiating teams. In effect, during the negotiations, for most States, the predominant topic relating to law enforcement was riot control and hence riot control agents.

The CWC does not define "law enforcement". There were differing opinions as to what this term might encompass: they included riot control, judicial execution and peacekeeping.

SESSION 2

HUMAN IMPACT OF "INCAPACITATING CHEMICAL AGENTS"

Speaker's Summary:

FEASIBILITY OF "INCAPACITATING CHEMICAL AGENTS"

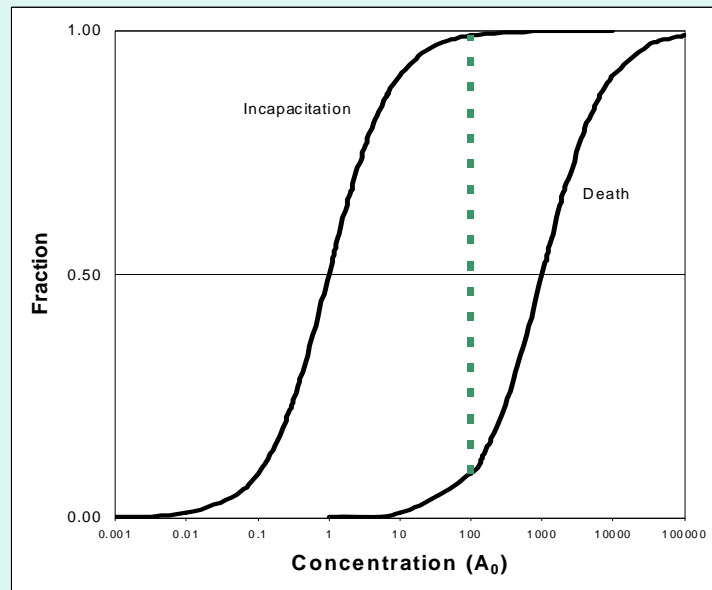
Mark Wheelis

Recent interest in "incapacitating chemical agents" is based on the arguable premises that they are legal under the law enforcement exemption in the CWC, that they are technically feasible, and that there are tactical situations in which they might be useful (e.g. hostage rescue, riot control, and apprehension of criminals). Some countries, especially non-parties to the CWC, might also be interested in them for military purposes (prohibited by the CWC), such as urban, jungle, or cave warfare, friendly prisoner-of-war (POW) rescue, pacifying hostile POWs, covert operations, or use against mixed populations of combatants and non-combatants.

For law enforcement purposes the most useful incapacitating weapon would release a chemical agent in aerosol form, so as to almost simultaneously affect all the people in a given area such as a room in a public building. The characteristics of a useful agent would include: high potency; stability in aerosol and in munitions; rapid action (in the order of seconds); complete incapacitation of targets; and low level of lethality and permanent disability (to permit its use against a mixture of, for example, hostages and hostage-takers). The issue addressed here is whether this combination of characteristics is achievable. It is a truism in pharmacology that the only difference between a drug and a poison is the dose, and the common phenomenon of inadvertent overdose during recreational use of drugs, and the use of drugs for suicide, confirms this. The central issue thus becomes whether drugs exist or can be developed that can be delivered in real-life law enforcement situation at concentrations that incapacitate all targets, while killing or permanently injuring few or none.

Since any population of people is heterogeneous in many biological ways, drugs affect different individuals somewhat differently. The result is that the dose necessary to incapacitate (or kill) different individuals varies over a considerable range, as described in the graph below.²⁹

²⁹ This graph is taken from Klotz, L., M. Furmanski, and M. Wheelis 2003. Beware the siren's song: why "non-lethal" incapacitating chemical agents are lethal. Federation of American Scientists: http://www.fas.org/bwc/papers/sirens_song.pdf.



http://fas.org/bwc/papers/sirens_song.pdf

This graph is based on a theoretical model that does not fit all drugs, but the shape of the curves is generally a constant. The separation of the incapacitation and lethality curves may vary, as may the steepness of the linear portions, depending on the specific drug. Drug potency is generally expressed as the “effective dose 50” (ED₅₀, the dose that will produce the desired effect in 50% of people exposed to that dose); in the case of the hypothetical drug shown, the ED₅₀ is a concentration of 1 (arbitrary units). Similarly, the capacity of the drug to cause death can be expressed as the “lethal dose 50” (LD₅₀, the dose that will kill 50% of people exposed to this dose); in this case a concentration of 1000 units. The safety of a drug is commonly expressed as the “safety margin” or “therapeutic index”, which is the ratio of the LD₅₀ to the ED₅₀, in this case a safety margin of 1000. This is an extraordinarily high safety margin; potent drugs that affect the mind, such as opioids and barbiturates, commonly have safety margins or 20 or less.

Of course, in a law enforcement situation such as a hostage rescue, the goal will be to incapacitate all the hostage takers, which will require a dose far in excess of the ED₅₀. The dotted line corresponds to an ED₉₉ sufficient to incapacitate 99% of exposed people. However, even for a drug as safe as the one modelled (safety margin of 1000), the ED₉₉ will cause nearly 10% lethality, a level of lethality that is clearly unacceptable for a weapon designed to incapacitate rather than kill. If the slopes were steeper than those modelled, lethality could be lower; but this possibility is offset by operational constraints that are likely to increase lethality: the need to use higher concentrations to compensate for uneven distribution of the aerosol; relatively high resistance of the intended targets who are likely to be younger and more fit than average; and the continuation of exposure after the aerosol generation has ended (in a closed space such as a room or theatre).

My conclusion is that a true incapacitating chemical weapon is beyond the reach of current pharmacological capability, although this could change with additional research. Even if an agent is developed that incapacitates in seconds, is stable, and is safe, it can easily be defeated by prepared terrorists, criminals, or soldiers by the simple expedient of using respirators, antidotes, or dead-man switches.

The use of a fentanyl derivative by the Russian Federation at the 2002 hostage crisis at the Dubrovka theatre in Moscow is a case in point. Although it has been considered a success

by some, it rather exemplifies the difficulties outlined here. The agent rendered most of the hostages and hostage takers unconscious (although not all), but it took at least several minutes to do so. Hostages had time to make cell phone calls, and the male hostage takers had time to exit the theatre into the surrounding corridors, avoiding incapacitation. There was ample time for the female hostage takers to detonate their bombs; why they didn't remains unexplained, but it was certainly not because the drug incapacitated them too quickly for them to act. In this respect, the drug was a failure.³⁰

The drug was a failure in an additional way: between 15% and 20% of the hostages died of direct effects of the drug or of airway constriction due to their incapacitation. An undetermined, but large, additional number of hostages suffered long-term damage, or died prematurely in the years after the siege. So in addition to not acting rapidly enough to be effective, the drug had a level of lethality that was unacceptable for law enforcement purposes.

Both experience and theory thus suggest that an effective incapacitating chemical weapon appropriate for law enforcement use is not currently feasible, and may never be.

DISCUSSION

One participant noted that respiratory and injection routes for introducing "incapacitating chemical agents" had been discussed and then enquired if a transdermal route could be feasible. In response, the speaker noted that transdermal or percutaneous routes for introducing "incapacitating chemical agents" would be much slower than introduction via the respiratory system. While these routes may be useful in some contexts, they would be too slow for use in a hostage crisis or similar event; they would also not be suitable routes for any large scale use of "incapacitating chemical agents".

Another participant noted that the feasibility of a centrally acting drug that could incapacitate in less than a minute is probably zero as the drug would have to cross the blood brain barrier after its initial absorption into the body. This reality highlights the infeasibility of incapacitants as this physiological barrier will be almost impossible to overcome despite any possible scientific advances in the future. There was agreement that the "time to drop" issue will remain a significant block to the development of a safe or acceptable "incapacitating chemical agent".

A participant stated that advances in science and technology, particularly the rapid advances in neuroscience, mean that benign scientific research work could, in the future, result in a feasible "incapacitating chemical agent".

Another participant observed that it was now time to "shut the door" once and for all on the possibility of "incapacitating chemical agents" and that the current lack of a feasible "incapacitating chemical agent" is a "window of opportunity" that may close if a feasible "incapacitating chemical agent" were to be developed at some time in the future.

Linked to the understanding that an opiate had been used during the lifting of the Dubrovka Theatre siege, one participant noted that patients can die under opiate anaesthesia so there are good clinical reasons to look for "incapacitating chemical agents" that have higher safety margins than opiates.

³⁰ Dunlop, J. B., *The 2002 Dubrovka and 2004 Beslan Hostage Crises: a Critique of Russian Counter-Terrorism, Soviet and Post-Soviet Politics and Society* series (*ibidem*-Verlag: Stuttgart, 2006)

A participant noted that most of the discussion to date had concerned the use of "incapacitating chemical agents" in scenarios akin to the Dubrovka Theatre siege. This participant urged the meeting to think more broadly as the issue was really about introducing a pharmacological agent into a person either against that person's will or without their knowledge. This could involve a covert use of an "incapacitating chemical agent", and might be over an extended timeframe. For example, this participant suggested that it might be feasible to incapacitate a household of people by slowly introducing an "incapacitating chemical agent" into the house's water supply. The participant concluded that while an acutely acting "incapacitating chemical agent" might not currently be feasible, there may be situations in which incapacitation by a pharmacological agent is currently perfectly feasible.

Another participant observed that lack of feasibility is either based on the best available scientific evidence or based on theoretical precaution.

It was generally agreed that current limitations on the feasibility of "incapacitating chemical agents" might not matter to some people. With regard to tactical situations involving, for example, law enforcement or counter-terrorism, "as good as it gets" might be good enough for some decision makers faced with such a scenario.

Participants generally agreed that finding the ideal "incapacitating chemical agent" is an almost impossible task. Even if such an agent was identified, effective delivery of that agent would still present problems and would remain a key issue. Fundamental problems for delivery would include delivery of an effective dose to multiple human targets and equality of dose depending on room size and the placement in the room of the targeted individuals.

Speaker's Summary:

PRACTICAL IMPLICATIONS OF HUMAN INCAPACITATION BY "INCAPACITATING CHEMICAL AGENTS"

Ben Steyn

Introduction

"Incapacitating chemical agents" (ICAs) consist of a large number of chemicals all with separate actions and effects. Only the general aspects of these agents will be discussed.

Scope

The following will be discussed:

- What is incapacitation?
- Factors that influence the use of incapacitating agents.
- The chemical groups that incapacitating agents fall into will be discussed in broad terms.
- The symptoms and signs of incapacitation resulting from the effects of the agents.
- Antidotes and their use.
- Complications of the use of ICAs.

What is incapacitation?

There are a number of definitions for incapacitation and it is not necessary to add another, however, it may be helpful to describe incapacitation from a military point of view.

In military terms “incapacitation” refers to rendering persons incapable to fulfil their tasks due to temporary and non-lethal impairment. Thus, many toxic chemicals including riot-control agents can be included in this group. However, for the purpose of this paper only chemicals affecting the central nervous system will be discussed.

Factors influencing the use of ICAs

There are a number of factors that influence the effects and therefore, the use of ICAs.

Routes of Entry

Substances can enter the body via the respiratory tract, other mucous membranes, eyes, gastrointestinal system and the skin. The respiratory tract is the only feasible route of entry into the body for the use of ICAs.

Receptor bound

All ICAs exert their effects by binding to specific receptors resulting in effects. However, these receptors are not present in the central nervous system (CNS) alone and, therefore; all the ICAs have additional effects to those exerted on the CNS.

Varying effects including paradoxical effects

The effects of the ICAs vary a great deal in individuals and in some cases they may have the opposite effect to what would be expected. Their effects are also affected by circumstances and the environment. This erratic behaviour makes their use extremely difficult to plan and manage.

Large concentrations required

In most cases large dosages will be required to achieve the necessary effects because most of these effects are not the primary effects of the agents. The primary effect of Fentanyl is analgesia and the unconsciousness only occurs at much higher doses after other unwanted effects.

Safety margins

All these agents have safety margins that are coupled to dosage. In most cases the very large doses necessary to achieve the required effects, will narrow down and exceed the safety margins resulting in complications and death.

Central and peripheral effects

Due to the fact that the receptors are present peripherally the ICAs will exert effects on the peripheral systems as well, mostly the cardiovascular system. In very high doses they may also have direct effects on organs such as the liver and kidneys.

Side-effects

All drugs whatever their nature, have additional effects to the primary effect they exert, these are called side-effects. In most cases the side-effects are responsible for complications and

mortality. In some cases, such as Fentanyl, the required ICA effect is actually a side-effect of the drug. Unfortunately other side-effects such as respiratory depression occur before unconsciousness sets in.

Kinetics

When drugs or chemicals are introduced into the body the body also has certain effects on the drugs. They are metabolized and the organ system where the metabolization occurs as well as the metabolic processes determine the rate and therefore, also the duration of effects. At very high dosages the rate of metabolism will again become unpredictable and most probably prolonged. Drugs such as Fentanyl are highly soluble in fat and are absorbed into the fatty tissue in the body, when concentrations in the body decrease drug is released from the fatty tissue and this may cause secondary effects after exposure was terminated.

Drug interactions

Many drugs interact with each other or influence the effects of each other. People on drug treatment that are exposed to ICAs may have adverse effects due to such interactions.

Incapacitating agents

A number of groups of agents have been investigated for use as ICAs such as the Anticholinergics (BZ), Cannabinols (Marihuana) and Indoles (LSD). Of these only BZ has been produced. Since these agents are known and not considered useful anymore, they will not be discussed further.

Opioids

Opioids have been considered and investigated for this purpose for many years. Fentanyl and its derivatives which are widely used in anaesthesia have been under consideration since the 1960s. It is also now accepted that Fentanyl or the derivative Carfentanyl which is used in veterinary service to immobilize wild animals, was used in the Dubrovka theatre incident in Moscow in 2002.

Anaesthetics

Anaesthetics such as Halothane have also been considered. Halothane does not affect receptors directly. Its most important side-effect is cardiovascular depression and vasodilatation.

Sedatives (calmatives)

The Benzodiazepines of which Valium, Rohypnol and midazolam are examples have been investigated. They cause respiratory depression in large doses.

Neurotransmitters

Neurotransmitters are substances that are produced in the body and are involved in regulatory functions in the body. They act on the receptors that are present in the body. Neuroscience has developed to such an extent during the last 20 years that a lot is currently known about these substances and they can be produced synthetically. Theoretically such agents could be developed as ICAs in the future. With current knowledge their use for this purpose would also be affected by the same factors as the other agents since they also exert more than one effect in the body. Table 1 contains some examples of neurotransmitters and their effects.

Table 1: Neurotransmitters

Dopamine	Controls arousal levels in many parts of the brain and is vital for giving physical motivation. LSD and other hallucinogenic drugs are thought to work on the dopamine system.
Serotonin	Has become known as the 'feel-good' chemical. It has a profound effect on mood and anxiety -- high levels of it, or sensitivity to it, are associated with serenity and optimism.
Noradrenaline	Mainly excitatory; induces physical and mental arousal and elevated mood.
Glutamate	The brain's major excitatory neurotransmitter, vital for forging the links between neurons that are the basis of learning and long-term memory.
Enkephalins and Endorphins	Opioids that modulate pain, reduce stress and promote a sensation of floaty, oceanic calm. They also depress physical functions like breathing and may produce physical dependence.

Excerpts from: "*Mapping the Mind*", Rita Carter, Weidenfeld & Nicolson, 1998

Antidotes

Antidotes are specific for specific drugs or agents, therefore, the right antidote must be used for a drug or agents. Examples of such antidotes are Physostigmine that is used for treatment of BZ (it is not its primary function) and Naloxone is the antidote for Opioids (Fentanyl). There are drugs and ICAs for which there are not antidotes available.

Antidotes act through countering the effects of the drug on the receptor by competing with the agent for binding on the receptor, blocking the receptor or stimulating opposing receptors.

Dosage

Dosages for antidotes, particularly those for drugs, have been determined for normal use and where the drug dosage is known. In the case of the very large dosages required for ICAs it will be very difficult to determine the antidote dosage. The only way antidotes could be administered is to titrate³¹ them against effect. Symptoms such as respiration and cardiovascular effects are the best to use for this nature. This implies that well trained personnel will have to administer these drugs in such circumstances.

Symptomatic treatment

The treatment of symptoms and side-effects in addition to the administration of antidotes will always be necessary and is equally important.

Complications

The complications of the use of ICAs will in most cases be the result of the primary effect, side-effects or other effects resulting from the influence of the agent or any combination of these.

Generally occurring complications

The generally occurring complications are:

- Respiratory depression
- Cardiovascular depression and failure

³¹ Titration means to administer a drug against a continuous measurement or assessment of its effects linked to adjustments of the dosage against those measured or assessed effects.

- Organ system failure
- Cardiovascular hyperactivity (BZ)
- Increased temperature/ decreased temperature

Complications such as airway obstruction, regurgitation and aspiration of stomach contents are well known complications of unconsciousness. Other injuries such as fractures and lacerations may also occur.

Secondary release of drug from fat stores may result in late occurring effects and relapse depression. Such effects are well known with Fentanyl.

DISCUSSION

One participant noted that there is not necessarily a uniform response to an "incapacitating chemical agent" within any trial group exposed to that agent. This was confirmed and it was noted that "incapacitating chemical agents" may have, like all drugs, an effect that is unexpected or is opposite to that which is expected.

It was observed that the discussion to date had focused predominantly on the immobilization of people by "incapacitating chemical agents". However, research by weapons developers, particularly in the 1990's, had made a distinction between drugs that produced immobilization and drugs that were "calmative" agents. While the discussion concerning immobilization had focused on hostage crises, chemicals with the comparatively lesser effects of a "calmative" open up many more tactical and operational scenarios. These include barricade situations, crowd control and "close proximity encounters" (e.g. domestic disturbances; bar fights; stopped motorists).

Another participant observed that, with regard to the administration of antidotes, it had been presented that it was necessary to titrate them intravenously (continuously measure and adjust a pharmaceutical a substance against its physiological effect), and that this would be difficult to achieve under field conditions. The ensuing discussion confirmed this and also that the administration of multiple antidotes under field conditions would be an extremely difficult task.

One participant noted that an anaesthetist induces anaesthesia in a carefully controlled environment, with the cooperation of the patient and in good light. This participant further noted that the speaker, an anaesthetist, had observed that it can be difficult to recognize when a patient has been incapacitated by an anaesthetic. Developing these observations, the participant asked the meeting to consider how a relatively untrained soldier or police officer under difficult or dangerous circumstances involving many people, knowing some of them to be hostile, possibly in the dark and possibly being shot at, could recognize incapacitation? This participant was of the opinion that such a tactical use of "incapacitating chemical agents" would always be backed up by conventional lethal weapons. The ensuing discussion noted that the impact of sedatives or calmatives, as distinct from an agent that produces incapacitation, would be even more difficult to determine. In addition, it was noted that it is harder to effectively sedate a person than to anaesthetize them, and it is difficult if not impossible to sedate a crowd of people simultaneously.

The discussion emphasized that it is important to identify any side effects or unintentional consequences of "incapacitating chemical agents" as many States will have stringent safety

regulations that must be met before any State functionary, or more importantly a politician, will state that such agents are safe to use. Additionally, even if an "incapacitating chemical agent" was considered safe for use against an individual person, it may be very difficult to extrapolate that safety determination to large numbers of people as might be encountered in a siege situation.

One participant explained that clinical drug trials are performed on individual subjects under controlled conditions, and that it is the individual that is observed. This participant went on to emphasize that this is vastly different from exposing a group of people to a drug simultaneously in the context of determining if that drug could incapacitate that group or degrade that group's performance of its tasks.

A discussion concerning the Dubrovka Theatre siege followed these last two points. During this discussion, it was noted that the exact identity of the chemical agent used remains unknown and that broken windows mean that the targeted population is no longer in an enclosed space and any airborne or gaseous "incapacitating chemical agent" will dissipate more quickly. The discussion proceeded to entertain possible hypothetical scenarios in which "incapacitating chemical agents" might be better alternatives to negotiation or the use of traditional (kinetic) force. A number of participants were firmly of the opinion that "incapacitating chemical agents" are not a current option and that the hypothetical scenarios being discussed all required an instantaneous incapacitation that is not currently feasible.

In response to some of the hypothetical scenarios that had included crowd control, one participant observed that riot control agents are much better for riot control than "incapacitating chemical agents" as they have much larger safety margins and the targets tend to flee. An incapacitated person might continue to be exposed to the incapacitant until medical care reached them. Continued exposure to the agent would depend on the person's location within the target area or space, and on the level of ventilation of that area or space.

It was further noted that hypothetical scenarios involving the use of "incapacitating chemical agents" include use against a single person, against small groups of people and against large groups of people. Again the point was made that administering an anaesthetic is a one-to-one dynamic of the anaesthetist to the patient, and this is very different from the hypothetical linked to law enforcement.

One participant noted that medical research and drug trials are based on normal dosages. Accordingly, although LD50 doses³² have been discussed, research does not approach those levels with human subjects, only with laboratory animals such as mice and rats. In addition, until there is post marketing surveillance of a pharmaceutical product, human drug trials generally look at people who are in good health without any significant underlying medical conditions. This was noted to be different from a hostage or siege situation where there would be a variety of physiologies and medical histories. Accordingly, extrapolation of medical research for these kinds of situations probably underestimates any risk.

Another participant expressed the view that, even if a useful "incapacitating chemical agent" were to be identified for use in relation to multiple individuals, problems concerning delivery systems and dosage calculation would remain. They were of the opinion that most if not all current research concerning "incapacitating chemical agents" is undertaken within the field of anaesthetics and not inside military laboratories. This clinical research aims to develop safer anaesthetic agents with fewer side effects, as well as to develop more precise control and monitoring mechanisms.

³² The LD₅₀ dose or "lethal dose 50" of a drug is that dose that will kill 50% of people that are exposed to that dose.

One participant emphasized that the time lag between scientific knowledge and a usable technology utilizing that knowledge is frequently if not always underestimated. This participant emphasized this point in relation to the evolution in knowledge of the central nervous system and how it operates and is controlled, including neurotransmitter and neuroreceptor systems and circuits.

The discussion also concluded that some scientific researchers may not clearly envisage the dual-use risks associated with their work.

Speaker's Summary:

ETHICAL ISSUES FOR HEALTH PROFESSIONALS

Vivienne Nathanson

The use of incapacitating agents would present clinical and ethical challenges to health-care professionals. I shall try to set out the root cause of the ethical challenges and the implications for policy makers.

When we examine any issue for ethical elements we must first examine the issue thinking through whether it exhibits specific factors that make an ethical problem more likely. These include whether there is scientific doubt or uncertainty and whether the use embodies threats to professional values and standards, breaches of ethical principles or conflicts with public and professional attitudes.

In terms of the scientific uncertainties, other speakers at this expert meeting have covered those. While it is an old saying “bad science makes bad ethics” there is more than a grain of truth. The scientific uncertainty about the effectiveness, utility and safety of the weapon makes it difficult to rule out ethical problems, and indeed produces a specific one: how can medical scientists collaborate with their use when doctors and other health-care workers cannot be certain how to plan for a post-usage scenario?

This does not mean that war or the use of weapons are necessarily unethical – much as law recognizes legal or just wars, ethics makes the same distinctions. But in war the use of health professionals is rightly constrained to one of caring for the sick and injured, of all sides, and not contributing directly to the promotion of military objectives.

The clinical uncertainties that arise if using drugs as weapons include: recovery workers being uncertain of the cause of incapacity leading to diagnostic dilemmas; risks of applying the wrong, inadequate or unduly delayed recovery treatment; risks inherent to the situation in which the drug is used such as positional hypoxia; the extra risks to the most vulnerable and clinically fragile; and the risks of exposing people to planned preventative treatment of unknown health impacts.

Set against this are the values that lie at the core of medical practice – values such as caring, compassion and commitment. In addition, the duty of health-care workers to act altruistically, to be free from bias or prejudice, to see their role as that of healer and not as soldier or policeman, and the responsibility to merit the trust of patients and communities. To ensure these are all respected values requires that doctors use their skills, knowledge and judgement for the good of people and not for harm. While that does not mean doctors must be pacifists it does mean doctors cannot develop weapons, participate in the use of weapons

or of interrogation or otherwise use their medical and medico-scientific skills for anything other than the alleviation of suffering, while remaining doctors with the duties and responsibilities inherent in that title.

Public attitudes matter. Ethics is essentially a bargain between a profession and the society it serves. Public trust can be seriously undermined if doctors and other health-care professionals are seen to be developing and deploying weapons.

Ethical principles need to be used to examine the use of incapacitating agents or drugs as weapons. This can be done by using the Beauchamp and Childress four principles, or by using a human rights based approach, or an utilitarian argument, or a Kantian argument. In using any of these, balances need to be struck – for example the right to autonomy of an individual against the rights of others to autonomy and indeed the first individual's duty to society.

Given that society expects wars to be legal and "just" and that weapons which are 100% lethal are banned by international law, it is clear that the public expect limits on weapons usage. It is also important to recognize that proponents of drugs as weapons describe them as non-lethal. In fact the scientific base makes a non-lethal weapon impossible – lethality is at least partially situational. We thus come back to the core scientific uncertainties raising real dilemmas, and must ensure that the attempt to rename and legitimize such weapons is an understood to be an attempt to hide the truth.

Apart from the abuse of medical knowledge for non-medical practices, is the use of a drug as a weapon ethically acceptable? If there is no certainty about the level of harm that can be expected, and if doctors are not going to be told after a use what the agent was, compromising their ability to care for those harmed, and if there develops confusion about the role of the doctor, with undermining of public trust in the "white coat of the healer" then there are serious, and probably insurmountable ethical problems.

The use of drugs as weapons raises a mixture of practical, pragmatic and ethical dilemmas. The role of health-care workers, especially doctors, is to promote and defend good science, good health-care including primary and secondary preventative tools and to stop practices that will increase or introduce risks of serious harm to their populations. Drugs as weapons pose threats, and doctors have an ethical duty to point these out and to emphasize that to prevent serious harm they should not be used.

DISCUSSION

One participant observed that the speaker had said that the general public would be in favour of more humane weapons. According to this participant, currently available "incapacitating chemical agents" cannot be regarded as "more humane weapons", and this message must be passed by the scientific community to the general public at large. It would also be necessary to educate people concerning the difference between the transient peripheral effects of "riot control agents" and the longer lasting effects of "incapacitating chemical agents" on the central nervous system.

Another participant observed that health-care workers are not automatically good lobbyists for public health issues and in some States they might be prevented or at least discouraged from taking on such a role. There then followed a discussion about how to involve both the general public, and health-care workers specifically, in a lobby or advocacy campaign on "incapacitating chemical agents".

Yet another participant raised a concern that some States with overriding national security concerns might discount ethical arguments and questioned how to ensure that ethical arguments would be heard in every country.

One participant observed that medical doctors have been involved in every biological and chemical weapons project to date, and have been and still are involved in interrogations and torture. This participant surmised that while it would be good if ethical standards were a characteristic of the medical community, the frequency of violations of those ethical standards seem to indicate that this is not so, and may not be currently possible.

One participant recalled that, in the past, medical doctors working in a government run biological and chemical weapons project had been prepared to work on defence against "incapacitating chemical agents" but had not been prepared to work on the development of offensive "incapacitating chemical agents" and their delivery systems.

There was then a long discussion about how to introduce and establish ethics training into various professional programmes. During this discussion, it was noted that ethical requirements are applicable to all elements of society including scientists, lawyers, the military, and law enforcement. It was further noted that any training in ethics must be seen to be of value to a person's professional life and to be an intrinsic part of any profession that has social responsibilities.

Some participants linked teaching ethics to teaching about the risks surrounding dual-use technologies. It was noted that dual-use risks are frequently not perceived to exist. It is also often not foreseen that someone could use particular scientific work for a different and less benign purpose. Much of this was ascribed to not teaching scientific professionals about dual-use issues.

A number of participants noted that ethical issues go far beyond the medical profession and that if a government chooses to develop a drug or a medical capability as a weapon, it will be able to do so without the medical profession. Accordingly, the ethical issues are broad and must involve pharmacists, engineers and ultimately politicians. Nevertheless, it was understood by the meeting that health-care professionals have a significant role to play in preventing the weaponization of medical capabilities and technologies.

One participant further noted that an ethical strand is an important one in the "web of prevention" that works in tandem with international humanitarian law, human rights law and States obligations under disarmament and arms control treaties.

There was a discussion concerning a soldier being ordered to treat someone who has been incapacitated by an "incapacitating chemical agent" and the ethical obligations that might apply in this situation. The discussion considered:

- whether or not the soldier had been trained to administer assistance in such a case;
- whether such an order may or may not be legal; and
- the ethical responsibility of the commander not to order a soldier to do something unless they have been trained to do so, particularly if it involved the difference between life and death, or of life with little capacity versus life with full capacity.

The point was made that the military has many paramedical personnel although most of their training is with regard to weapons wounds resulting from blast injuries and projectile injuries. If those paramedics are then faced with people who are unconscious due to an unknown gas

or liquid chemical agent, they currently may not have the skills to render effective assistance even if they have access to the necessary antidote and to resuscitation equipment.

This discussion moved straight on to a consideration of the dilemma of dual loyalties for military medical personnel. In the context of "incapacitating chemical agents", the involvement of medical personnel in preparations for an attack was characterized as "medicalization" of that attack.

One participant stated that "medicalization" of an attack (e.g. calculation of the dose of an "incapacitating chemical agent") would result in those medical personnel losing the protection against being the target of an attack that international humanitarian law affords them. This participant then suggested that if 10 of the meeting's participants had been shot in the meeting room, and a medic or medical doctor came into the room, it would be obvious what had happened and what medical intervention was required to manage the 10 wounded people. However, if those 10 had been incapacitated with an "incapacitating chemical agent", it would not be obvious what had happened, nor would it be obvious what specific treatment would be required although generic first aid actions could obviously be implemented. The participant further expanded on this issue stating that if a medic or a medical doctor had been involved in planning this attack, then he or she would know exactly what to do in addition to the generic first aid steps. The participant was of the opinion that, other than by sheer good luck, low lethality in any such attack would depend entirely on the presence of someone with medical knowledge, particularly someone with knowledge of what substance had been used in the attack.

However, in response, another participant clearly stated that it is incorrect to say that military medical personnel must not be involved in military planning because military medical personnel have to deal with casualties, and this necessity is an integral part of military operations and has to be planned; accordingly, military medical personnel have to be involved in this element of military planning. It was highlighted by this participant that this element of military planning was very different from planning how to tactically utilize a weapon or weapons system. This participant also noted that a lot of medical input goes into mass casualty management planning, including mass casualties resulting from the use of chemical weapons. It was agreed that military medical personnel must be involved in planning how to manage mass casualty incidents, including the triage of those casualties, and that mass casualties can result from scenarios other than an NRBC incident.

SESSION 3 CONTEXTS OF "INCAPACITATING CHEMICAL AGENT" USE

Speaker's Summary:

OPERATIONAL CONTEXTS: HOW COULD THESE AGENTS BE USED AND AGAINST WHOM?

Mark Steinbeck

The ICRC had approached a number of possible speakers on this topic but all had declined. Accordingly, it was decided that the ICRC would present this topic as a basis for discussion. It was further emphasized that these points for discussion should not be understood to represent the ICRC's views.

This presentation was based on the presumptions that safe "incapacitating chemical agents" are possible and do exist.

Furthermore, this presentation:

- was concerned only with tactical situations in which "incapacitating chemical agents" could be deployed and used;
- did not consider humanitarian concerns;
- did not consider ethical considerations; and
- did not consider what current law may or may not preclude.

Traditional law enforcement

"Incapacitating chemical agents" could be used by law enforcement personnel for crowd control, to facilitate an arrest process, to help end a hostage situation, to help end a hijack situation or to facilitate interrogation.

Hazard scenario

"Incapacitating chemical agents" could be of use in a rescue scenario. This would be when the person or persons being rescued were so agitated that their behaviour could put their rescuers at risk or lead to an aborted rescue attempt or a failed rescue attempt.

Prisons

"Incapacitating chemical agents" might be used by prison personnel, medical or otherwise, to manage acute anger or aggression in individual prisoners, to manage "self-harm" situations, to facilitate non-consensual situations or to facilitate interrogation. In terms of use against a group of people, "incapacitating chemical agents" could be used for riot control inside a prison.

Counter terrorism

"Incapacitating chemical agents" might be used by State authorities and personnel charged with counter terrorism operations to help end a hostage situation, to help end a hijack

situation, to secure an area, as part of preparations to storm a building, or to facilitate interrogation.

Peacekeeping

"Incapacitating chemical agents" might be used by peacekeepers (military or law enforcement personnel) for crowd control (e.g. at unruly food distributions), in specific and localized situations of civil unrest (e.g. public demonstration that becomes violent) or when the general situation becomes unstable and begins to descend into chaos.

Occupation

"Incapacitating chemical agents" might be used by an occupying force to help maintain law and order in cases of civil unrest or in the case of generalized instability. They might also be used to control unruly prisoners.

Armed conflict

If "incapacitating chemical agents" were to be used during armed conflict, they might be used for area denial, to assist in storming specific buildings or facilities, in cave warfare, in a situation where human shields were being used, during military operations in urban terrain, to facilitate rescue operations or as a force multiplier.

Conclusion

In summary, there are multiple potential actors who might use or plan to use "incapacitating chemical agents" in multiple situations. There may very often be blurred lines between possible operational and legal contexts in which "incapacitating chemical agents" might be deployed.

DISCUSSION

The presenter reiterated the point that the analysis of potential operational contexts in which "incapacitating chemical agents" might be used had been made without regard to existing legal restraints or prohibitions. The point of the presentation was to stimulate further discussion and the presentation had not been intended as an exhaustive list of scenarios.

One participant observed that the development of a perfect "incapacitating chemical agent" would probably be accompanied by a range of less than perfect "incapacitating chemical agents" and these less than perfect agents would or could be available for use by a wide range of actors.

Another participant expressed the concern that a strong desire or demand to have "incapacitating chemical agents" without there being any safe agents available to meet that desire or demand might be perceived as a capability gap and lead to a programme to fill that gap.

Another participant raised the issue of the status of a person who has been incapacitated during hostilities and enquired whether the ICRC would view that person as being sick or being wounded. The ensuing discussion clarified that an incapacitated person would be *hors*

de combat and be protected by Article 41 of Additional Protocol 1³³ as well as by Common Article 3 of the Geneva Conventions³⁴ (emphasis added in both footnotes).

In the opinion of one participant, an incapacitated person is clearly sick and is at risk from aspiration or respiratory arrest as they will have lost their ability to protect their airway. Another participant made the point that, for the military, incapacitation did not mean unconsciousness but rather that the person was no longer able to carry out the tasks of their assigned duty. However, another participant pointed out that even if a soldier could not shoot accurately, they could still be a threat.

³³ Art 41. Safeguard of an enemy hors de combat

1. A person who is recognized or who, in the circumstances, should be recognized to be hors de combat shall not be made the object of attack.

2. A person is hors de combat if:

- (a) he is in the power of an adverse Party;
- (b) he clearly expresses an intention to surrender; or
- (c) **he has been rendered unconscious or is otherwise incapacitated by wounds or sickness, and therefore is incapable of defending himself;**

provided that in any of these cases he abstains from any hostile act and does not attempt to escape.

3. When persons entitled to protection as prisoners of war have fallen into the power of an adverse Party under unusual conditions of combat which prevent their evacuation as provided for in Part III, Section I, of the Third Convention, they shall be released and all feasible precautions shall be taken to ensure their safety.

³⁴ Art. 3. In the case of armed conflict not of an international character occurring in the territory of one of the High Contracting Parties, each Party to the conflict shall be bound to apply, as a minimum, the following provisions:

(1) Persons taking no active part in the hostilities, including members of armed forces who have laid down their arms and **those placed hors de combat by sickness, wounds, detention, or any other cause, shall in all circumstances be treated humanely**, without any adverse distinction founded on race, colour, religion or faith, sex, birth or wealth, or any other similar criteria.

To this end the following acts are and shall remain prohibited at any time and in any place whatsoever with respect to the above-mentioned persons:

- (a) violence to life and person, in particular murder of all kinds, mutilation, cruel treatment and torture;
- (b) taking of hostages;
- (c) outrages upon personal dignity, in particular humiliating and degrading treatment;
- (d) the passing of sentences and the carrying out of executions without previous judgment pronounced by a regularly constituted court, affording all the judicial guarantees which are recognized as indispensable by civilized peoples.

(2) The wounded and sick shall be collected and cared for.

An impartial humanitarian body, such as the International Committee of the Red Cross, may offer its services to the Parties to the conflict.

The Parties to the conflict should further endeavour to bring into force, by means of special agreements, all or part of the other provisions of the present Convention.

The application of the preceding provisions shall not affect the legal status of the Parties to the conflict.

The ensuing discussion concerned how degraded or compromised a person's capacity had to be before they would be considered incapacitated. It was obvious that this would, partially at least, depend on the context of the use of the "incapacitating chemical agent" and, in some contexts, states of incapacitation less than loss of consciousness would achieve the desired result. For example, a soldier unable to carry out his tasks may be conscious or unconscious. In an interrogation scenario however, the interrogator would not want the subject to be unconscious but rather less able to resist answering questions that the subject would normally resist.

The next main point considered in the discussion was international treaty law. One participant was of the opinion that States Party to the CWC would be responsible enough not to disregard international treaty law and, accordingly, the part of the discussion concerning possible operational contexts that looked at armed conflict was moot. Therefore, the real issues lay within law enforcement contexts.

However, another participant noted that there may be blurred lines between law enforcement and armed conflict in peacekeeping operations. This participant also noted that some States may refuse to qualify obvious non-international armed conflicts as such and rather term them law enforcement or counter terrorism situations.

It was clearly noted that any blurring of lines between law enforcement and conflict is problematic due to the different legal rules and regimes that govern these two scenarios and due to the multiplicity of actors that might be involved in either scenario.

Speaker's Summary:

UNFORESEEN OPERATIONAL CONTEXTS: WHAT RISKS ARE ASSOCIATED WITH "INCAPACITATING CHEMICAL AGENTS", PARTICULARLY WITH REGARD TO PROLIFERATION OR FALLING INTO THE "WRONG HANDS"?

Alex Vines

Africa is a good example of unintended consequences of legitimate small arms and light weapons (SALW) and Man-Portable Air Defence Systems (MANPADS) transfers. The statistics speak for themselves. Some 51 countries today produce SALW of which 31 countries produce light weapons under licence and 26 additional countries produce weapons of foreign design without any licence, with an expired licence, or under an unclear licensing situation. This underscores the proliferation of risks inherent in intended and unintended technology transfer.

This compares with antipersonnel mines where considerable progress has been made in reducing their production and proliferation. Ten years ago more than 50 countries produced them, today 38 have ceased to and the trade in them has also declined significantly. This shows what a treaty framework like the Ottawa Landmine Treaty can achieve.

The proliferation of MANPADS is also illustrative of the dangers ICAs face into falling into the wrong hands. For their first 25 years, tight research and design and production facilities ensured just four countries produced MANPADS weapons systems, while over the next 25 years significant proliferation occurred. By 2007, some 31 countries had manufactured all or

part of them. This has stimulated heated debate over their licensed production but also the dangers of reverse engineering.

Today some 500-750,000 MANPADS are believed to be in circulation; the majority in state inventories, but poor stockpile management poses an ongoing risk especially in Africa. There have been a number of incidents involving the use of MANPADS by armed non-State actors including in Angola, Kenya, Sudan and Somalia in recent years.

Africa

Africa has suffered some 60 coup d'états since the 1960s and in the last couple of years there have been non-constitutional changes of government in the Central African Republic, Guinea Bissau, Guinea, Mauritania and Niger. At the end of the Cold War, the continent saw both licit and illicit shipments of SALW and MANPADS, fuelled by civil wars in West Africa, the Democratic Republic of Congo and instability in the Horn of Africa. It is true today to say that AK47 prices in Africa due to proliferation became the lowest in the World at the start of this millennium.

How these weapons got to Africa and what has since happened to them is complex. Interviews with former rebels in Angola and supporters of the Charles Taylor regime in Liberia suggest covert support, captured weapons and networks of organized crime and corruption. Obtaining weapons including MANPADS was not difficult although it was determined by the buyer's ability to pay the purchase price. UN and regional sanctions have been mostly ineffective.

Although the number of civil wars in Africa has declined significantly in recent years, coups with the loss of control of arsenals, and the small and large scale theft from them pose real challenges. Today the UN has estimated that in West Africa alone there are some 8 million illicit small arms in circulation and control initiatives such as the 1998 Economic Community of West African States³⁵ Moratorium on Light Weapons, and more recently the 2006 ECOWAS Convention³⁶, have had little impact. End User Certificates for weapons purchases have often been forged or duplicated and there needs to be a reliable system to check whether they are genuine or not. There also needs to be checks that weapons exported to the region are accounted for.

Within West Africa the whole supply chain for SALW transfers has vulnerabilities such as the role of brokers, air and land transportation agents, and the penetration of organized crime groups, linked to drugs, contraband and human and people trafficking gangs.

The main threat though is from poor disarmament and stockpile management. In the Niger Delta of Nigeria, or Sierra Leone, Liberia or Guinea Bissau, the majority of weapons in the hands of vigilante and extremist groups originated originally from licit sources. Looking at this in another way, some 40 percent of 7.62mm ammunition in the illicit market in northern Uganda and Kenya has leaked from Kenyan Police Reserves, Local Defence Units and Uganda People's Defence Force.

This signals that weapons systems are vulnerable for diversion, and for proliferation. A risk appraisal made twenty years ago with a particular government can suddenly change if that government falls, especially in countries with weak institutions and poor stockpile management and protection systems. For example four MANPADS found in Monrovia in Liberia in 2003 were "guarded only by a chicken with no tail feathers". Marking of weapons

³⁵ ECOWAS

³⁶ 2006 ECOWAS Convention on Small Arms and Light Weapons, their Ammunition and other Related Materials

can help tracking systems failure, and international initiatives such as the Firearms Protocol and the UN Convention against Organized Crime are good on paper. The best guarantee though is tight management at source, and a strong framework against proliferation. Once the genie is out of the bottle it is difficult to put back in – Africa shows just how difficult that task can be.

DISCUSSION

One participant observed that once "incapacitating chemical agents" were widely deployed, they would be "out of control and available to anyone who wants them". In light of this, the participant enquired whether there was anything about "incapacitating chemical agents" that would, in the context of transfer and proliferation, make them different from other weapons systems such as small arms and light weapons. The speaker responded with the observation that if "incapacitating chemical agents" were available and of military utility, they would be desirable as small arms and light weapons.

The same participant then enquired whether the speaker had seen any illicit trade in riot control agents. The speaker replied that he had seen illicit trade in riot control agents but this had been by governments subject to sanctions rather than by non-State armed groups.

Another participant noted that the characteristics of some weapons systems might lead to storage and transport problems that non-State armed groups might not be able to solve. In response to this comment, another participant noted that such problems would include stability for any weaponized chemical and, possibly, storage issues. However, this participant also noted that if an "incapacitating chemical agent" was developed for law enforcement purposes, stability and storage challenges would necessarily have to have been solved. Accordingly, these problems may not be significant for any non-State armed group that might acquire such agents. Another participant voiced agreement with this proposition and observed that it was very likely that any "incapacitating chemical agent" provided to law enforcement officers would be in an aerosol form and probably be quite stable.

With regard to the existence of "incapacitating chemical agents" and their possible misuse, another participant noted that in society in general, drugs have been used to incapacitate victims in so-called "date rape" and to facilitate robbery. Both uses are clearly criminal.

Building on this aspect of a criminal use of "incapacitating chemical agents", another participant made the point that in some countries, there was legitimate marketing to members of the general public of various weapons systems that had ostensibly been developed for law enforcement (e.g. tasers; some riot control agents). Paradoxically then, if criminals took advantage of this legitimate market, there would be the use of weapons developed for law enforcement being used against law enforcement personnel.

A number of participants indicated that they could envisage criminal gangs and terrorist groups using "incapacitating chemical agents" for abductions for ransom. However, others challenged the idea that non-State armed groups would specifically seek to obtain "incapacitating chemical agents". They posited that such groups would obtain such agents only if they were available and cheap.

Other participants noted that States, totalitarian, despotic or otherwise, might use versions of such agents to dominate their populations or at least groups within their populations. This would presumably be an aggressive non-consensual use of mind-altering pharmaceutical substances.

It was also posited that any development of ideal "incapacitating chemical agents" would almost certainly be under tightly controlled and possibly clandestine State programmes, and this would include tight control of any dissemination of these agents. Accordingly, proliferation into the "wrong hands" of any ideal "incapacitating chemical agents" that might be developed may not be a rapid process.

One participant noted that terrorist groups were about terror and not about incapacitation. Another noted that not all non-State armed groups were terrorists.

Still another participant expressed the view that a discussion of "incapacitating chemical agents" was not necessarily a discussion of mass casualties. Such agents might be used in the extraction of a high value target and such extractions could be carried out by both State and non-State actors.

By way of summary of this session, the chair noted that if "incapacitating chemical agents" are developed then, at some point, they would become available to a wide range of actors other than States, and they would be used for a wide range of activities. This will have policy implications. Once the threshold of ready availability is reached, there will be implications for the CWC and its absolute prohibition on the use of chemical weapons, as there will also be for law enforcement as a purpose not prohibited by the CWC. It would be remiss to ignore the anticipated and likely risk of proliferation with regard to "incapacitating chemical agents".

SESSION 4 INTERNATIONAL LAW AND "INCAPACITATING CHEMICAL AGENTS"

The substantive general discussion for this session followed the consecutive presentations by the three speakers although questions of clarification followed the first two presentations.

Speaker's Summary:

POTENTIAL IMPLICATIONS FOR INTERNATIONAL HUMANITARIAN LAW

Dominique Loye

Introduction

A brief summary was provided about different aspects of IHL such as: what IHL is, what types of expressions are used interchangeably, when and to whom it is applicable, its sources as well as some of the differences which exist between IHL and human rights law.

With regard to ICAs, it was said that in times of armed conflict, be it of an international or non-international character, the use of such agents is prohibited. This prohibition derives from the customary law prohibition on the use of chemical weapons, other customary law prohibitions of the use of poison and poisoned weapons and the prohibition to use of biological weapons. It was highlighted that, in the context of IHL, the term "chemical weapons" is now understood in light of the CWC definition (i.e. any chemical which through its chemical action on life processes can cause death, temporary incapacitation or permanent harm to humans or animals).

The importance of the 1925 Geneva Protocol, although only applicable in international armed conflicts, was also underlined.

The final introductory remarks underlined that questions concerning ICAs under the CWC and the Biological and Toxin Weapons Convention (BTWC) would be addressed by another speaker.

Potential challenges for the customary international humanitarian law rule prohibiting the use of chemical weapons

It was assumed that ICAs might be deployed foremost for use in a law enforcement context. However, the nature of that context could change and that would create uncertainty about which body of law is applicable. The question was posed whether the evolution of law enforcement into armed conflict or the denial that an armed conflict exists by a party to that conflict might, over time, challenge the customary law prohibition of the use of chemical weapons.

Potential challenges for the prohibition on indiscriminate attacks

The term "indiscriminate attack" was explained with a reference to the relevant article in 1977 Protocol I Additional to the Geneva Conventions of 1949 and to Rules 11 and 12 of the ICRC study on Customary International Humanitarian Law³⁷.

Participants were then asked to imagine that an ICA would have, or would be perceived to have, zero lethality or near zero lethality. It was suggested that such a capacity, or the perception of one, would increase the chances of their use in contexts where combatants and civilians are intermingled.

The following questions were posed: Would such use not be considered to be indiscriminate? Would such use not amount to an indiscriminate attack?

Potential challenges for the rule protecting persons who are *hors de combat*

The concept of "a combatant being considered *hors de combat*" was explained based on the provisions contained in 1977 Protocol I Additional to the Geneva Conventions of 1949 and on Rules 87, 110 and 111 of the ICRC study on Customary International Humanitarian Law³⁸. Article 3 common to the four Geneva Conventions of 1949 was also highlighted. This article covers non-international armed conflicts and also affords protection for persons rendered *hors de combat* by wounds, sickness or any other cause³⁹.

³⁷ Rule 11: Indiscriminate attacks are prohibited.

Rule 12: Indiscriminate attacks are those:

- (a) which are not directed at a specific military objective;
- (b) which employ a method or means of combat which cannot be directed at a specific military objective; or
- (c) which employ a method or means of combat the effects of which cannot be limited as required by international humanitarian law;

and consequently, in each such case, are of a nature to strike military objectives and civilians or civilian objects without distinction.

³⁸ Rule 87: Civilians and persons *hors de combat* must be treated humanely.

Rule 110: The wounded, sick and shipwrecked must receive, to the fullest extent practicable and with the least possible delay, the medical care and attention required by their condition. No distinction may be made among them founded on any grounds other than medical ones.

Rule 111: Each party to the conflict must take all possible measures to protect the wounded, sick and shipwrecked against ill-treatment and against pillage of their personal property.

³⁹ Article 3: In the case of armed conflict not of an international character occurring in the territory of one of the High Contracting Parties, each Party to the conflict shall be bound to apply, as a minimum, the following provisions:

(1) Persons taking no active part in the hostilities, including members of armed forces who have laid down their arms and those placed *hors de combat* by sickness, wounds, detention, or any other cause, shall in all circumstances be treated humanely, without any adverse distinction founded on race, colour, religion or faith, sex, birth or wealth, or any other similar criteria.

To this end the following acts are and shall remain prohibited at any time and in any place whatsoever with respect to the above-mentioned persons:

- (a) violence to life and person, in particular murder of all kinds, mutilation, cruel treatment and torture;
- (b) taking of hostages;
- (c) outrages upon personal dignity, in particular humiliating and degrading treatment;
- (d) the passing of sentences and the carrying out of executions without previous judgment pronounced by a regularly constituted court, affording all the judicial guarantees which are recognized as indispensable by civilized peoples.

(2) The wounded and sick shall be collected and cared for.

Again participants were asked to imagine that genuine incapacitation by ICAs would be achievable with no permanent effects and near zero lethality. This led to the following questions:

- How do you recognize that an incapacitated opponent is *hors de combat*?
- How would an incapacitated opponent signal the intention to surrender?
- Due to the lack of physical evidence of injury, would an incapacitated person be more easily subjected to continued attack than persons rendered *hors de combat* by conventional weapons?

CLARIFICATIONS

It was questioned whether chemical incapacitation could be differentiated from physical causes of incapacitation from injuries that may not have an obvious wound (e.g. a closed head injury).

It was suggested that if "incapacitating chemical agents" were deployed in a combat situation, troops might be suspicious that an incapacitated opponent was feigning their state and this might lead to the use of lethal force. This was met with a reminder of the prohibition of "perfidy" (feigning a protected status such as being wounded or being sick in order to launch a surprise attack).

Speaker's Summary:

POTENTIAL IMPLICATIONS FOR DISARMAMENT AND OTHER AREAS OF INTERNATIONAL LAW

Michael Crowley

Introduction

This summary paper attempts to outline the applicability of certain arms control/disarmament treaties to the regulation of "incapacitating chemical agents" (ICAs), and to discuss how other aspects of international law potentially restrict the use of such agents. The paper is

An impartial humanitarian body, such as the International Committee of the Red Cross, may offer its services to the Parties to the conflict.

The Parties to the conflict should further endeavour to bring into force, by means of special agreements, all or part of the other provisions of the present Convention.

The application of the preceding provisions shall not affect the legal status of the Parties to the conflict.

designed to supplement and to be read in conjunction with the papers on international humanitarian law and international human rights law.⁴⁰

Chemical Weapons Convention⁴¹

To date the majority of public statements and discourse by the international governmental community concerning ICAs have taken place within the context of the Chemical Weapons Convention (CWC).

Under Article 1 of the CWC:

*“Each State Party to this Convention undertakes **never under any circumstances:***
(a) To develop, produce, otherwise acquire, stockpile or retain chemical weapons, or transfer, directly or indirectly, chemical weapons to anyone;
(b) To use chemical weapons;
(c) To engage in any military preparations to use chemical weapons;
(d) To assist, encourage or induce, in any way, anyone to engage in any activity prohibited to a State Party under this Convention.” [Emphasis added].

Although the CWC does not specifically define, nor indeed mention, "incapacitating chemical agents" it does include "incapacitation" as part the definition of "toxic chemical" under Article 2.2. Thus a "toxic chemical" is defined 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. This includes all such chemicals, regardless of their origin or of their method of production, and regardless of whether they are produced in facilities, in munitions or elsewhere.” [Emphasis added].*

Under Article 2.1 "chemical weapons" are defined as including:

“(a) Toxic chemicals and their precursors, except where intended for purposes not prohibited, 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 specified in subparagraph (a), which would be released as a result of the employment of such munitions and devices;...”

Consequently, chemical agents that temporarily incapacitate their targets are covered under the scope of the Convention. Such ICAs would be deemed to be chemical weapons (and therefore prohibited) if they were used for purposes other than those described under Article 2.9 of the Convention, or if their use was inconsistent with the types and quantities restriction of Article 2.1.

Among the "purposes not prohibited" listed in Article 2.9 are:

“(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.”
(d). Law enforcement including domestic riot control purposes.”

Method of warfare

It is therefore clear that the use of ICAs as a "method of warfare" would be prohibited as would development, production, acquisition, stockpiling, retention or transfer of ICAs for such

⁴⁰ For further discussion of issues raised in this paper see: Crowley, M. (2009) Dangerous Ambiguities: regulation of riot control agents and incapacitants under the Chemical Weapons Convention, Bradford University, <http://www.brad.ac.uk/acad/nlw/publications/BNLWRPDangerous1.pdf>.

⁴¹ OPCW, Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (Chemical Weapons Convention); <http://www.opcw.org/chemical-weapons-convention/articles>,

purposes (under Article 1). There is, however, some uncertainty as to the exact nature and scope of activities prohibited as the term “method of warfare” is not defined under the Convention nor has it subsequently been elaborated by any OCPW policy making organ. It should, however, be noted that certain legal scholars consider that “method of warfare” would extend to both international armed conflicts and to non-international armed conflicts that fall within scope of Additional Protocol II to the Geneva Convention.⁴²

Law enforcement

Ambiguities in the Convention surrounding the law enforcement purpose (Article 2.9.d) have led to differing interpretations by legal scholars of the extent and nature of permissible ICA use.

Treaty interpretation 1

Chayes and Meselson,⁴³ Krutzsch,⁴⁴ and Von Wagner⁴⁵ consider that only riot control agents can be used for law enforcement activities under the CWC.⁴⁶ Chayes and Meselson argue:

“A toxic chemical used by virtue of its toxic properties is only of a type consistent with the purpose of law enforcement, in the sense of Article II (1) a, if it meets the Convention’s definition of a “riot control agent” in Article II (7). Thus such chemicals must be “not listed in a Schedule” and must “produce rapidly in humans sensory irritation or disabling physical effects which disappear within a short period of time following termination of exposure.”⁴⁷

This line of interpretation would prohibit the use of ICAs for law enforcement.

As regards the definition of law enforcement, Chayes and Meselson contend that:

“The term “law enforcement” in Art. II (9) (d) means actions taken within the scope of a nation’s “jurisdiction to enforce” its national law, as that term is understood in international law. When such actions are taken in the context of law enforcement or riot control functions under the authority of the United Nations, they must be specifically authorised by that organization. No act is one of “law enforcement” if it otherwise would be prohibited as a “method of warfare” under Art. II (9) (c).”⁴⁸

⁴² See for example: Fidler, D. Incapacitating Chemical and Biochemical Weapons and Law Enforcement under the Chemical Weapons Convention. In: Pearson, A., Chevrier, M. and Wheelis, M. (eds) *Incapacitating Biochemical Weapons*, Lanham: Lexington Books, 2007; Koplow, D. (2006), *Non-Lethal Weapons: The Law and Policy of Revolutionary Technologies for the Military and Law Enforcement*, New York: Cambridge University Press; Von Wagner, A., Toxic Chemicals for Law Enforcement Including Domestic Riot Control Purposes Under the Chemical Weapons Convention. In: Pearson, A., Chevrier, M. and Wheelis, M. (2007) *op.cit.*

⁴³ Chayes, A. and Meselson, M. (1997) Proposed Guidelines on the Status of Riot Control Agents and Other Toxic Chemicals Under the Chemical Weapons Convention, *Chemical Weapons Convention Bulletin*, Volume 35, March 1997, Harvard Sussex Program, pp.13-18.

⁴⁴ Krutzsch, W. (2003) Non-lethal chemicals for law enforcement, *BITS Research Note 03.2*, April 2003, Berlin Information Centre for Transatlantic Security; Krutzsch, W. & Von Wagner, A. (2008) Law enforcement including domestic riot control: The interpretation of Article II, paragraph 9(d), <http://cwc2008.files.wordpress.com/2008/04/krutzsch-von-wagner-law-enforcement.pdf>.

⁴⁵ Von Wagner, A. (2007) *op.cit.*

⁴⁶ The only possible exceptions to this restriction recognized are those toxic chemicals used for judicially sanctioned execution, provided such chemicals are not on the CWC Schedule 1 list. See for example Chayes, A. and Meselson, M. (1997) *op.cit.*, pp.17-18.

⁴⁷ Chayes, A. and Meselson, M. (1997) *op.cit.*, p.17.

⁴⁸ Chayes, A. and Meselson, M. (1997) *op.cit.*, p.15

Treaty interpretation 2:

Fidler believes that *“international law on treaty interpretation indicates that the CWC does not limit the range of toxic chemicals that can be used for law enforcement purposes to riot control agents.”*⁴⁹ This line of interpretation may allow the utilization of ICAs for law enforcement.

However, Fidler contends that the *“use of a toxic chemical for law enforcement purposes is still subject to the CWC requirements that the types and quantities of chemicals developed, produced, acquired, stockpiled, retained, transferred, or used must be consistent with such permitted purposes (Article II 1 (a)).”*⁵⁰

According to Fidler this restriction, therefore, *“requires scrutiny of the relationship between the chemical or biochemical agent and the law enforcement objective in question. The more difficult it is to control the effects of the use of a chemical or biochemical in a law enforcement operation, the more suspect such use becomes in terms of the agent being of a type or quantity consistent with a law enforcement purpose.”*⁵¹

Consequently, Fidler believes that:

*“For domestic law enforcement, use of incapacitating agents in contexts in which the government could control neither dosage nor the exposure environment would only be legitimate in extreme law enforcement situations...For extraterritorial law enforcement activities undertaken by military forces and sanctioned by international law, States can at present only legitimately use riot control agents, not incapacitating agents.”*⁵²

To add to the complexity of this discourse, the demarcation between potentially permissible ‘law enforcement’ activities and prohibited ‘methods of warfare’ under the Convention remains unresolved. As a consequence of the range of unresolved issues and differing interpretations highlighted, the circumstances (if any) in which ICAs could be used are contested.

To date, no OPCW policy making organ has made any interpretative statements defining ICAs, seeking to list chemicals encompassed by this category or further elaborated how such chemicals are regulated under the Convention. (Indeed, although the First CWC Review Conference was held just six months after the Russian Federation employed an ICA to end the Moscow siege, the CWC States Parties attending the Review Conference did not collectively address the status and regulation of ICAs under the Convention.) It is therefore left to individual States Parties to interpret the scope and nature of their obligations with regard to the regulation of these agents.

The combination of continuing State interest and research into ICAs⁵³, coupled with the existing ambiguities in the CWC and the collective failure of CWC States Parties to address this issue, risks allowing State practice to determine the scope and nature of ICA regulation. The potential consequences of this were outlined, in 2006, by the Weapons of Mass Destruction Commission:

⁴⁹ Fidler, D. (2007) *op.cit*, p.174.

⁵⁰ Fidler, D. (2007) *op.cit*, p.174.

⁵¹ Fidler, D. (2007) *op.cit*, p.175.

⁵² Fidler, D. (2007) *op.cit*, p.185.

⁵³ For a discussion of ICA research see for example: Crowley, M. (2009) *Dangerous Ambiguities: regulation of riot control agents and incapacitants under the Chemical Weapons Convention*, Bradford University, <http://www.brad.ac.uk/acad/nlw/publications/BNLWRPDangerous1.pdf>; Davison, N. (2009) *“Non-Lethal Weapons”*, Palgrave Macmillan.

“There is an increasing interest among some governments to adopt a more flexible interpretation of the CWC rules on the use of incapacitating chemical weapons, even as a method of warfare, in order to use them in diverse situations... Such an interpretation, in the view of the Commission, would constitute a dangerous erosion on the fundamental ban on chemical weapons that the authors of the Convention intended.”⁵⁴

During the Second CWC Review Conference in 2008, certain States Parties highlighted the dangers of this issue for the CWC and called for the situation to be resolved. For example: Swiss Government National Statement:

“Switzerland fears that the uncertainty concerning the status of incapacitating agents risks to undermine the Convention. A debate on this issue in the framework of the OPCW should no longer be postponed.”⁵⁵

Pakistan Government National Statement:

“We are particularly concerned about the question of what have on different occasions been called either non-lethal agents or incapacitating agents. Irrespective of the terminology used, it is important to bear in mind that the influence of advanced military technologies has often led to a search for exploiting real or perceived loopholes in legal instruments in order to circumvent their prohibitions. It would be unfortunate if the CWC were to be subjected to similar treatment. We believe this issue needs more attention than has so far been devoted to it.”⁵⁶

Swiss Government National Working Paper called:

“upon States Parties to consider adopting during the Second Review Conference a mandate for a discussion of, inter alia, an agreed definition of incapacitating agents, the status of incapacitating agents under the Convention, and possible transparency measures for incapacitating agents.”⁵⁷

Although only a small number of States publicly raised the issue at the Review Conference, it appears that more States were willing to discuss it. Attempts made by Switzerland and others to incorporate language on ICAs in the Review Conference Final Document received widespread support, but were opposed at the last minute by Iran. Despite this setback it appears that the topic is gaining in prominence.

In his address to the 14th Conference of State Parties, the OPCW Director General, Ambassador Pfirter, stated:

“One other matter I wish to refer to is my perception about the need for the OPCW, at some stage in the not too distant future, to take stock of the growing interest on the part of some governments and civil society, in developments related to matters where the Convention might be—perhaps purposely—ambiguous or have lacunae, and which might impact on the ultimate effectiveness of the ban on chemical weapons. Incapacitants or non-lethal weapons is one such area when it comes to the exact types and quantities of chemicals and their permitted use. The Scientific Advisory

⁵⁴ Weapons of Mass Destruction Commission (2006) *Weapons of Terror: Freeing the World of Nuclear, Biological and Chemical Arms*

⁵⁵ Statement by Ambassador Dominik M. Alder, Permanent Representative of Switzerland to the OPCW, Second Review Conference of the Chemical Weapons Convention, General Debate, The Hague, Netherlands, 8th April 2008.

⁵⁶ Statement by Mrs Kehkeshan Azhar, Acting Permanent Representative of Pakistan, Second Review Conference of the Chemical Weapons Convention, 7th-18th April 2008, p.5.

⁵⁷ Switzerland Working Paper, Riot Control and Incapacitating Agents Under the Chemical Weapons Convention, The Hague, Netherlands, RC-2/NAT.12, 9th April 2008, p.5.

*Board could help shed some light on this matter and the Third Review Conference might offer the appropriate context for an initial formal look into it.*⁵⁸

The Director General's address is important as it signals that the issue of ICAs has risen up the OPCW's agenda and also points to a possible mechanism for addressing ICAs as far as they relate to the CWC.

Biological and Toxin Weapons Convention (BTWC)

Article 1 of the BTWC declares that:

"Each State Party to the Convention undertakes never in any circumstances to develop, produce, stockpile or otherwise acquire or retain:

- 1. Microbial or other biological agents, or toxins, whatever their origin or method of production, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes.*
- 2. Weapons, equipment or means of delivery designed to use such agents or toxins for hostile purposes or in armed conflict.*⁵⁹

Article I, together with the extended understandings agreed at successive BTWC Review Conferences,⁶⁰ make it clear that the Convention is comprehensive in its scope and that all naturally or artificially created or altered microbial and other biological agents and toxins, as well as their components, regardless of their origin and method of production are covered. Because some possible candidate ICAs, such as bioregulators including neurotransmitters, could be considered biological agents or toxins, a range of such ICAs would be covered by the BTWC.

Furthermore, it is interesting to note that a number of BTWC States Parties including the Netherlands,⁶¹ Russian Federation,⁶² Sweden,⁶³ UK⁶⁴ and USA⁶⁵ highlighted the potential

⁵⁸ OPCW Conference of States Parties, Opening Statement by the Director General to the Conference of the States Parties at its Fourteenth Session, C-14/DG.13, 30th November 2009. It should be noted that for this part of his address the Director General was speaking in his personal capacity and not on behalf of the Technical Secretariat.

⁵⁹ Biological and Toxin Weapons Convention, 1972, BTWC Website, <http://www.opbw.org/convention/documents/btwcetxt.pdf>, Article 1.

⁶⁰ See, for example, Sixth BTWC Review Conference Final Document (2006):

"1. ...Conference declares that the Convention is comprehensive in its scope and that all naturally or artificially created or altered microbial and other biological agents and toxins, as well as their components, regardless of their origin and method of production and whether they affect humans, animals or plants, of types and in quantities that have no justification for prophylactic, protective or other peaceful purposes, are unequivocally covered by Article I.

2. The Conference reaffirms that Article I applies to all scientific and technological developments in the life sciences and in other fields of science relevant to the Convention.

3. The Conference reaffirms that the use by the States Parties, in any way and under any circumstances, of microbial or other biological agents or toxins, that is not consistent with prophylactic, protective or other peaceful purposes, is effectively a violation of Article I..."

⁶¹ Netherlands, Background Paper on Scientific and Technological Developments Relevant to the Biological Weapons Convention, Sixth Review Conference, paragraph 6, <http://www.opbw.org/>

⁶² Russian Federation, (unofficial translation), Background Paper on Scientific and Technological Developments Relevant to the Biological Weapons Convention, Sixth Review Conference, paragraph 15, <http://www.opbw.org/>

⁶³ Sweden, Background Paper on Scientific and Technological Developments Relevant to the Biological Weapons Convention, Sixth Review Conference, paragraph 3, <http://www.opbw.org/>

⁶⁴ United Kingdom, Background Paper on Scientific and Technological Developments Relevant to the Biological Weapons Convention, Sixth Review Conference, paragraph 55, <http://www.opbw.org/>

⁶⁵ United States, Background Paper on Scientific and Technological Developments Relevant to the Biological Weapons Convention, Sixth Review Conference, paragraph 30, <http://www.opbw.org/>

dangers to the BTWC of the misuse of bioregulators and peptides (or other biologically active agents that could be utilized as incapacitants) in background scientific papers for the 6th BTWC Review Conference. Several of these States had been silent on this issue in the context of the CWC.

Although the BTWC does appear to cover certain ICAs (including bioregulators such as neurotransmitters), there are ambiguities regarding the nature and scope of such coverage. For example, since the terms “*hostile purposes*” and “*peaceful purposes*” have not been defined under the Convention, it is unclear how the use of such ICAs for counter-terrorist, counter-insurgency or military operations short of armed conflict would be regulated by the BTWC. To date, there have been no determinations of these issues by the BTWC States Parties at either the BTWC Review Conferences or other policy making organs. Further important limitations on the value of the BTWC (and its control regime) as a tool to regulate ICAs arise from its current lack of effective verification and compliance mechanisms, and also the absence of an international organization comparable to the OPCW which could coordinate such activities and facilitate implementation by States Parties.⁶⁶

Geneva Protocol

Under the Geneva Protocol, the High Contracting Parties acknowledge that “*the use in war of asphyxiating, poisonous or other gases, and of all analogous liquids, materials or devices, has been justly condemned by the general opinion of the civilized world*” and further state that “*this prohibition shall be universally accepted as a part of International Law, binding alike the conscience and the practice of nations.*”⁶⁷

The comprehensive nature of the agents covered by this prohibition was reaffirmed (albeit not unanimously) by a UN General Assembly Resolution which stated:

*“Recognizing therefore, in the light of all the above circumstances, that the Geneva Protocol embodies the generally recognized rules of international law prohibiting the use in international armed conflicts of **all biological and chemical methods of warfare, regardless of any technical developments.**”*⁶⁸ [Emphasis added].

Although the scope of the chemical (and biological) agents covered by the Protocol is very broad and would include ICAs, the prohibition relates solely to their *use*; the Protocol does not address the development, production, transfer or stockpiling of such agents. Furthermore, the Protocol’s prohibition on use is limited to situations of war (although it is now interpreted through customary international law to apply to all armed conflict).⁶⁹

⁶⁶ Although there is no equivalent of an OPCW for the BTWC, the Sixth BTWC Review Conference decided to create and fund a (three person) Implementation Support Unit (ISU) within the Office for Disarmament Affairs (UNODA) of the United Nations Office at Geneva. Launched in August 2007, the ISU provides administrative support to, and prepares documentation for, meetings agreed by the BTWC Review Conference. The ISU also facilitates communication among States Parties, international organizations, and scientific and academic institutions, as well as non-governmental organizations. It also acts as a focal point for submission of information by and to States Parties, and will support, as appropriate, the implementation by the States Parties of the decisions and recommendations of the Sixth BTWC Review Conference.

⁶⁷ Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (1925 Geneva Protocol), available from Harvard Sussex Program website, <http://www.fas.harvard.edu/~hsp/1925.html>.

⁶⁸ United Nations General Assembly Resolution 2603 A (XXIV) of 16th December 1969. The resolution was passed by an affirmative vote of 80 to 3 (Australia, Portugal and the United States voting against) with 36 abstentions.

⁶⁹ See for example, Von Wagner, A. (2007) *op.cit*, p.204.

UN Secretary General's Investigation Mechanism⁷⁰

In 1980 the UN Secretary General was given a mandate by the UN General Assembly (UNGA) to investigate allegations of chemical weapons use.⁷¹ In later UNGA resolutions, this mandate was subsequently broadened to include biological and toxin weapons use in violation of the Geneva Protocol. For example, UN General Assembly Resolution 42/37c, 1987:

“Requests the Secretary-General to carry out investigations in response to reports that might be brought to his attention by any Member State concerning the possible use of chemical and bacteriological (biological) or toxic weapons that may constitute a violation of the 1925 Geneva Protocol or other relevant rules of customary international law in order to ascertain the fact of the matter, and to report promptly the results of any such investigation to all Member States.”

Since these Resolutions do not make any distinction between lethal or “non-lethal” chemical or biological weapons, the mechanism therefore appears to cover ICAs. Although the mechanism could potentially be employed to investigate the use of ICAs,⁷² it could not be utilized to study the development, stockpiling, deployment or transfer of such agents.

Investigations of alleged chemical weapon use took place from 1981-1992, but since 1993 the Mechanism has lain dormant. However in 2006, the UN General Assembly Global Counter-Terrorism Strategy and Action Plan encouraged the Secretary-General to “*update the roster of experts and laboratories, as well as the technical guidelines and procedures, available to him for the timely and efficient investigation of alleged use [of chemical, biological and toxin weapons].*”⁷³

In cases of alleged use of chemical weapons (including ICAs) against a CWC State Party, the OPCW would presumably take the lead, utilizing the CWC investigation/assistance machinery. However the Secretary General's Mechanism provides a possible fall-back option which could potentially be used in certain cases where the CWC investigation/assistance mechanisms were not initiated e.g. where ICAs were used by and against CWC Non-State Parties.

Export agreements

Certain plurilateral and regional agreements restrict or regulate the transfer of specific ICAs or their precursors. These include:

The Australia Group

⁷⁰ For a detailed analysis of the Mechanism see: Littlewood, J. (2006) Investigating allegations of CBW use: reviving the UN Secretary-General's mechanism, Compliance Chronicles Number 3, Canadian Centre for Treaty Compliance.

⁷¹ United Nations General Assembly, Resolution 35/144C, 1980

⁷² Indeed in 1992 the Mechanism was utilised to investigate allegations of use of a possible ICA against Mozambican armed forces. For further discussion see Littlewood, J. (2006) *op.cit*; Stock, T. (1993) Chemical and biological weapons: developments and proliferation, SIPRI Yearbook 1993, Oxford University Press, Oxford.

⁷³ United Nations General Assembly, Resolution A/RES/60/288, Annex: Plan of Action, Section II, Paragraph 11, 20th September 2006. For a discussion of activities undertaken to revitalise the Mechanism see: Kraatz-Wadsack, G (2009) Preparing for and implementing the UN Secretary-General's mechanism for investigations of alleged use of chemical and biological weapons, Applied Science and Analysis Newsletter, 09-3, Issue number 132, 26th June 2009, <http://www.asanltr.com/newsletter/09-3/articles/093a.htm>.

The members of the Australia Group (AG) do not undertake any legally binding obligations, however they have developed Common Control Lists which should be reflected in the national export control regimes of all participants. Although ICAs do not appear to be specifically addressed under the control regime, the Chemical Weapons Precursors Common Control List⁷⁴ does include precursors of the ICA BZ. In June 2007 the AG agreed Guidelines for Transfers of Sensitive Chemical or Biological Items.⁷⁵

The Wassenaar Arrangement

The States participating in the Wassenaar Arrangement (WA) have agreed to:

- Maintain national export controls on a range of commonly agreed listed items (which include certain chemical agents). These controls are implemented via national legislation;
- Report on transfers and denials of specified controlled items to destinations outside the Arrangement;
- Exchange information on sensitive dual-use goods and technologies;
- Be guided by agreed Best Practices, Guidelines or Elements.⁷⁶

"Incapacitating chemical agents" are specified in the WA control list⁷⁷ under ML7⁷⁸ as:

*"b.3. CW incapacitating agents, **such as:** 3-Quinuclidinyl benzilate (BZ) (CAS 6581-06-2);"* [Emphasis added].

Although only BZ is specifically mentioned in the control list at present, the wording of ML7 appears to imply that other ICAs *can* be added to this list.

EU Common Military List and Common Position

The EU Common Military List⁷⁹ effectively replicates the Wassenaar Control List wording with regard to ICAs – specifically mentioning BZ and implying other ICAs can be added to the control list. EU States wishing to export items on the Common Military List are legally bound by the EU Council Common Position 'defining common rules governing control of exports of military technology and equipment'.⁸⁰ The Common Position requires Member States to consider requests for exports of items covered by the EU Common Military List against eight criteria – international obligations and commitments, human rights and international humanitarian law, the internal situation of the country, regional peace, security and stability, national security, terrorism and respect for international law, the risk of diversion or re-export under undesirable conditions and the compatibility of the exports with the technical and economic capacity of the recipient country. For example, under Criterion Two: *"Member States shall: a) deny an export licence if there is a clear risk that the military technology or equipment to be exported might be used for internal repression."*

⁷⁴ Australia Group, Export Control List: Precursors, <http://www.australiagroup.net/en/precursors.html>.

⁷⁵ Australia Group, Guidelines for Transfers of Sensitive Chemical or Biological Items, <http://www.australiagroup.net/en/guidelines.html>.

⁷⁶ Wassenaar Arrangement website, <http://www.wassenaar.org/introduction/index.html>,

⁷⁷ The Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies, List of Dual-Use Goods and Technologies and Munitions List, WA-LIST (07) 2 Corr.*, 06-12-2007 [http://www.wassenaar.org/controllists/2007/WA-LIST%20\(07\)%202%20Corr.pdf](http://www.wassenaar.org/controllists/2007/WA-LIST%20(07)%202%20Corr.pdf),

⁷⁸ *Ibid.*

⁷⁹ The most recent version of the [Common Military List of the European Union](#) was adopted on 15 February 2010. Article 12 of the EU Common Position stipulates that the EU Common Military List shall act as a reference point for Member States' national military technology and equipment lists, but shall not directly replace them. (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:069:0019:0051:EN:PDF>)

⁸⁰ Common Position 2008/944/CFSP adopted on 8 December 2008 (<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:335:0099:0103:EN:PDF>)

Whilst such export agreements may provide a route for regulating the transfer of ICAs, they do have certain limitations. Most of the agreements highlighted are politically rather than legally binding and are of limited membership. In addition there are divergences between existing agreements for example in the range of chemicals controlled and/or the export authorization criteria applied by participating States.

United Nations International Drug Control Conventions

Single Convention on Narcotic Drugs⁸¹

The principal objectives of this Convention are to limit the possession, use, trade in, distribution, import, export, manufacture and production of narcotic drugs exclusively to medical and scientific purposes, and also to address drug trafficking through international cooperation.⁸²

The explicit restriction of narcotic drugs '*exclusively to medical and scientific purpose*,⁸³ appears to put into question the legitimacy of the development and use of narcotic drugs by States Parties for activities such as law enforcement. However, there are no documents publicly available of the States Parties or relevant organs of the Convention clarifying this issue.

Other provisions of the Convention may also be of relevance to the regulation of ICAs. For example, the Convention obliges States Parties to provide the International Narcotics Control Board (INCB)⁸⁴ with annual estimates of drug requirements⁸⁵ and drug production⁸⁶ for scheduled chemicals⁸⁷ (which include some drugs that have been explored as potential 'law enforcement' ICAs, such as fentanyl). Given the limited information publicly available, it is not possible to determine whether States Parties to the Convention that have undertaken research into, or development of, 'law enforcement' ICAs with narcotic properties have provided details of such activities to the INCB. Furthermore, it is not known whether the INCB has investigated the use and presumptive stockpiling of scheduled chemicals by the Russian Federation (i.e. the derivative of fentanyl used in the Moscow theatre siege) and if so what the outcome of such investigations has been.

The UN Convention on Psychotropic Substances⁸⁸

This Convention establishes an international control system for psychotropic substances. It was developed in response to the diversification and expansion of the spectrum of drugs of abuse and it introduced controls over a number of synthetic drugs according to their abuse potential on the one hand and their therapeutic value on the other.⁸⁹ Once again, whilst the Convention establishes a range of scheduled chemicals and limits their use to "*medical and scientific purposes*",⁹⁰ the legitimacy of States Parties employing such chemicals for activities

⁸¹ United Nations, Single Convention on Narcotic Drugs, 1961, http://www.incb.org/incb/convention_1961.html.

⁸² See introduction to Convention on International Narcotics Control Board website, http://www.incb.org/incb/convention_1961.html.

⁸³ United Nations, Single Convention on Narcotic Drugs, Article 4.

⁸⁴ For mandate and functions of the INCB see <http://www.incb.org/incb/en/mandate.html>.

⁸⁵ United Nations, Single Convention on Narcotic Drugs, Article 19.1 and 19.2.

⁸⁶ United Nations, Single Convention on Narcotic Drugs, Article 20.

⁸⁷ It should be noted that the lists of chemicals scheduled under the SCND are completely different to the three categories of scheduled chemicals found in the CWC.

⁸⁸ United Nations, Convention on Psychotropic Substances, 1971, http://www.incb.org/incb/convention_1971.html, (accessed 31st March 2009).

⁸⁹ See introduction to convention on INCB website, http://www.incb.org/incb/convention_1971.html.

⁹⁰ United Nations, Convention on Psychotropic Substances, Article 5.

such as law enforcement is not specifically addressed in the Convention nor has this issue been subsequently clarified by the States Parties.⁹¹

International Criminal Court (ICC)

The International Criminal Court (ICC), governed by the Rome Statute,⁹² is the first permanent, treaty based, international criminal court established to help end impunity for the perpetrators of the most serious crimes of concern to the international community. Pursuant to the Rome Statute, the ICC Prosecutor can initiate an investigation on the basis of a *referral* from any State Party or from the United Nations Security Council. In addition, the Prosecutor can initiate investigations *proprio motu* on the basis of information on crimes within the jurisdiction of the Court received from individuals or organizations.

The Rome Statute asserts jurisdiction over war crimes, crimes against humanity and genocide. The Statute's definition of "war crimes" includes: "*Employing asphyxiating, poisonous or other gases, and all analogous liquids, materials or devices.*"⁹³ This applies to international armed conflict and, following amendments to the Rome Statute during the First Review Conference of the Statute, extends also to non-international armed conflict.⁹⁴

The use of ICAs, in certain circumstances, may potentially fall within this definition and be considered a war crime, with the possibility that those responsible for such acts might be tried before the Court.⁹⁵ However, the scope of ICC applicability is restricted.⁹⁶ The ICC would only have jurisdiction over cases involving the *use* of chemical weapons, but not cases solely involving development, production, transfer or stockpiling of such agents.⁹⁷ Furthermore, ICC jurisdiction would only cover use in armed conflict. Cases involving the use of chemical weapons in law enforcement operations apparently would not be covered.⁹⁸

Conclusions

It is clear that ICAs are covered by the CWC – although there are ambiguities and divergent interpretations as to the application of the Convention in this area. Furthermore, a number of

⁹¹ Although the Convention does potentially allow the use of certain psychotropic substances for certain named activities such as the capture of wild animals or during the manufacture of non-psychotropic substances, there is no specific exemption detailed for use in law enforcement activities.

⁹² Rome Statute of the International Criminal Court, 17th July 1998, A/CONF.183/9, http://www.iccpi.int/NR/rdonlyres/EA9AEFF7-5752-4F84-BE94-0A655EB30E16/0/Rome_Statute_English.pdf.

⁹³ Rome Statute of the International Criminal Court, Article 8 (2) (b) (xviii)

⁹⁴ Review Conference of the Rome Statute, Kampala, Uganda, 31st May-11th June 2010, Resolution RC/Res.5, Amendments to article 8 of the Rome Statute, <http://www.icc-cpi.int/Menus/ASP/Resolutions/Sessions/2010---Review+Conference.htm>

⁹⁵ For discussion of ICC and chemical weapons see: Aceves, J. Human Rights Law and the Use of Incapacitating Biochemical Weapons, in Pearson, A., Chevrier, M. & Wheelis, M. (2007) *op.cit*; Hampson, F. International law and the Regulation of Weapons, in Pearson, A., Chevrier, M. & Wheelis (2007) *op.cit*; Tabassi, L. (2004) Impact of the CWC: progressive development of customary international law and evolution of the customary norm against chemical weapons, *CBW Conventions Bulletin* 63, March 2004, <http://www.sussex.ac.uk/Units/spru/hsp/documents/CBWCB63%20Tabassi.pdf>.

⁹⁶ The Court's jurisdiction is limited to nationals of States Parties that have ratified the Statute. Furthermore the Court will not admit cases that are being, or have already been, investigated or prosecuted by a State which has jurisdiction over the case, unless the State is unwilling or unable. See Tabassi, L. (2004) *op.cit*, p.2, p.6.

⁹⁷ Tabassi, L. (2004) *op.cit*, p.2.

⁹⁸ The potential exceptions to this being acts of genocide or crimes against humanity. See Tabassi, L. (2004) *op.cit*, p.2.

CWC States Parties believe effective regulation of ICAs is needed and that the OPCW may provide a useful forum for establishing such regulation.

It is also clear from this brief survey (and from the papers on international humanitarian law and international human rights law) that there are a number of international agreements beyond the CWC that are applicable to the regulation of ICAs. Consequently, States should give full and careful consideration to the application of all relevant agreements and international law; firstly because of the direct obligations that arise from such agreements and law which may either prohibit or severely restrict development, stockpiling, transfer or use of ICAs, and secondly because international law should inform the interpretation and implementation of the relevant provisions of the CWC.

It is important that the international community begin the process of establishing and applying clear rules for the regulation of ICAs. If it does not do so in the near future there is a danger that advances in relevant scientific disciplines together with current and potential future State ICA research and development may lead to proliferation and misuse of such agents.

CLARIFICATIONS

It was suggested that "incapacitating chemical agents" should not be legally defined under the CWC as the convention is very broad which also makes the prohibitions and restrictions very broad. The only special status under the CWC is for riot control agents.

Speaker's Summary:

POTENTIAL IMPLICATIONS FOR HUMAN RIGHTS LAW

Françoise Hampson

Human rights law and international law

- Human rights law (HRL) is a normal part of international law.
- HRL only binds the State (i.e. not non-state actors).
- Non-state actors (NSAs) may be indirectly affected by the implementation of the State's obligation to protect those within the jurisdiction from foreseeable harm at the hands of third parties.
- NSAs may be appealed to respect the principles or standards of HRL.
- HRL takes the form of both treaty law and customary/Charter law. The former is binding only on those States which have ratified the particular treaty. The latter is binding on all States/all UN member States.

Special features of HRL

- States are required to secure the protection of human rights (HRs). This results in the monitoring of the implementation of HRs obligations, including measures of prevention. It also results in the possibility of determination of a violation after the event.
- Every protected interest (right) has three aspects to it. The State has the obligation to respect (itself not to violate). The State for these purposes includes all those for whose acts the State is responsible in international law (i.e. includes all State security forces). The State also has the obligation to protect those in the jurisdiction from the relevant harm. This includes protecting them from the relevant harm at the hand of State agents and also from foreseeable relevant harm at the hands of third parties. The State also has to obligation to fulfil the right.
- The monitoring of customary/Charter HRL is carried out by the UN Special Procedures, the Human Rights Council and Universal Periodic Review. There are also regional bodies with a similar responsibility. The monitoring of the implementation of treaty HRL obligations is carried out by international treaty bodies (e.g. Human Rights Committee, under the International Covenant on Civil and Political Rights (ICCPR); Committee against Torture, under the Convention against Torture (CAT)). Some regional bodies have a similar responsibility.
- The determination of violations of customary/Charter HRL is carried out by the same bodies as above. It does not lead to a binding legal finding. The determination of violation of treaty HRL obligations can be carried out by treaty bodies where the treaty makes provision for that and particularly where the treaty makes provision for individual petition. At the international level, such findings are not legally binding. At the regional level, there are judicial mechanisms which deliver a binding legal judgment specifically in the field of violations (not monitoring), such as the European and Inter-American Courts of Human Rights and the African Court on Human and Peoples' Rights which is being merged with the African Court of Justice.

Applicability of HRL

- In situations of public emergency threatening the life of the nation, the State may, within limits, modify the scope of its treaty HRs obligations. Some rights are non-derogable (i.e. cannot be thus modified). They include the prohibition of arbitrary killing and the prohibition of torture, cruel, inhuman or degrading treatment.
- HRL remains applicable, subject to derogation, even when IHL is applicable. Where both are applicable, IHL is the *lex specialis*. The operationalization of this principle is not clear.
- The State owes HRs obligations to those within the jurisdiction. All those within the national territory of the State are "within the jurisdiction", unless the State has lost control of the area in question. Outside national territory, case-law suggests that the State has full HRs obligations in occupied territory (at least where the occupation is stable and settled) and the relevant obligations with regard to persons in the physical control of the State (e.g. detainees). It is not clear in what other circumstances the State has HRs obligations outside national territory. The Human Rights Committee has suggested that States engaged in peace support operations have to respect HRL.

Relevant substantive provisions of HRL

- *Prohibition of arbitrary killing* – an arbitrary killing is one which is indiscriminate in the sense of untargeted or one which is disproportionate. The test of proportionality is very different in HRL from IHL. Proportionality in HRL is measured by reference to the risk posed by the person targeted and not by reference to the military advantage anticipated.
- *Obligation to protect the right to life* – requires the State to take account of foreseeable risk and to take preventive measures to guard against such risks.
- *Obligation to investigate suspicious deaths* – whether at the hands of the State or a NSA, to determine whether the death was lawful.
- *Prohibition of torture, cruel, inhuman or degrading treatment* – there is a significant volume of case-law which establishes the scope of the prohibition. The prohibition attaches to the experience of the victim and does not depend on what a tool or substance is designed to do. Something done to one person may give rise to inhuman treatment in relation to the next-of-kin (e.g. post-death mutilation is inhuman for next-of-kin with religious beliefs which require the integrity of the physical person at the time of burial).
- *Obligation to protect against the risk of torture, cruel, inhuman or degrading treatment.*
- *Obligation to investigate a claim of alleged torture, cruel, inhuman or degrading treatment.*
- *Obligation to provide an effective domestic remedy* – includes but is not limited to a judicial remedy.

Hypothetical example

State A is involved in an armed conflict with a NSA in its territory. State A relies principally on its police forces, occasionally reinforced by armed forces acting with the authority of the police. On the basis of intelligence, State A expects an unlawful demonstration to take place in Xville on 1st January. It wishes to avoid the risk of fatalities. It provides the security forces with a substance which it says should be used in the same way as tear gas. During the course of a small demonstration, the security forces use the substance, which is contained in canisters which are fired from a shoulder weapon. The substance causes many demonstrators and members of the public to develop severe nose-bleeds. There is no clear pattern to those who suffer such a reaction. Two hours after use, those who developed nose-bleeds also developed a severe rash over their faces and torso. Medical personnel at the local hospital seek information as to the composition of the substance, in order to know how to treat the rash. That information is not forthcoming. Some of the security forces pursued some of those who ran away into side streets and then into buildings. They used the substance in the buildings. Sixty per cent of those who were in a room in which the substance was used died within three days, including one hundred per cent of the young, the elderly and those seated at the time at which the weapon was used. The bodies of those who died showed signs of an agonizing death. Again, medical personnel were given no information, despite repeated requests, as to the composition of the substance.

The human rights issues include:

Protection of the right to life

Had the substance been tested for its effects in confined spaces?

Had the substance been tested for its effects on the young and the elderly?

Had the substance been tested for its effects at different heights in confined spaces?

Had the substance been tested for concentration of use?

Had the security forces been warned not to use the substance in confined spaces?

Are they allowed to use tear gas in confined spaces?

Was any investigation carried out into the manner of use of the substance and whether it conformed to the instructions the security forces had been given?

Was an alternative available which would have secured the protection of the security forces and the members of the public?

The failure to enable effective medical treatment to be given.

Prohibition of inhuman treatment

Had the substance been tested against a cross section of individuals?

Had the substance been tested for its effects over time?

The failure to enable effective medical treatment to be given.

Right to an effective remedy

Was it possible, effectively, to raise these questions at the domestic level?

Analysis of hypothetical example

A HRL analysis is based on the responsibilities of the State and not just on that of the security forces. It is also based on the results as experienced by the victim or the next-of-kin and not on the design features of the weapon. That analysis takes account of the risks posed by the persons whose conduct is said to justify the use of a potentially or actually lethal force. The analysis also takes account of readily available alternatives, even if they were not in fact available. The issue of training may be relevant if one set of forces (e.g. the police) had been trained in the use of the weapon but another group (the armed forces) had not and it was used by the latter that gave rise to problems.

The fact that the result was not foreseeable is not relevant if the State has not carried out the necessary tests. It is not sufficient for the State to test the substance in particular settings. It has to test it in those settings in relation to a cross-section of the population. The State also either has to ensure that it is only used in the settings in which it has tested it or else to test the effects of the substance in other settings (e.g. confined space). If the result of the use of the substance in a confined space was foreseeable, the State will be held responsible for failing to ensure that the forces did not use it in a confined space. This appears to require a more rigorous testing regime than that commonly carried out under the weapon review requirements of the IHL⁹⁹. There is an obligation to ensure that prompt and effective medical

⁹⁹ Article 36 of Additional Protocol I to the Geneva Conventions of 12 August 1949:

New weapons -In the study, development, acquisition or adoption of a new weapon, means or method of warfare, a High Contracting Party is under an obligation to determine whether its employment

treatment can be given. It is up to the State to determine how to achieve that (e.g. properly trained and equipped personnel at the scene or provision of the necessary treatment to medical personnel or informing medical personnel of the composition of the substance).

GENERAL DISCUSSION (all 3 presentations of session 4)

One participant asked, with regard to torture and cruel, inhuman and degrading treatment, how far in advance would State authorities have to consider HRL if they were planning an attack using "incapacitating chemical agents", including preparing for any consequences of that attack? Additionally, this participant asked if the obligation to consider HRL arises earlier as part of any process to acquire "incapacitating chemical agents". The speaker replied that there are HRL precedents in which an individual can complain that their rights are being violated even if the situation in question has not had an impact on the actual person making the complaint. However, it is difficult to see how to use that to challenge the acquisition of a weapon by a State on the basis that the weapon might be used illegally if the weapon were not by its nature illegal. It is also possible that human rights bodies will require States to have effectively tested a substance or agent that the State might intend to deploy against its citizens or persons within its borders. However, this raises ethical problems as testing could not be limited to young healthy adults but would have to include other groups such as children and the aged.

Another participant noted that a frequent issue is what is meant by "law enforcement" for the purposes of the CWC. This participant suggested that an exercise to define "law enforcement" would prove to be a "swamp". It was noted by another participant that the notion of what is law enforcement may differ from State to State. Although there may be a sense of what law enforcement is under public international law, there is no treaty definition of "law enforcement". It was also asserted that law enforcement depends on the function or particular operation that is being carried out and not on the agency that does so; in this context, it was observed that armed forces can carry out law enforcement (e.g. a peacekeeping force established under Chapter 6 of the UN Charter).

One participant wondered if the CWC would need to have an identical definition or understanding of the term if "law enforcement" was defined outside the CWC. Another participant noted that a "definition that is actively and successfully used in one forum" should not pose insurmountable problems for another forum. However, another participant was of the strong view that the CWC would never accept a definition that came from a source outside CWC mechanisms; this participant stated that a specific definition that was "crafted by negotiation and was acceptable to States Parties to a convention" is the best way to define a term for any particular convention.

It was further noted that, under the CWC, if a State was suspected of developing "incapacitating chemical agents" for combat reasons, that State would be subject to the CWC's mechanisms for verification and challenge inspections of facilities or places where it was suspected such an agent was being produced. The defence would be that such an agent was being produced for law enforcement. Accordingly, in parallel with a consideration of CWC Article 1 prohibitions, it is absolutely necessary to understand the permitted purposes of Article 2 and the "types and quantities" qualification of Article 1. Small quantities of an "incapacitating chemical agent" with hand held delivery systems would look like law enforcement but large quantities with large delivery systems would begin to look like a

would, in some or all circumstances, be prohibited by this Protocol or by any other rule of international law applicable to the High Contracting Party.

combat system. For law enforcement, the agent should be in small quantities and should be linked to a delivery system that is appropriate for law enforcement (e.g. definitely not a mortar or howitzer round), regardless of the agent that will be delivered.

One of the participants who had been involved in the CWC negotiations noted that declarations concerning riot control agents had been an issue during those negotiations as there had been a perceived risk to the CWC from riot control agents for law enforcement and domestic riot control. However, apart from riot control agents, other chemicals that could be used for law enforcement were not seen at the time of the negotiations as triggering any risk to the CWC as there were no law enforcement chemical agents known at that time that could conceivably be weaponized to become chemical weapons. This participant further noted that if "incapacitating chemical agents" are seen as law enforcement chemical agents, then this might be interpreted as altering the perception that, apart from riot control agents, no law enforcement chemicals can be weaponized.

Another participant who had also been involved in the CWC negotiations noted that scheduled chemicals were excluded from the definition of riot control agents to prevent States circumventing the schedule obligations: for example, diluting a nerve agent and stating that it was no longer a toxic nerve agent but in fact was a law enforcement agent.

A third participant who had also been present during the CWC negotiations recalled that the focus during negotiations on the "law enforcement" provision of the CWC was on riot control agents and that there were no detailed discussions about "incapacitating chemical agents". This participant also noted the term "devices" is very important as chemical agents can be distributed by a wide range of delivery systems, not just bombs and missiles; it could be an improvised device or something that no-one had thought about during the negotiations. "Devices" is also important for the "types and quantities" qualification as it encompasses items that had not been thought of during the negotiations.

However, one participant who had not been involved in the CWC negotiations pointed out that academics had envisaged a potential loophole involving "incapacitating chemical agents" and law enforcement at the time of the CWC negotiations. Another participant speculated as to whether the failure to deal with "incapacitating chemical agents" at that time had been deliberate.

One of the participants who had been a CWC negotiator replied by stating that the issue of "incapacitating chemical agents" had not been discussed because it had not been thought of or seen as an issue, unlike riot control agents that had been seen as an issue. This participant stated that there had been no attempt to hide anything in relation to "incapacitating chemical agents".

Another participant noted that there was a lack of clarity on two legal issues: (a) what agents are permissible for law enforcement; and (b) what types and quantities of these agents are appropriate for law enforcement. Nevertheless, this participant noted that the solution to this lack of legal clarity would be a political judgment. The participant noted that, with regard to other weapons issues under IHL, debates went on for years about whether existing law was sufficient or whether new law had to be negotiated. The participant further noted that existing law could be applied in different ways by different States and by their armed forces, and this could lead to a lack of consistent practice. Accordingly, the solution to any inconsistent State practice with respect to a specific weapon system and to the humanitarian consequences of that weapon system are political decisions to provide clarity either via interpretation or new law.

The same participant highlighted the issue of cluster munitions as an example of this dynamic. With regard to "incapacitating chemical agents", this participant asserted that the

key element here is whether States Parties to the CWC identify any significant risk to the object and purpose of the CWC that is posed by "incapacitating chemical agents". If the political judgement is that the current lack of clarity, and indeed current State practice, are enough of a concern with regard to the integrity of the CWC, there is an obligation to try to provide clarity. This participant then drew a parallel to BTWC practice and recalled that the BTWC's 6th Review Conference provided clarity concerning the scope of the BTWC by declaring the comprehensive nature of its scope. This, the participant observed, did not amend the BTWC but provided clarity concerning its scope in the face scientific advances made since its negotiation.

Another participant observed that while it is valid to consider how the negotiations of the CWC proceeded, if the CWC cannot adapt to the realities of scientific progress then it is "doomed". This participant also noted that the CWC has a mechanism for technical changes that don't require renegotiation of the convention. Nevertheless, this would be a long process and would require political commitment. Although there will be some States that continue to focus on "incapacitating chemical agents", most States will pursue other priorities with regard to the CWC until there is a crisis concerning "incapacitating chemical agents".

Following this extensive discussion of "incapacitating chemical agents" in relation to the CWC, one participant expressed the view that, in addition to the question of what agents are permitted for law enforcement purposes, and in what types and quantities, a third issue is to identify the best process to discuss and bring clarity to "incapacitating chemical agents". This participant was of the opinion that the CWC is not the appropriate body of law to address the issue of "incapacitating chemical agents" as the CWC deals with chemical agents outside the context of law enforcement. The participant suggested that a better process would be via a UN special rapporteur and the UN agencies concerned with law enforcement. They could be tasked with examining, including in relation to "incapacitating chemical agents", what States can do in the context of law enforcement. This would include what equipment, including chemical agents, a State can acquire for law enforcement and what sort of testing of that equipment should be required. The participant noted that such a process might involve military experts who had knowledge of certain chemical agents.

In response to the proposal to specify the "types and quantities" of chemical agents retained for law enforcement purposes, one participant noted that the CWC only requires the "types and quantities" of schedule 1 chemicals for essentially chemical defence purposes. The participant then stated that requiring specification of the "types and quantities" of toxic chemicals for law enforcement would beg the question of the "types and quantities" of toxic chemicals used for any other peaceful purpose such as the manufacture of plastics. This participant did not agree that either the agents available for law enforcement or the "types and quantities" of those agents were legal issues that need to be addressed.

There was discussion concerning possible transparency mechanisms or confidence building measures that could be instituted in the context of the CWC concerning "incapacitating chemical agents". This discussion did not reach any clear conclusion although the possibility of binding or non-binding confidence building measures was embraced by some participants.

Reflecting an earlier view expressed by another participant, one speaker suggested that there may be better mechanisms to deal with "incapacitating chemical agents" than the CWC. Nevertheless, this participant was of the opinion that, in terms of the CWC, common understandings could come out of the Executive Council of the Conference of States Parties. This participant was of the view that amendments to arms control and disarmament treaties are virtually impossible even though there are obvious situations that require amendments (no examples were provided).

The discussion then considered various options to deal with "incapacitating chemical agents". An opinion was expressed that doing nothing was always a policy option. However, other participants expressed concern that time was an issue.

One opinion expressed was that scientific research trajectories relating to chemical agents that could be used as "incapacitating chemical agents" are a cause for concern. While it may be correct that there is no immediate threat of widespread use of "incapacitating chemical agents", the time it takes for States Parties to the CWC to come to consensus on issues means that it is worthwhile to begin the process of trying to come to an understanding on certain issues such as the meaning of law enforcement now. Another participant noted that, in terms of timing, there has been tremendous progress in science and that that progress continues to be very fast. Nevertheless, this participant pointed out that even if an "incapacitating chemical agent" was identified, a delivery system would need to be developed and that process takes time.

One participant was of the opinion that it is necessary to act urgently as the Dubrovka Theatre siege has meant that there is a change in the potential acceptability of the use of "incapacitating chemical agents". In addition, this participant thought that there is already a risk that an "incapacitating chemical agent" might again be deployed in half-envisaged scenarios.

One speaker was of the view that pretending there is not an issue with regard to "incapacitating chemical agents" is not sensible, but neither is rushing into the issue precipitously. This participant suggested that a gradual open-ended discussion process is necessary and suggested that a framework such as this expert meeting was a very good vehicle to take the issue forward.

In agreement, one participant stated that a central question is the mechanism for the necessary discussion. This participant observed that it had taken a long time to get this expert meeting underway and that it would be even more difficult to have a meeting under the auspices of the OPCW; they further noted that one of the very difficult tasks that has been accomplished over the last couple of years has been to separate the issue of "incapacitating chemical agents" from riot control agents. Accordingly, in any OPCW context, great and stringent care must be taken to keep the issue of "incapacitating chemical agents" separate from riot control agents.

In addition, another participant observed that while, in principle, the issue can be dealt with by the CWC's Conference of States Parties, an interpretation cannot be made that changes the meaning of the treaty, even though there may be consensus, as this would bypass the national parliaments that have ratified the treaty.

One participant noted that whatever is said or done now or in the immediate future, scientific research will continue. Accordingly, the best approach is to keep the issue of "incapacitating chemical agents" alive and to follow developments closely until there is a more tangible opportunity to act.

SESSION 5

POTENTIAL STRATEGIES AND RECOMMENDATIONS FOR ADDRESSING POTENTIAL NEGATIVE IMPLICATIONS FROM THE DEVELOPMENT AND USE OF "INCAPACITATING CHEMICAL AGENTS"

This session was a panel of three experts. All three have provided summaries of their presentations under the common title of Session 5.

Speaker's Summary: Stefan Mogl¹⁰⁰

Desire to Develop a “magic dust” (Development of ICAs)

The “desire” to develop "incapacitating chemical agents" (ICAs) for the use as weapons seems to be driven mainly by two factors:

When policing operations have to resort to the use of weapons, the weapon of choice should cause no unnecessary harm. Where perpetrators and bystanders are mixed, less lethal options than firearms are desirable, particularly in a hostage crisis. An ideal weapon would sedate all individuals exposed for a limited period of time without there being any further, possibly damaging health effects.

Counter-insurgency and peace-enforcement operations can confront military personnel with comparable dilemmas. Understandably, commanders wish to resort to weapons that reduce casualties among non-combatants, thus increasing the desire for a new weapon. For this purpose, ICAs may appear suitable.

Issues of Concern

Although the two scenarios described above as examples (domestic policing, counter-insurgency and peace enforcement) may appear similar to the commanders on the ground, they occur in different contexts and are, in fact, subject to different sets of obligations by states.

ICAs are considered "toxic chemicals" under the CWC. Consequently, their use is prohibited, except for purposes not prohibited by the Convention. One of these purposes is “law enforcement”, but the Convention does not further define what is to be understood under law enforcement. This lack of definition and scope creates the risk that "law enforcement" becomes the umbrella justification for many operations for which a use of ICAs promises a tactical advantage, short of military conflict. In practice, it is unclear whether the use of ICAs for law enforcement would be permissible and, if so, under which circumstances and by whom. This ambiguity has led to varying interpretations and risks creating an “anything goes” environment.

Devices designed to deliver an agent for domestic policing operations may be insufficient for military type operations such as counter-insurgency and peace-enforcement (i.e. range, amount of agent delivered). Therefore, the desire for ICAs may in addition trigger a development cycle for larger, more powerful or sophisticated “non-lethal agent” delivery systems.

¹⁰⁰ This summary was co-authored by Riccarda Torriani, Arms Control and Disarmament Section, Federal Department of Foreign Affairs, Switzerland.

Potential Implications of In-action

To date, States party to the CWC have remained silent on this issue in an official context. As long as the current status of in-action of CWC States Parties remains, the concerns described above will not be addressed. Ambiguity about the development of ICAs and/or existing programmes will continue and possibly increase.

A first potential consequence is that ICAs may be used (again) and set a precedent for state practice. Successful or not, such a use will be difficult to challenge because of the lack of a shared understanding, which in turn risks eroding the existing norm against the weaponization of toxicity. Moreover, public focus will be on agent effect (i.e. on innocent lives spared) and signal that only dose-effect control matters (in the use of toxic properties of chemicals as weapons).

Secondly, ICAs could become (due to the high level of technical skills required for their development) a designer agent for “Special Operations” for developed countries only, thereby creating a situation of “haves” and “have-nots”. This in turn may weaken today’s almost universal willingness for CWC compliance. The reason for this is that any ICA, even an agent with very high safety ratio, is effective due to its toxic properties. In the absence of clear standards for the use of such chemicals, it will be difficult to defend the prohibition of some toxic agents, whilst allowing or tolerating others (“Why allow uncontrolled use of precision guns, while old rifles are prohibited?”). This is particularly so because a very “safe” agent may still be harmful when an individual is overdosed or when an individual is highly sensitive to it. Vice versa, a more toxic agent may cause little harm if distribution and dosage are well controlled (e.g. narcotic agents for medical purposes).

At the end of a downward spiral - the decreasing acceptance that toxic chemicals are universally banned as means of warfare - the threat of chemical warfare could in fact re-emerge. Granted, such a threat would re-appear in a new form. It could potentially include less-lethal as well as more powerful lethal agents, if only as insurance strategy. Regardless of the scale of such a new threat, its implications for protection measures and their respective costs will be significant. Such potential negative implications must be taken into account when weighing the benefit of developing ICAs as weapons.

Possible Steps Forward

ICAs are not the only issue CWC States Parties are asked to deal with, and it is not always easy to distinguish the urgent from the important. Nonetheless, ICAs run counter to the norm of the CWC (against the weaponization of toxicity), and they threaten one of the key goals of the CWC preamble [determined for the sake of all mankind, to exclude completely the possibility of the use of chemical weapons...].

In order to progress, a first step may be to work towards a greater number of States Parties sharing the view that continued silence on the development of ICAs could damage the CWC. This will require awareness-raising activities among States Parties, followed by States Parties’ internal deliberations on their interpretation of the terms “ICA” and “law enforcement”. This could form the basis for informal but informed debate(s) between interested States Parties, ideally from all five regional groups. Non-papers, seminars and other events could serve to support this informal process at the end of which a formal process should follow.

DISCUSSION

It was noted that the use of chemicals as weapons has not been a consistent part of human history and the history of warfare, and that there are long standing taboos against the use of chemicals as weapons. Any use of chemicals as weapons has resulted in attempts to prohibit such use. More recently, these long standing taboos have been codified.

A significant number of participants were emphatic that "incapacitating chemical agents" have the potential to cause serious damage to the CWC. The meeting was reminded that it is therefore important to keep in mind the central object and purpose of the CWC, specifically that States Parties will "never under any circumstances ... use chemical weapons".

All participants agreed that a safe incapacitant is currently not available. However, it was noted by some that this only provides a window of opportunity to put measures in place to ensure that science doesn't create a new class of weapon that would subvert the ban on toxic chemicals as weapons.

Raising awareness of the issues surrounding "incapacitating chemical agents" was an issue addressed by many participants as a possible strategy; in this context, the awareness of States, of the scientific community and of the general public were all suggested as possible targets. It was also suggested that bilateral and multilateral meetings between States on complex technical issues was one way to raise awareness. It was further suggested that some States could be mobilized to make "incapacitating chemical agents" an issue in their bilateral and multilateral interactions. Additionally, some participants suggested that informal meetings between States, and also meetings such as this expert meeting, were of value.

A strong position was taken by one participant that there needs to be greater interaction between States Parties to the CWC and the broader community at large, including the scientific community, academia and the general public. This participant suggested that rather than raising awareness within the scientific community, it is in fact a question of raising the awareness of the people actually dealing with treaties in government departments at a policy making level. It was stated that these people need to focus on their country's international obligations, and need to understand how scientific advances might impact on those obligations, including at what point scientific advances might create a problem for their international obligations. In addition, they need to know how to deal with any problem that arises and also whether any other States are experiencing similar problems and how those other States are tackling those problems.

Another participant observed that if a policy maker is told that something is not feasible, or may not be feasible, this almost guarantees that the policy maker will push the issue aside, or "act with inertia", particularly if there is no proposal being made. If there is a proposal on the table then the policy maker has to deal with that proposal. Advancing awareness of the issue of "incapacitating chemical agents" therefore requires a State (or a group of States) putting forward a proposal on how to address this issue.

At times, there was spirited discussion concerning potential roles for the CWC community and the SAB. The view was advanced that the issue is not science per se but how scientific advances are managed by a number of potential actors, and how they are managed in the context of a number of bodies of law such as the CWC and the BTWC. It was felt that a broader mechanism of discussion than the CWC is needed to address "incapacitating chemical agents" although the CWC community, including the SAB, needs to be part of such a mechanism.

One participant was clear that the role of the SAB, as the body that can inform States Parties to the CWC as well as the Director-General of the OPCW, is important. However, another participant was of the opinion that if anyone wanted "to bury the issue", that person should seriously consider sending it to the SAB. Another participant also advised against referring the issue of "incapacitating chemical agents" to the SAB because the issue is broader than science alone and the SAB can only provide scientific advice. A contrary view was expressed that the SAB could determine the current scientific possibility that "incapacitating chemical agents" might be developed, deployed and used by States, and that this would be a way of bringing the issue to the attention of States Parties to the CWC through an established CWC mechanism.

The Chair developed some of the ideas from the presentation and the subsequent debate. With regard to raising awareness, he suggested that a "step of education" was needed with regard to government personnel who will need to address the issue of "incapacitating chemical agents". With regard to making a proposal or proposals to policy makers, he noted that concrete proposals provide a vehicle to focus discussion. He noted that some States might have one or more proposals that they could "shop around" to other governments. This is a mechanism to get relevant people to think about issues in a more concrete way before a formal public position has to be taken.

Speaker's Summary: Graham Pearson

Graham Pearson made a contribution in which he first outlined the observations that he had drawn from the previous presentations and discussion at this Meeting of Experts.

He then went on to consider the prohibitions of the Biological and Toxin Weapons Convention and of the Chemical Weapons Convention (CWC). Increasing attention is being given to the convergence of these two Conventions and the importance of insuring that these Conventions are complimentary and mutually reinforcing. He observed that there appeared to be little awareness in Geneva and The Hague of the other Conventions and he urged capitals to encourage their delegations to the two Conventions to be aware of what is happening under both Conventions so that benefits can be gained from progress under both Conventions.

He went on to point out the considerable strengthening of the Biological and Toxin Weapons Convention through the extended understandings that had been agreed at the successive five-yearly Review Conferences and recommended that the States Parties to the CWC should use a similar process to strengthen the Chemical Weapons Convention. He observed that, thus far, the Review Conferences of the CWC had not been notable for looking ahead to address likely developments in the next five and ten years.

He recommended that the next CWC Review Conference in 2013 should agree extended understandings for the CWC that reaffirm that the CWC prohibitions apply to all toxic chemicals of any origin and no matter how they are made, reaffirm that effects of riot control agents must disappear quickly after termination of exposure and reaffirm the General Purpose Criterion.

DISCUSSION

It was noted that the concept of "understandings" with respect to the BTWC is in relation to how States Parties implement that convention. With respect to the CWC, "understandings" can have that function but they can also have the function of directly addressing actions to be taken by States Parties or by the OPCW. Therefore, when considering both conventions and what may be useful in one vis-à-vis the other, it is necessary to differentiate what might be useful transversally between the two conventions from those features that are different between the two conventions and therefore not able to be transversally applicable.

A convergence of chemistry and biology had been frequently noted in discussions up to this point of the meeting. One participant expressed the view that it was far from clear what this convergence will mean and how it could affect both the CWC and BTWC. Nevertheless, this participant considered that the issue of "incapacitating chemical agents" would be part of that convergence.

One suggestion made to the meeting was that a specific open ended working group prior to the next Review Conference of the CWC could address the issue of "incapacitating chemical agents". One participant familiar with the OPCW and CWC communities did not think that this was a politically practical option although, if there were to be an open ended working group formed to prepare for the CWC's 3rd Review Conference in 2013, "incapacitating chemical agents" might be part of that process but would be only one issue amongst many.

One participant observed that law enforcement personnel may not think in CWC terms. They might regard "incapacitating chemical agents" as devices or tools rather than weapons, and think in terms of upholding the law rather than of "attack and defence". This participant proposed that all toxic chemicals as defined by the CWC should be prohibited for law enforcement purposes other than the context of judicially sanctioned executions.

In support of this proposal, another participant observed that it is necessary to clarify what is meant by "law enforcement" and what sorts of chemicals can be used for this purpose.

One participant asserted that there is a need to consider and examine how biology has evolved over the last decades and how the BTWC has responded to this evolution. Nevertheless, this participant observed that this is not a problem for the CWC as any chemical is covered by the convention if it is a toxic chemical. There may be a need for some clarifications but essentially the CWC does not have the problem the BTWC has in terms of evolving biology.

Speaker's Summary: Ralf Trapp

"Incapacitating chemical agents": some thoughts on possible strategies and recommendations

The following are personal reflections on issues discussed at the ICRC workshop "'Incapacitating chemical agents" – implications for international law", held in Montreux, Switzerland, 24-26 March 2010. They lead into a number of questions that might deserve further analysis and discussion, as well as to possible conclusions and recommendations for next steps. These were presented at the final panel of the workshop in an attempt to

stimulate discussions. They do not reflect any agreement and commonly shared conclusions of the workshop.

Ever since the Moscow theatre siege, the issue of whether "incapacitating chemical agents" (ICAs) can be used legally for law enforcement purposes has been hotly debated amongst a small group of experts. The discussion revolved around the question of whether the Chemical Weapons Convention (CWC), which comprehensively prohibits chemical weapons but does not ban the use of toxic chemicals for law enforcement purposes including domestic riot control, had effectively sanctioned the use of incapacitating (and presumably other) toxic chemicals' use for law enforcement. But the issue is not limited to the notion of 'law enforcement' in the traditional sense. Demands for non-lethal chemical agents (an alternative way of describing the agents in case) surfaced also in the context of counter-terrorism and counter-insurgency operations, and more broadly speaking with regard to 'military operations other than war'.

These developments happen against a background of revolutionary change in the sciences underlying our understanding of the functioning of the brain and other regulatory systems in the human body. The explosion of knowledge in neuroscience, bioregulators, receptor research, systems biology and related disciplines is likely to lead to the discovery, amongst others, of new physiologically-active compounds that can selectively interfere with certain regulatory functions in the brain or other organs, and presumably even modulate human behavior in a predictable manner. Some of these new compounds (or selective delivery methods) may well have a profile that could make them attractive as novel candidate chemical warfare agents.

The use of ICAs in war is of course illegal under the CWC; so is their development, production and acquisition for chemical weapons purposes. But how does one reconcile these general undertakings of Article I *never under any circumstances* to develop, produce, otherwise acquire, stockpile, retain or use chemical weapons with the provisions of Article II.9(d) that allow for the use of toxic chemicals for law enforcement including domestic riot control purposes? Note that the provisions of the CWC's Article I establish not simply a prohibition applicable *in war* ('never under any circumstances' relates to the CWC's objective to completely eliminate the *capacity* of States to wage chemical warfare, not just their intention not to use in war something they still have). Nor is the scope of the definition of chemical weapons limited to lethal agents – ICAs are explicitly covered under the definition of 'toxic chemical' which underpins the CWC's definition of 'chemical weapons'. As a consequence, the legal context for ICAs clearly differs from that governing the use of riot control agents (RCAs), which under the CWC can be developed, produced, stockpiled and used in amounts consistent with their legitimate use for riot control purposes (but not as a method of warfare).

It is important for the understanding of the implications of legal interpretations that the demarcation line in the CWC regime is drawn between all toxic chemicals, including ICAs, on the one hand and RCAs on the other. Some previous debates had a tendency of lumping RCAs and ICAs together and applying arguments that apply to RCAs in equal measure to ICAs – that would be an incorrect interpretation of the law.

Some ICAs also fall within the scope of the extended understandings adopted under the Biological Weapons Convention (BTWC). That treaty has a similarly-broad scope of prohibitions; it does not even allow for the use of biological or toxin agents for law enforcement; their use for prophylactic, protective or other peaceful purposes, however, is allowed.

Under both treaties, the delivery means for the agents are also prohibited (in the CWC context this is based on the specificity of their design).

There must therefore be serious doubts about the legality of weaponizing (from testing through acquisition and stockpiling to actual use) ICAs *even* if the stated purpose was law enforcement. That debate is still ongoing.

But there are other starting points for a legal analysis of the matter. To an arms controller who discusses the scope of the prohibitions of two of the cornerstone arms control agreements, these other legal provisions may at first glance appear not to be that relevant. But that changes when one tries to understand the 'common meaning' of such terms as 'law enforcement' and 'method of warfare'. Arms control is not always a competent legal environment to define those terms, or at least not the only one. Other bodies of law, including human rights HRL and IHL, are equally relevant.

Under IHL, the use in war of *any* chemical or biological agent is subject to prohibitions under customary international law. ICAs are not treated any differently from other toxic materials. Furthermore, the Geneva Conventions apply. This is important for the understanding of 'use in war', which today extends well beyond the boundaries of wars between States. At least some of the operations that are often described as counter-insurgency (or counterterrorism) fall squarely within the concept of 'internal armed conflict', and are thus subject to the norms agreed for the conduct of warfare between States. That includes the prohibitions contained in arms control treaties. This point was already made when the specific regime for riot control agents was established under the CWC and introduced at the end of the CWC negotiations in 1992.

With regard to HRL, the first observation to make is that it applies to law enforcement, no matter how narrow or broad that term is understood. That applicability of HRL, secondly, invokes some important principles and State responsibilities, such as the need to avoid arbitrary killing and the prohibition of torture, cruel, inhuman or degrading treatment. These principles and responsibilities come with a range of obligations for the State, which include the obligation to protect the right of life, the obligation to investigate suspicious deaths, and the obligation to protect against the risk of torture. Potential victims of HRL violations have the right to effective remedy.

How does this all relate to the use of incapacitating chemicals for law enforcement purposes? Clearly, prohibitions banning chemical weapons that utilize these types of agents are in place. But there remain questions about whether ICAs are allowable for law enforcement purposes, where 'law enforcement' stops and 'methods of warfare' start, and which bodies of law apply to different situations. There also is the issue of the possible erosion of the prohibitions under the BTWC and the CWC (for example with regard to development and weaponization, including the development of delivery systems), and in the case of the CWC there is the impact on treaty verifiability that an acceptance of ICAs for law enforcement purposes would entail.

In short, there is a risk that if the issue of ICAs in the context of law enforcement is not handled carefully, and consistent with the principles of the CWC, the BTWC and other pertinent international legal norms, developments may create realities that may undermine the existing regimes and invite chemical and biological weapons proliferation of a new kind, with regard to State and perhaps non-State actors.

So what can be done? What strategies are there for the international community to try and resolve the issue, and what risks do they entail?

- Firstly, we could just wait and see what happens. In the light of persistent demands for new weapons that respond to the challenges of a changing military environment in

combination with the new solutions that the biological revolution is offering, this is not a prudent approach.

- Secondly, the international community could pursue a conversation about the issue to further clarify all the implications, legal, practical and otherwise, of incapacitants as means of law enforcement. That, it seems, is clearly necessary. Questions remain as to what the outcome of that conversation may be, and what a desirable mechanism and timeframe ought to be.
- Thirdly, one could also, as some have suggested, accept in principle that ICAs can be used for law enforcement purposes, and move straight into a discussion about limits to curtail the risks involved in that approach. In other words, not a *carte blanche*, but a process that could lead to agreements on their *modus operandi*, design criteria for dissemination systems, and/or confidence building measures to increase transparency (or take this further to amendments of the CWC that would create declaration and perhaps even verification requirements). Such an approach appeals to some observers, but it may be jumping the gun – it effectively sanctions ICA use for law enforcement purposes without providing any assurance that the needed constraints can in fact be agreed. The practical outcome may in fact be close to approach 2 above (for example, if such agreements are not reached in time for certain developments to establish irreversible facts, or without key actors on board).
- Or fourthly, as others have suggested, one could press for an agreement that the use of ICAs for law enforcement purposes was inconsistent with the provisions of the CWC and that only riot control purposes are acceptable to that end. That, to other observers, appears unachievable.

Before embarking on any of these approaches, it may be helpful to recall a number of technical questions, the answers to which should inform any such decisions on strategy. For example:

- Can one actually draw a line between ICAs and 'lethal' agents? From a toxicological point of view, the answer is 'No'. From a legal point of view, it is worth noting that the CWC does not classify agents in accordance with their toxicity. Does all this mean that what will be accepted for ICAs would equally apply to all toxic chemicals, lethal agents included? If not, where can one draw a line, and what assurances are there that this line will be accepted by all States?
- How close to acceptance criteria for 'non-lethality' does one have to come to have an 'acceptable' ICA for law enforcement? There are scientific reasons why it is not possible to create an incapacitating agent that has a broad-enough therapeutic margin not ever to kill. But how close to an 'acceptable safety margin' does a new agent have to come for decision makers to be prepared to blur the lines? And can one actually establish such an 'acceptable safety margin'; would it be the same for military use, counter-terrorism use, and riot control?
- Assuming for a moment that an agent with an acceptable safety margin can be found, can one actually control the dose applied in an operational scenario (and how meaningful is that given that the exposed group of individuals is medically diverse and un-known)?
- Can one distinguish between weapons designed exclusively for law enforcement purposes, and weapons designed for use in warfare? And how meaningful would such differentiations be in the current operational context of military operations in urban areas?
- Can one agree on "acceptable" quantities of agents needed for law enforcement purposes?

- What would ensure that weapons intended for law enforcement purposes would not 'find their way' into mainstream military structures and doctrine, given the changes in the nature of warfare that we are experiencing?
- Can any of this be verified independently?

Then, there are political questions to ask. Looked upon from a different perspective, it may well be impossible to distinguish what purportedly was an attempt to find means of dealing with law enforcement challenges using certain types of less-than-lethal weapons, from an attempt to circumvent existing legal norms and introduce a new category of high-tech chemical weapons that was not within the reach of certain other nations. But if it were impossible to make such a distinction, what would stop others from concluding that the norm against chemical weapons was no longer a firm and comprehensive prohibition, and that treaty circumvention was fair game?

There obviously is a need for a continuation of the international conversation about ICAs and their role, if any, in law enforcement. This is a complicated matter, and such discussions will take time. Here are therefore a number of possible recommendations for next steps:

- Monitor and assess the impact of developments (advances in science and technology, emergence of new candidate agents, new delivery systems, new 'demands' for 'non-lethal weapons', new and evolving doctrines, rules of engagement, etc).
- Restate the obvious (reaffirm clearly the scope of the prohibitions under the CWC and the BTWC as they pertain to ICAs).
- Broaden the context of the discussions (e.g. include stronger reference to human rights law when discussing principles of law enforcement; analyse case law on military operations other than war).
- Avoid establishing facts that cannot easily be reversed.
- Do not over-dramatize but also do not pretend nothing has changed.
- Find informal ways to further discuss the issues, clarify implications, and explore what can be done.

DISCUSSION

It was suggested that it would be useful to engage researchers and designers who may be working on "incapacitating chemical agents" and their delivery systems, and determine what they envisage as potential and possible uses for "incapacitating chemical agents". It would also be the people working in this field who may be able to provide an answer to the question of whether a law enforcement delivery system can be distinguished from a military delivery system. It was also noted that CWC inspection teams had access to expertise in this field that could distinguish these systems during the course of an actual inspection. It was also suggested that, for the purposes of transparency, a State might invite an inspection team to examine what "incapacitating chemical agents" that State held for law enforcement purposes. This would either demonstrate that that State held no such chemicals or would enable the inspectors to determine whether the quantities and types of "incapacitating chemical agents", and their delivery systems, held by that State were consistent with the purpose of law enforcement.

It was also noted that any future discussion concerning "incapacitating chemical agents" should involve people versed in HRL and law enforcement. In the context of law enforcement, it would be ideal to be able to engage with people working on the issue of "incapacitating chemical agents" if such people could be identified. It was noted that the ICRC had solicited the participation of law enforcement experts with knowledge of "incapacitating chemical agents" from a number of countries for this meeting. Unfortunately, this had been to no avail. Some participants indicated that they might be able to identify potential participants with such expertise for any follow-up meeting.

The point was made that the issue of what is or is not an "incapacitating chemical agent" is only part of a broader discussion of whether toxic chemicals can be used for law enforcement. There were divergent views expressed by participants concerning the use of toxic chemicals as defined under the CWC for law enforcement; some views were narrow (riot control agents only) while others were more permissive and extended to lethal injections for judicially sanctioned executions, and possibly some form of "incapacitating chemical agent".

A participant emphasized that when a State or a State entity has weapons that are toxic chemicals, it is absolutely essential that there is a clear and impermeable divide between law enforcement use of these chemicals and any form of armed conflict. Any failure to ensure this threatens the CWC. This is all the more important as law enforcement can and does slide into armed conflict. In a law enforcement context, a State may be entitled to use toxic chemicals. If that law enforcement context becomes armed conflict, that State is not permitted to have or to use weapons that are toxic chemicals in that situation.

The session's Chair then summarized his understanding of the session's outcome emphasizing that this did not pretend to represent every view of the session's participants. He made the following points:

- There is a need for further discussion of "incapacitating chemical agents"; the issue merits further work and there is need for more clarification.
- There is a willingness to engage in further and more detailed discussion.
- Further discussions need to be informed by a broader range of expertise including from the law enforcement community and by human rights experts.
- Further discussions should initially remain informal rather than be formalized.
- These discussions need to move beyond problem description and begin to consider or focus on strategies to address the issues surrounding "incapacitating chemical agents".

Summary Points of the Expert Meeting prepared by the ICRC

The "summary points" presented here reflect the ICRC's understanding of the convergence of views which emerged within the expert discussions. They reflect areas of broad agreement but not necessarily unanimity on each point.

A. Observations concerning science and technology, research and development, and the impact on humans of "incapacitating chemical agents":

1. Despite systematic attempts by various countries – some over long periods of time – to develop them, no "incapacitating chemical agent" meeting the following criteria as yet exists:

- retains chemical stability in a variety of situations;
- has a rapid onset of incapacitant action;
- produces complete incapacitation in targeted individuals;
- has a low level, if any, of lethality across a broad range of individuals; and
- results in a low level, if any, of permanent disability.

2. "Incapacitating chemical agents" that do not meet all the criteria set out in point 1 might still be developed as they nevertheless might be perceived as offering advantages in particular operational scenarios.

3. New understanding of human physiology, in particular the functioning of the central nervous system and new scientific and technological developments may increase the feasibility and attractiveness of "incapacitating chemical agents" and may facilitate their delivery.

4. There are many factors that affect the lethality of "incapacitating chemical agents"; they include:

- the risk of overdose depending on the proximity of an individual to the source of and the duration of exposure to the agent;
- the risk of airway obstruction;
- the risk of inhaling vomit;
- the heterogeneity of the target group's physiologies and health (e.g. pre-existing medical complaints; pregnancy; the age of group members); and
- the risk of secondary injuries when someone has been incapacitated (e.g. falling from a height; falling onto a hard surface; falling onto a sharp object).

B. Observations concerning the Chemical Weapons Convention:

5. The CWC's general purpose criterion and prohibitions apply to all toxic chemicals.

6. Any toxic chemical that has an incapacitating effect is subject to the provisions of the CWC and is therefore banned in warfare.

7. Participants in the meeting who had been involved in the negotiation of the CWC agreed that "incapacitating chemical agents" were not specifically considered when Article II.9 (d) of the CWC was negotiated, unlike riot control agents, which were specifically considered during those negotiations.

8. Article II 9 (d) of the CWC lists "law enforcement" as a purpose not prohibited under the CWC. What is meant by "law enforcement" remains an important issue.¹⁰¹

9. It would be beneficial to clarify which, if any, types of toxic chemicals are permissible for "law enforcement" under the CWC.

10. There is a risk to the CWC that programmes and actions undertaken by States Parties to develop "incapacitating chemical agents" for "law-enforcement" purposes could lead to their use, and ultimately the use of other toxic chemicals, for prohibited purposes.

C. Specific points of convergence:

11. "Incapacitating chemical agents" merit further discussion to examine the many challenges they present and to further clarify implications for law stemming from their development and use. Such discussions should initially continue on an informal basis.

12. The involvement of health-care professionals in the development, procurement and deployment of "incapacitating chemical agents" for law enforcement purposes raises significant ethical issues.¹⁰²

13. There is a willingness amongst experts to engage in further and more detailed discussions concerning "incapacitating chemical agents" with a broader range of expertise including that of the law-enforcement community, State-security services, human rights lawyers and agencies involved in the international control of narcotic substances.

D. Subjects identified that require further discussion and debate:

14. The significant ethical issues for professionals other than health-care professionals that would be generated by the development, procurement, deployment and use of "incapacitating chemical agents".

15. Clarification of which "incapacitating chemical agents", if any, could be used for law enforcement and how they could realistically be used in law enforcement while minimizing lethal effects.

16. The implications of potential use of "incapacitating chemical agents" for law enforcement by a range actors (from police or prison officers to paramilitaries or military forces), of the multiple operational contexts in which they might be used and of the potential uncertainties as to which legal frameworks apply in addition to the CWC (e.g. international humanitarian law; human rights law).

17. Issues related to proliferation of "incapacitating chemical agents" and the implications of their availability to armed non-State actors and criminal organizations.

¹⁰¹ One participant felt that the use of toxic chemicals for "law enforcement" is clearly allowed under this article.

¹⁰² One participant contested the view that ethical issues would necessarily be raised.

18. Transparency measures that States could consider taking with regard to various aspects of "incapacitating chemical agents" that they might have in their possession and possible mechanisms to share this information.

19. What is meant by "law enforcement" and which agents may be permissible under the CWC for that purpose (as indicated by points 8 and 9 above).

20. How the range of issues identified could be addressed on a more formal basis by States party to the CWC and in other relevant fora.

FINAL REMARKS OF THE ICRC

The ICRC is grateful to the wide variety of experts who contributed their time and insights to the Montreux Expert Meeting. The broad range of professional disciplines, national backgrounds and personal experiences among participants facilitated a rich dialogue on an important but complex subject. The ICRC has made every effort to ensure that the richness and nuance of this dialogue are reflected in the current report. From the ICRC's perspective, the Expert Meeting on "Incapacitating Chemical Agents" highlighted that there are currently specific challenges and risks associated with such agents.

Challenges include:

- the current impossibility of identifying any "incapacitating chemical agent" that, when used in law enforcement on groups of persons, will not have a significant level of lethal effects;
- the difficulties of ensuring "correct" use of "incapacitating chemical agents" when these are used by a wide variety of potential law-enforcement actors including police, security forces and armed forces;
- the difficulties of ensuring that "law enforcement" carries the same meaning for a variety of potential users and precludes *de facto* use of "incapacitating chemical agents" in warfare;
- the difficulty of distinguishing preparation for certain uses of "incapacitating chemical agents" for law-enforcement purposes from preparation for use of classical chemical weapons;
- the ethical issues arising from the use of health professionals in planning or employment of "incapacitating chemical agents", something that would be essential in order to minimize their lethal effects and their possible long-term effects on survivors.

Risks include:

- the future use of 'imperfect' "incapacitating chemical agents" could establish a pattern of State practice that may become irreversible;
- the potential proliferation of "incapacitating chemical agents" into the hands of criminals or non-State armed groups and their eventual use against civilians, law enforcement and other State entities;
- the potential expansion, facilitated by rapid developments in the life sciences, of "incapacitating chemical agents" beyond those with purely calumative effects to include a wide variety of agents affecting human metabolism, behavior, identity and thought processes;
- creating, through interest in and use of "incapacitating chemical agents", a perception that the norm against chemical weapons is no longer absolute and comprehensive;
- the potential use of "incapacitating chemical agents" for law-enforcement purposes by a variety of entities in a variety of contexts could result in the *de facto* use of such agents in warfare, posing a direct challenge to the authority of the 1925 Geneva Protocol and the CWC;

- any "de facto" use of "incapacitating chemical agents" in warfare may trigger escalation to the use of classical chemical weapons, as has happened in the past following the use in warfare of riot control and harassing agents.

There is a clear need to tackle the issues raised by "incapacitating chemical agents" in appropriate fora engaging a broad range of experts including policy makers, law-enforcement professionals, security personnel, military personnel, health professionals, scientists and lawyers with IHL, human rights and disarmament expertise. An expert meeting involving such a broad range of participants, building on the discussions at the Montreux meeting, would be a useful next step.

In light of these challenges and risks, the ICRC urges the States to give greater attention to the implications for international law of "incapacitating chemical agents". There is currently an opportunity to address preventively the challenges and risks identified by the Montreux Expert Meeting.

ANNEX 1

SPEAKER AND CHAIRPERSON BIOGRAPHIES

Michael CROWLEY, Project Coordinator of the Bradford Non-lethal Weapons Research Programme (BNLWRP), has worked for nearly 20 years on arms control, security and human rights issues, including as Executive Director of VERTIC. He has acted as chairperson of the Bio-weapons Prevention Project. Prior to this he worked as Senior Research Associate at the Omega Research Foundation where he explored options for effective restriction of the development and trade in security equipment and technology utilized in torture and ill-treatment. He has also managed the Arms Trade Treaty project at the Arias Foundation in Costa Rica and worked as Senior Arms Trade Analyst at BASIC. He has also held several research and policy positions with Amnesty International, both in the UK Section and at the International Secretariat. He holds a BSc in Genetics and an MRes, and is currently completing a PhD on the regulation of RCAs and incapacitants, at Bradford University.

Dr Knut Dörmann is Head of the Legal Division of the ICRC, since December 2007. He held other positions in the Legal Division between December 1998 and November 2007 and was a member of the ICRC Delegation to the Preparatory Commission of the International Criminal Court. He holds a Doctor of Laws (Dr. iur.) from the University of Bochum in Germany (2001). He was Managing Editor of *Humanitäres Völkerrecht - Informationsschriften* (1991-1997). Prior to joining the ICRC, he was Research Assistant (1988-1993) and Research Associate (1993-1997) at the Institute for International Law of Peace and Armed Conflict, University of Bochum. Dr. Dörmann is and has been a member of several groups of experts working on the current challenges of international humanitarian law. He has extensively presented and published on international law of peace, international humanitarian law and international criminal law. He received the 2005 Certificate of Merit of the American Society of International Law for his book *Elements of War Crimes under the Rome Statute of the International Criminal Court*, published by Cambridge University Press.

Françoise HAMPSON is a Professor in the Law Department and Human Rights Centre of the University of Essex, UK. She teaches both the law of armed conflict and human rights law as part of a postgraduate programme. She was a member of the Steering Committee and the Group of Experts for the ICRC Study on Customary International Humanitarian Law. She has frequently litigated cases before the European Court of Human Rights, including cases arising out of situations of armed conflict. From 1998-2007, she was the UK-nominated independent expert on the UN Sub-Commission on the Promotion and Protection of Human Rights.

Peter HERBY is Head of the Arms Unit in the Legal Division of the ICRC at its headquarters in Geneva, Switzerland. He has written and spoken extensively on the norms of humanitarian law applicable to the use of arms and, more specifically, on landmines, blinding laser weapons, explosive remnants of war and small arms. He is co-author of an ICRC study on "arms availability and the situation of civilians in armed conflict" (1999) and a range of other publications. Peter led the development of the ICRC's initiative on "Biotechnology, Weapons and humanity". He has represented the ICRC in all arms-related negotiations since 1994. Peter formerly directed the disarmament and arms control program of the Quaker United Nations Office in Geneva (1983-93), specializing in chemical and biological arms control as well as confidence-building measures in Europe and the Middle East. He holds Masters

Degrees in International Relations from the University of Cambridge (UK, 1992), and in Peace and Conflict Studies from the University of Bradford (UK, 1979). He graduated from Georgetown University (US) in 1974 with a BA in Philosophy and Theology.

Dominique LOYE is the Deputy Head and Technical Adviser of the Arms Unit of the Legal Division of the ICRC. Dominique holds a Master's Degree in Physics and a post-graduate master's Degree in Business Administration. He has been working for more than 15 years with the ICRC on different assignments and projects. Currently his main tasks are on legal, military and technical aspects related to weapons and their implications for institutional activities in the field of international humanitarian law.

Stefan MOGL is Head of the Chemistry Department of SPIEZ LABORATORY and a member of the Swiss National Authority for the CWC. He was an OPCW Inspector from 1997-2000 and Head of the OPCW laboratory from 2000-2005. He has been a member of the OPCW Scientific Advisory Board since 2008. He has a degree in chemistry and industrial hygiene and an MBA.

Professor Vivienne NATHANSON qualified at Middlesex Hospital Medical School in London, 1978 and then spent five and a half years in various hospital medical posts before joining the British Medical Association (BMA) staff in 1984. Professor Nathanson was appointed as Scottish Secretary (Chief Executive) for the BMA 1990-1995, and then as Head of Central Services and International Affairs 1995-1996. She is now Director of Professional Activities at the BMA, which encompasses all the professional areas of work of the BMA including Ethics, Science, Medical Education, Public Health, Doctors' Health, Equal Opportunities, International Affairs and Conferencing. The science work at the BMA includes editing both Biotechnology Weapons and Humanity reports and the report on Chemical Weapons. Vivienne has also led the development of World Medical Association policy in weapons control related areas. In 2004 Vivienne Nathanson became an Honorary Professor in the School for Health at Durham University. She was also awarded an honorary Doctor of Science by Strathclyde University. In 2008 Professor Nathanson was made a Fellow of the Royal College of Physicians.

Dr Graham S. PEARSON is Visiting Professor of International Security, Department of Peace Studies, University of Bradford. Previously, he was Director General and Chief Executive, Chemical and Biological Defence Establishment, Porton Down, Salisbury, Wiltshire, United Kingdom. During the past 15 years he has focused primarily on the strengthening of the international regime totally prohibiting biological and toxin weapons.

Dr Philip SPOERRI is Director for International Law and Cooperation within the Movement at the ICRC. He trained as a lawyer in Germany where he acceded to the bar in 1992. Before commencing as a delegate for the ICRC at the beginning of 1994, he worked as a criminal defence lawyer. In 2000, he was awarded a PhD for a thesis on international humanitarian law from the University of Bielefeld, Germany. Following a first mission for the ICRC in Israel/Palestine, he served as a delegate in Kuwait and in Yemen. From 1998 to 1999 he worked for the ICRC in Afghanistan as a protection coordinator, in charge of ICRC activities for the protection of detainees, reestablishment of family links and tracing activities in the country. Then, he spent 18 months as the ICRC head of mission in the Democratic Republic of Congo. From December 2000 until April 2004, he worked as a lawyer at the ICRC headquarters in Geneva and was the head of the legal advisers to the operations'

department for two years. He returned to Afghanistan as the ICRC head of delegation from May 2004 to January 2006.

Mark STEINBECK is the medical advisor on the effects of weapons for the Arms Unit within the Legal Division of the ICRC in Geneva, Switzerland. Prior to his role in the Arms Unit, he worked for the ICRC in the USA, Canada, Afghanistan, India, Nepal, Bhutan and Kenya; his posts included those of field surgeon, detention doctor and relief coordinator. He also worked a desk officer in the Health Unit of the ICRC in Geneva. Before the ICRC, Mark had worked for CARE International (northern Iraq and Vietnam) and for Equilibre (north and south Caucasus). Mark is an Australian citizen and has a medical degree with a surgical qualification, and a law degree. Prior to working in the humanitarian field, he worked as a doctor in Australia and England, and as a commercial lawyer in Australia.

Colonel Ben STEYN is the Chemical and Biological Defence Advisor to the South African Surgeon General as well as project officer for the South African National Defence Force CB Defence technology development project, posts he has occupied since 1993. He holds an MBChB and a MMed (Anaes) both at the University of Pretoria and has served in various posts in the South African Medical Service. Since 1992, Ben has been a member of the South African Delegation to negotiations and meetings of States Parties of the Biological Weapons Convention. He chairs two technical subcommittees of the Council for the Non-Proliferation of Weapons of Mass Destruction, providing the Council with technical advice on non-proliferation issues regarding chemical and biological weapons and is a member of the Scientific Advisory Committee on Chemical and Biological Terrorism of the World Health Organization. He also acts as an advisor to various South African Government Departments. Ben has contributed to two books, is the author of a number of articles on various aspects of Chemical and Biological Defence and Non-Proliferation, and has delivered numerous presentations and lectures over the world on various aspects of Chemical and Biological Defence and Non-Proliferation.

Dr Ralf TRAPP is a chemist and toxicologist by training. He was born in the former GDR and now lives in France. After receiving his PhD from the Technical University for Chemistry "Carl Schorlemmer" Leuna-Merseburg in 1978, he worked with the GDR Academy of Sciences on issues related to chemical toxicology. He received his Dr Sc. Nat. in 1986 for his work on the fate of toxic chemicals in soils. Between 1985 and 1987, he was a guest researcher at SIPRI, working on projects related to the natural degradation and decontamination of chemical weapons (CW) agents, the conduct of verification in the chemical industry, and the concept of a European CW-free Zone. For the past 30 years, Ralf Trapp has been involved with chemical weapons disarmament. He was a technical adviser to the GDR delegation to the Conference on Disarmament (CD) in Geneva from 1983 to 1989, and in 1992 joined the German delegation to the CD. In 1993, he joined what in 1997 became the OPCW, holding senior positions in industry verification, verification policy, international cooperation, and government relations/political affairs. He had a lead role in the preparation and conduct of the two CWC Review Conferences in 2003 and 2008. Between 1998 and 2006, he served as Secretary of the OPCW Scientific Advisory Board. Since May 2006, he has worked as an independent international consultant in the field of chemical and biological weapons disarmament. In 2006, he was elected external member of the Academy of Sciences of Bologna.

Alex VINES is a weapons investigator and Africa expert and is director of regional and security studies at Chatham House, the Royal Institute of International Affairs in London. He was the Chair and arms expert of the UN Group of Experts on Côte d'Ivoire from 2005-2007 and from 2001-2003 was the revenue and arms expert of the Liberia Panel of Experts. For nine years he was a senior researcher at the Arms and Africa Divisions of Human Rights Watch. Prior to joining Human Rights Watch, he was the Africa Analyst at the international political risk consultancy Control Risks. He has published widely on small arms issues, most recently for the United Nations Institute for Disarmament Research and the United Nations Department for Disarmament Affairs, and sits on several academic editorial boards including the *South African Journal of International Affairs*.

Dr John WALKER has worked in the Foreign and Commonwealth Office's Arms Control and Disarmament Research Unit (ACDRU) since March 1985. He currently focuses on CWC, BTWC, Comprehensive Nuclear Test Ban Treaty (CTBT) issues and arms control verification more generally. He has been a member of UK delegations at BTWC and CWC Review Conferences, the BTWC Ad Hoc Group, CWC Preparatory Commission Expert Groups and CTBT Working Group B meetings on on-site inspection issues. He has published widely on aspects of the UK's CWC practice challenge inspection programme in VERTIC Yearbooks. Between January 2005 and April 2007 he contributed to the Arts and Humanities Research Council funded project at Southampton University on the UK Nuclear Weapons Programme. He is the author of the book "British Nuclear Weapons and the Test Ban 1954 – 1973" published in 2010. Dr Walker took his undergraduate and post-graduate degrees (PhD "British Attitudes to Nuclear Proliferation 1952-1982") at the University of Edinburgh. He was a tutor in Comparative European Politics at Edinburgh between 1983 and 1985.

Dr Mark WHEELIS is a professor emeritus in the Microbiology Department at the University of California, Davis, and is Chair of the Scientists' Working Group on Biological and Chemical Weapons of the Center for Arms Control and Nonproliferation in Washington, DC. He received his PhD in bacteriology from the University of California, Berkeley, in 1969, and did postdoctoral work in biochemistry at the University of Illinois, Urbana. He joined the faculty of UC Davis in 1970. His focus was bacterial genetics, biochemistry, and evolution until he turned his attention to the history and control of biological weapons in the late 1980s. He is the co-editor of "Deadly Cultures: Biological Weapons Since 1945" (2006) and "Incapacitating Biochemical Weapons: Promise or Peril?" (2007). He is also the author of "Principles of Modern Microbiology" (2008).

<p>ANNEX 2</p> <p>LIST OF PARTICIPANTS</p>

GOVERNMENT EXPERTS

Rachel Moseley	First Secretary, Australian Permanent Mission to the United Nations, Geneva, Switzerland
Michael Rogers	Defence Science and Technology Organisation, Department of Defence, Australia
	* * *
Hua Li	Ministry of Defence, Beijing, China
Kun Zhao	Third Secretary, Ministry of Foreign Affairs, Beijing, China
	* * *
Jitka Hakova	Legal Adviser (International Law), Ministry of Defence, Prague, Czech Republic
Jaroslav Straka	State Office for Nuclear Safety, Division of Chemical Weapons Prohibition, Prague, Czech Republic
	* * *
Ralph Knauf	German Bundeswehr, Geilenkirchen, Germany
Juliane Thümmel	Desk Officer, Federal Foreign Office, Berlin, Germany
	* * *
Manimuthu Ghandi	Director (Legal and Treaties Division), Ministry of External Affairs, New Delhi, India
	* * *
Jon Erik Strømø	Counsellor (Disarmament), Norwegian Permanent Mission to the United Nations, Geneva, Switzerland
	* * *
Naeem Haider	Deputy Director, Arms Control and Disarmament, Strategic Plans Division, Joint Staff Headquarters, Pakistan
	* * *
Vladimir Ladanov	First Secretary, Russian Permanent Mission to the OPCW, The Hague, Netherlands
	* * *
Marthinus Van Schalkwyk	Counsellor, Embassy of South Africa, The Hague, Netherlands

Stefan Mogl	Head of Chemistry, Spiez Laboratory, Spiez, Switzerland
Rolf Stalder	Head of Unit, Federal Department of Economy, Bern, Switzerland
Riccarda Torriani	Desk Officer, Federal Department of Foreign Affairs, Bern, Switzerland
	* * *
James McGilly	Senior Chemical Adviser, Non-proliferation Department, Dstl, Porton Down, UK
John Walker	Arms Control and Disarmament Research Unit, Foreign and Commonwealth Office, London, UK
	* * *
Scott Brittain	Department of Defence, Washington DC, USA
Robert Mikulak	Director, Office of Chemical and Biological Weapons Threat Reduction, Bureau of International Security and Non-proliferation, US Department of State, USA

INDIVIDUAL EXPERTS

John Borrie	Senior Researcher and Project Manager, UNIDIR, Geneva, Switzerland
Michael Crowley	Project Coordinator, Bradford Non-Lethal Weapons Research Project, Department of Peace Studies, University of Bradford, UK
Malcolm Dando	Professor of International Security, Department of Peace Studies, University of Bradford, UK
Neil Davison	Senior Policy Adviser, Science Policy Centre, The Royal Society, London, UK
Malik Ellahi	Head of Government Relations and Political Affairs, OPCW, The Hague, The Netherlands
Françoise Hampson	Professor, School of Law, University of Essex, UK
Jonathan Mills	Senior Chemical Demilitarisation Officer, Verification Division, OPCW, The Hague, The Netherlands
Vivienne Nathanson	Professor and Director of Professional Activities, British Medical Association, London, UK
Graham Pearson	Visiting Professor of International Studies, University of Bradford, UK

Ben Steyn	CB Defence Adviser, SAMHS, South African National Defence Force, South Africa
Ralph Trapp	International Disarmament Consultant CBW, Chessenaz, France
Alex Vines	Research Director, Regional and Security Studies, The Royal Institute of International Affairs, Chatham House, London, UK
Mark Wheelis	Professor, Department of Microbiology/CBS, University of California, USA

ICRC

Philip Spoerri	Director for International Law and Cooperation within the Movement, Geneva
Knut Dörmann	Head of the Legal Division, Geneva
Peter Herby	Head of the Arms Unit, Legal Division, Geneva
Dominique Loye	Deputy Head and Technical Adviser, Arms Unit, Legal Division, Geneva
Mark Steinbeck	Medical Adviser on the Effects of Weapons, Arms Unit, Legal Division, Geneva
Arezou Hassanzadeh	Attaché, Legal Division, Geneva
Ghnima Kemmar	Assistant, Arms Unit, Legal Division, Geneva
Robin Coupland	Medical Adviser, Assistance Division, Geneva (formerly ICRC Surgeon)

MISSION

The International Committee of the Red Cross (ICRC) is an impartial, neutral and independent organization whose exclusively humanitarian mission is to protect the lives and dignity of victims of armed conflict and other situations of violence and to provide them with assistance. The ICRC also endeavours to prevent suffering by promoting and strengthening humanitarian law and universal humanitarian principles. Established in 1863, the ICRC is at the origin of the Geneva Conventions and the International Red Cross and Red Crescent Movement. It directs and coordinates the international activities conducted by the Movement in armed conflicts and other situations of violence.



ICRC