

The US Army War College Quarterly: Parameters

Volume 24
Number 1 *Parameters* 1994

Article 10

7-4-1994

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Graham S. Pearson

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Recommended Citation

Pearson, Graham S.. "The Chemical Weapons Treaty: Protective Measures are Essential." *The US Army War College Quarterly: Parameters* 24, 1 (1994). <https://press.armywarcollege.edu/parameters/vol24/iss1/10>

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The Chemical Weapons Treaty: Protective Measures are Essential

GRAHAM S. PEARSON

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The signing of the Chemical Weapons Convention in Paris on 13-15 January 1993 by 130 nations represented a significant and welcome step forward for international security.¹ The Convention, which bans the development, production, acquisition, stockpiling, and use of chemical weapons, is the first multilateral arms control treaty *with verification* to ban an entire class of weapons. Article X addresses assistance and protection against chemical weapons and declares that "nothing in this Convention shall be interpreted as impeding the right of any State Party to conduct research into, develop, produce, acquire, transfer or use means of protection against chemical weapons, for purposes not prohibited under this Convention."²

This article addresses the continuing need for chemical protection as an essential partner to the ban on chemical weapons. There is a direct linkage between the effectiveness of protective measures against chemical weapons and the range of chemicals that, if misused as weapons, present a risk to the Chemical Weapons Convention. The more effective the protective measures, the fewer the chemicals that have military utility to a potential aggressor. Likewise, the fewer the number of chemicals that are useful as weapons, the fewer the number that present a risk to the Convention and the easier it will be to control these chemicals with arms and export controls. The value of chemical weapons to a potential aggressor is made more uncertain both by the reduced utility arising from more effective protection and by the increased difficulty and risk associated with acquiring chemical weapons under taut arms and export controls. Our desire to strengthen national and

international security demands that we pursue this symbiotic relationship of effective protective measures and intrusive arms control; pressures to reduce protection and to dilute the hard-won provisions of the Chemical Weapons Convention must be resisted.

The Chemical Weapons Convention

Scope. The Chemical Weapons Convention that opened for signature in Paris in January 1993 covers all chemicals employed as chemical weapons and has provisions for chemicals that may be developed or present a risk in the future. It is thus a truly comprehensive agreement. Article II defines chemical weapons as the following, together or separately:

- a. Toxic chemicals and their precursors, except where intended for purposes not prohibited under this Convention, as long as the types and quantities are consistent with such purposes.
- b. Munitions and devices, specifically designed to cause death or other harm through the toxic properties of those toxic chemicals specified in subparagraph a, which would be released as a result of the employment of such munitions and devices.
- c. Any equipment specifically designed for use directly in connection with the employment of munitions and devices specified in subparagraph b.³

It goes on to define toxic chemicals as

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

Verification. The verification regime, in an annex of more than 100 pages to the Convention, focuses on those materials that present the greatest risk to the Convention.⁵ In addition, the provisions for routine inspection are complemented by provisions for challenge inspection of any site. The onus

Dr. Graham S. Pearson is Director General of the Chemical and Biological Defence Establishment at Porton Down, Salisbury, Wiltshire, England. He took his B.Sc. in chemistry and his Ph.D. at the University of St. Andrews, St. Andrews, Scotland. He then did two years of postdoctoral research at the University of Rochester, Rochester, New York, before returning to the UK to join the Rocket Propulsion Establishment in 1962. He was Director General Research and Development in the Royal Ordnance Factories before coming to Porton Down in 1984. In recent years he has participated in negotiations relating to both chemical and biological weapons arms control. He has contributed to *Biological Weapons: Weapons of the Future?* (1993), *US Security in an Uncertain Era* (1993), and *Non Conventional Weapons Proliferation in the Middle East* (1993).

in these challenge inspections is clearly on the inspected state to satisfy the concerns of the challenging state and of the Organization for the Prohibition of Chemical Weapons.⁶ Although the verification regime is not as intrusive as the United Kingdom—and others—would have liked,⁷ it is important to elaborate these detailed procedures in such a way that the regime is as effective as possible. The more intrusive the challenge regime, the more difficult it is for a State Party seeking to evade the provisions of the Convention to conceal its prohibited activities.

The verification regime needs to minimize the potential for concealment of prohibited activities. This elaboration will be carried out by the Preparatory Commission which began its work in The Hague in February 1993. The aim of the Preparatory Commission is to have the Convention worked out fully by the time it enters into force, which occurs 180 days after 65 states have ratified the Convention, but not less than two years from the date at which the Convention opened for signature.⁸ The earliest possible date for entry into force was thus the early spring of 1995; it is now clear that entry into force will be later in 1995 or possibly 1996. The Convention then allows ten years in which to destroy existing stocks of chemical weapons and chemical weapons production facilities. In the event of difficulties in destruction of chemical weapons, there is a provision for possible extension of this deadline to 15 years at most after the Convention's entry into force.⁹

Proliferation. Although 144 nations endorsed the text of the Chemical Weapons Convention at the General Assembly of the United Nations in November 1992, only 130 states signed in Paris. About 60 additional states were invited to sign but did not do so, including some that are assessed as having or seeking to acquire chemical weapons. The United Kingdom Defence White Paper of July 1992 notes that some 20 states are considered either to have or to be seeking to acquire a chemical weapons capability.¹⁰ In February 1993, James Woolsey, the US Director of Central Intelligence, said that "more than two dozen countries have programs to research and develop chemical weapons, and a number have stockpiled such weapons."¹¹ There is therefore a continuing threat to security from the chemical weapons capabilities of several nations.¹²

The signing of the Chemical Weapons Convention is an element of the web of deterrence¹³ comprising:

- intrusive chemical arms control
- effective chemical protective measures
- broad chemical export monitoring and controls
- a range of determined national and international responses to non-compliance

The purpose of this web of deterrence is to encourage nations considering the acquisition of chemical weapons to judge that such acquisition or the use of chemical weapons will be politically unacceptable.

Assistance and Protection. Article X of the Convention is concerned with assistance and protection against chemical weapons. It not only makes it clear that the Convention in no way impedes the right of States Parties to develop protective measures, it provides for assistance on chemical protective measures to be offered to other States Parties. Each State Party undertakes to facilitate, and shall have the right to participate in, the fullest possible exchange of equipment, material, and scientific and technological information concerning protective measures against chemical weapons. Moreover, there is a requirement in Article X for the annual provision of information on national programs related to protective measures to increase the transparency of such programs;¹⁴ this requirement will necessitate a declaration comparable to the confidence-building measure on biological defence programs.¹⁵

Protective Measures Against Chemical Weapons

Historical Considerations. Chemical weapons have historically been used against unprotected personnel. In World War I, the initial use of chemical weapons against Allied forces led to the rapid development of protective measures. Since World War I, chemical weapons have been used against unprotected personnel in Abyssinia in the 1930s, in Southeast Asia, and at least twice during the 1980s: in the Iraq/Iran conflict and by Iraq against the Kurds in the north of the country.¹⁶

Chemical weapons were not used in World War II, nor were they used by Iraq against the Coalition forces in the Gulf War of 1990-91. The reasons chemical weapons were not used in these two instances are complex, but the ability of states to provide their armed forces with effective protective measures undoubtedly contributed to an awareness that the use of chemical weapons might have limited military utility. In the case of the Gulf War, the Coalition placed great emphasis on deterring Saddam Hussein from using his weapons of mass destruction; the facilities associated with those weapons were among the earliest targets in the bombing campaign.¹⁷

Protective Measures. Personnel without protection are vulnerable to any toxic material. As soon as some effective protection is provided, the range of materials that can be used by a potential aggressor is reduced. If the target population has a wide range of effective protective measures, an aggressor will be uncertain as to whether his chemical weapons capability will have military utility and, indeed, may conclude that using his chemical weapons will not give him a significant, worthwhile military advantage.

Effective protective measures are necessary for the armed forces of any state that may be exposed to the use of chemical weapons against them. In addition to the 20 states that are assessed to have or to be seeking to acquire chemical weapons, it should also be recognized that in regional conflicts such as that in the former Republic of Yugoslavia, there is a risk that the parties involved may seek to use any toxic chemicals—such as industrially available

chemicals—to gain a perceived advantage against both military and civilian personnel. There is a wide potential spectrum of chemical and biological agents, and the thrust of work on protective measures is to produce broad-band defensive measures that are effective against as much of the spectrum as possible.¹⁸

The Range of Protective Measures. Protective measures embrace a range of activities and are not limited to the use of respiratory protection, important though that is. Work to address new, potential hazards that the use of chemicals may present is of particular importance. Such hazard assessment leads not only to advice on operations and tactics to minimize the hazard but also to determining the performance criteria needed for effective detection and protection. In addition, such studies are vital to develop concepts for using and deploying detection and protection equipment.

The first element of the essential range of protective measures is a means of detecting the approach of a hazardous concentration before the target personnel have inhaled a harmful amount. Once warning has been given, physical protection needs to be donned or collective protection facilities entered. The principal element of physical protection is the respirator, since most chemical agents affect through the respiratory tract; some chemical agents, such as mustard and the nerve agents, are effective through the skin, and protective suits need to be donned if there is a potential threat from these agents. The hazard then needs to be monitored so that physical protection can be relaxed as soon as it is safe to do so. Contamination control is needed should persistent agents have been used in the attack. Last, but by no means least, medical countermeasures need to be available either as pretreatment or prophylaxis to improve the protection of the body prior to an attack or to administer therapy after exposure to an attack.

The aim of protective measures is to provide effective protection against the most probable challenge; a balance needs to be struck between the degree of protection and the assessed severity of the attack. The aim is to optimize the level of protection without incurring an unacceptable physiological burden. Finally, protective measures must not be made available to potential aggressors, as the availability of the protective measures will enable the aggressor to evaluate those measures, determine their performance characteristics and vulnerabilities, and hence know how to modify his chemical weapons so as to defeat the protection. After all, a state having a chemical weapons capability will seek to improve that capability through the use of new agents with increased toxicity, improved delivery means, or the identification of materials that defeat protective measures. The vulnerabilities and performance characteristics of protective measures therefore need to be safeguarded.

This is not incompatible with the requirement in the Chemical Weapons Convention that States Parties undertake to facilitate, and shall have

the right to participate in, the fullest possible exchange concerning protective measures against chemical weapons. Individual states currently consider on a case-by-case basis what information and material to release to other states. "Fullest possible exchange" reflects decisions made by the individual states concerned in the exchange, having taken into account their individual national security concerns.

The argument that work on protective measures can be readily misused for offensive purposes is false on several counts. First, states that have abandoned offensive chemical weapons will have instituted policies that cease all such work and, following the signing of the Chemical Weapons Convention, states intending to ratify that Convention will enact national legislation to make work on chemical weapons a criminal offence.¹⁹ Consequently, the national norm will rapidly reach a situation in which chemical weapons play no part. Additionally, states that have genuinely abandoned chemical weapons will have nothing to hide; they should be ready and willing to demonstrate the abandonment of their offensive chemical weapons program.

Second, although technically work on protective measures to provide defence against chemical weapons requires an understanding of how such weapons might be used and what their effects might be, this is very different from developing the capabilities required to produce, disseminate, and use chemical weapons in a militarily effective way. Undertaking the latter would risk international opprobrium and possible responses should such prohibited work be detected. The understanding that is needed to devise effective protective measures also will contribute to maintaining the effectiveness of the Chemical Weapons Convention. Such an understanding will ensure that lists of chemical agents are up to date and so avoid the danger that over time the Convention might become focused on the prohibition of obsolete chemical weapons rather than ensuring the continuing prohibition of whatever chemicals present a risk to the Convention.

Chemical Arms Control and Protection: The Vital Partners

The Chemical Weapons Convention alone cannot guarantee that no state will seek to acquire chemical weapons. Some states may not sign the Convention; others that do sign the Convention may convince themselves that there are loopholes in it which can be exploited, or they may covertly break out from the Convention. The Convention alone is unlikely to deter a determined cheater.

This points again to the fact that there is a direct linkage between the Chemical Weapons Convention, the availability of effective protective measures, and improved national and international security. As the effectiveness of protective measures increases, the utility of traditional chemical warfare agents is reduced, and potential aggressors will be forced to develop

“The Chemical Weapons Treaty alone cannot guarantee that no state will seek to acquire chemical weapons.”

and acquire advanced agents whose utility as chemical weapons will be much less certain.

The better the protective measures available, so the range of chemicals that may be used effectively is significantly reduced. Protective measures that reduce the range of chemicals which could be used effectively directly reduce the range of chemicals that need to be addressed by arms and export controls. In addition, as the effectiveness of protective measures increases, a potential aggressor who seeks to acquire an effective chemical weapons capability will be forced to obtain larger quantities of agent, which will be harder to conceal under the more intrusive verification regime of the Chemical Weapons Convention. There is clearly a complimentary partnership between the maintenance of effective protective measures and the effectiveness of the Chemical Weapons Convention.

These direct relationships between the effectiveness of protective measures and the effectiveness of the Chemical Weapons Convention establish the need to maintain the effectiveness of protective measures after the entry into force of the Chemical Weapons Convention.²⁰ Any tendencies to relax chemical protection must be resisted. Such relaxations would serve to insidiously start to undermine and reduce the effectiveness of the Chemical Weapons Convention. The range of materials that might be used by an aggressor would increase, as would the ease of cheating under the Convention.

The effectiveness of verification measures in the Chemical Weapons Convention and the effectiveness of protective measures together produce a greatly enhanced deterrent effect. As the Chemical Weapons Convention becomes more intrusive, the probability of detection of noncompliance increases and the deterrent effect upon states contemplating acquisition of chemical weapons will be significantly greater. In a closely similar way, the more effective the protective measures are, the greater is the uncertainty of the utility of chemical weapons to a potential aggressor. Additionally, of course, the Convention can be effective only in detecting and deterring States Parties to the Convention; it will have no effect on those who do not sign, who fail to ratify the Convention, or who cheat.

The Way Ahead

Any relaxation in providing effective protective measures against chemical warfare agents would be destabilizing and would reduce security. Relaxation would increase the potential utility of chemical weapons to an aggressor and might lead such a state to judge that chemical weapons would provide sufficient tactical advantage over a potential enemy to justify the risk of the associated opprobrium. There is, therefore, no justification for any relaxation in pursuing protective measures against chemical weapons for the foreseeable future.

It is important now to work with the Preparatory Commission to ensure that the provisions of the Chemical Weapons Convention are made as effective and strong as possible. The Convention needs to enter into force at the earliest possible date in 1995, and states have been encouraged to ratify the Convention as soon as possible. Following the Convention's entry into force, confidence needs to be gained that declarations are full and correct, that the verification regime is indeed effective, and that chemical weapons and chemical weapon production facilities have been declared and are being destroyed by all States Parties assessed to possess chemical weapons.

There is at present no indication that the proliferation of chemical weapons has declined or ceased. Although to date over 150 states have now signed the Convention, not all nations assessed as having or seeking to acquire chemical weapons have signed it. At this writing only 14 nations have lodged their instruments of ratification to the Convention. There is a long way to go before all nations have become States Parties, and even then those possessing chemical weapons have ten to 15 years to destroy any declared chemical weapons or chemical weapon facilities. The verification regimes of the Convention need yet to be established and confidence gained in the effectiveness of those regimes and of the Convention. There remains therefore a continuing and compelling requirement for effective protective measures for the foreseeable future.

The Chemical Weapons Convention and the maintenance of effective protective measures are vital partners. Together they will enhance both national and international security by helping to rid the world of the threat of chemical weapons. Together these measures should cause potential aggressors to conclude that the acquisition and use of chemical weapons will be not only politically unacceptable but militarily ineffective.

NOTES

1. United Nations, *Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction* (United Nations, 1993, 93-05070). Hereinafter referred to as *CW Convention 1993*.

2. *Ibid.*, p. 36. Article X, "Assistance and Protection against Chemical Weapons." A State Party is a state that has ratified or acceded to a treaty.

3. *Ibid.*, p. 4. Article II, "Definitions and Criteria."
4. *Ibid.*
5. *Ibid.*, pp. 54-166, "Annex on Implementation and Verification" (Verification Annex). The annex has 11 parts which address Definitions, General Rules of Verification, and General Provisions for Verification Measures relating to initial inspections and facility agreements. Other parts of the annex address the main areas of the Convention—destruction of chemical weapons, chemical weapon production facilities, regimes for activities not prohibited under the Convention, challenge inspection, and investigations of alleged use of chemical weapons. Also see schedules in pp. 47 to 53, "Annex on Chemicals." Schedule 1 lists chemicals that have been used as chemical weapons or present a high risk to the Convention *and* have little or no use for purposes not prohibited under the Convention. Schedule 2 chemicals present a risk to the Convention or may be used as a precursor to Schedule 1 chemicals *and* are not produced in large commercial quantities for purposes not prohibited under the Convention. Schedule 3 chemicals present a risk to the Convention *and* may be produced in large commercial quantities for purposes not prohibited under the Convention.
6. *Ibid.*, p. 33, Article IX, "Consultations, Cooperation and Fact-Finding." Paragraph 11 states that following a request for a challenge inspection, the inspected state party shall have "the right and the obligation to make every reasonable effort to demonstrate its compliance with this Convention."
7. See, for example, John Walker, "Challenge Inspections and Intrusiveness," in *Chemical Disarmament and US Security*, ed. Brad Roberts (Boulder, Colo.: Westview Press, 1992), p. 91.
8. *CW Convention 1993*, p. 45, Article XXI, "Entry into Force" para. 1.
9. *CW Convention 1993*, p. 11, Article IV, "Chemical Weapons" para. 6. The possible extension to 15 years is in the Verification Annex, p. 89, para. 26.
10. *Statement on the Defence Estimates 1992*, Cm. 1981 (London: HMSO, July 1992), p.7, para 104.
11. R James Woolsey, Director of Central Intelligence, Senate Committee on Governmental Affairs, "Proliferation Threats of the 1990s," 24 February 1993.
12. A useful appreciation of chemical weapon possessor states is given in US House of Representatives, Committee on Armed Services, "Countering the Chemical and Biological Weapons Threat in the Post-Soviet World," Report of the Special Inquiry into the Chemical and Biological Threat, 102d Cong., 2d sess., 23 February 1993, Committee Print No. 15, pp. 9-14. This study indicates that six states in the "known, probable, or possible" categories and five states in the "doubtful" category had not signed the Chemical Weapons Convention as of 15 January 1993.
13. Graham S. Pearson, "Prospects for Chemical and Biological Arms Control: The Web of Deterrence," *The Washington Quarterly*, 16 (Spring 1993), 145.
14. *CW Convention 1993*, p. 36. Article X, "Assistance and Protection Against Chemical Weapons," para. 3, provides for the fullest possible exchange of equipment and information, while para. 4 requires annual information on national programs related to protective purposes.
15. United Nations, *The Third Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction*, Geneva, 9-27 September 1991, Final Document, BWC/CONF.III/23 (Geneva: United Nations, GE.91-62715—Jan 1992-500).
16. Historical appreciations of chemical weapons are numerous. See for example Robert Harris and Jeremy Paxman, *A Higher Form of Killing* (London: Chatto and Windus, 1982); Brad Roberts, "Chemical Disarmament and International Security," *Adelphi Paper 267* (London: IISS, Spring 1992), p. 6; and G. B. Carter, *Porton Down: 75 Years of Chemical and Biological Research* (London: HMSO, 1992).
17. *Statement on the Defence Estimates, Britain's Defence for the 90s*, Vol. I, Cm. 1559-I (London: HMSO, July 1991), p. 17, para. 205, and H. Norman Schwarzkopf, *It Doesn't Take a Hero* (New York: Bantam Press, 1992), p. 389.
18. Graham S. Pearson, "The Technical Challenge to Counter the CBW Spectrum," Third International Symposium on Protection against Chemical Warfare Agents, Umea, Sweden, 11-16 June 1989, pp. 375-83.
19. An analogy is the Biological Weapons Act (1974) that was passed by the UK Parliament to implement nationally the Biological and Toxin Weapons Convention of 1972 prohibiting the development, production, stockpiling, and acquisition of biological weapons. The act makes it a criminal offence for anyone in the United Kingdom to work on biological weapons.
20. See for example, G. H. Cooper, "The Importance of Protection and Detection following a Chemical Weapons Convention," in *Proceedings of the 3d International Symposium on Protection against Chemical Warfare Agents*, Umea, Sweden, 11-16 June 1989, pp. 385-90. Also see the following, all from the *Proceedings of the 4th International Symposium on Protection against Chemical Warfare Agents*, Stockholm, Sweden, 8-12 June 1992: Peter Dunn, "Chemical Defence and Chemical Disarmament—The Need for Both Activities," pp. 9-27; Graham S. Pearson, "The Continuing Need for Chemical and Biological Defence Following a Chemical Weapons Convention," pp. 353-58; and Georges Fulachier, "The Future of Chemical Defence: The Next Decade Time Frame," pp. 359-63.