CSS Analysis in Security Policy

CSS ETH Zurich

No. 122 • October 2012

THE CHEMICAL WEAPONS BAN: STATUS AND PROSPECTS

The Chemical Weapons Convention (CWC) has been in effect since 1997. Its aim is to eliminate completely that category of weapons of mass destruction, and it not only proscribes the use of chemical agents, but also their development, production, transfer, procurement, and stockpiling. The CWC treaty regime does, however, have several deficiencies: Membership is not universal; chemical disarmament is lagging behind the timetable; and the inspections regime has certain weaknesses.

Chemical weapons inspectors of the OPCW during an exercise. *Photo: OVCW.*

Recent international news headlines have reflected the fear that the regime of Basher al-Assad might use its chemical weapons against the rebels in Syria's civil war, or that terrorist groups might acquire chemical agents following a collapse of public order in the country. Indeed, chemical weapons can have devastating effects in particular when used against unprotected civilians. Even small quantities of nerve agents such as sarin can be fatal if inhaled, just as contact with blister agents such as mustard gas can cause the death of the victims. The armed forces of advanced industrial countries, on the other hand, can protect themselves effectively against chemical weapons. For them, the main challenge is to have sufficiently early warning of a hostile deployment of chemical agents to allow their own troops to don protective gear in time. These protective suits are very effective, although they restrict the mobility of the soldiers and cause difficulties in extreme climatic zones such as deserts.

Overall, nuclear and even biological weapons have the potential to cause far greater damage than chemical weapons. This may be one of the reasons why the latter have been getting somewhat less attention in international politics in recent years. Even more important, however, has been the perception that the entry into force of the Chemical Weapons Convention (CWC) in 1997 seemed to have solved the problem. After all, the CWC stipulates a comprehensive ban on chemical weapons. The convention has indeed been an important milestone towards creating a world free of weapons of mass destruction (WMD). However, it has some weaknesses that diminish its efficiency. For instance, not all states are party to the CWC. Syria, for example, has not joined it. Furthermore, not all chemical stockpiles have been destroyed yet. Finally, the inspections regime, though quite sophisticated, has certain pitfalls when it comes to implementation.

The chemical weapons ban

The CWC was signed by 130 states in Paris on 13 January 1993. After Hungary had deposited the 65th instrument of ratification on 1 November 1996, the convention entered into force on 29 April 1997. The CWC is the first convention to ban an entire category of WMD and to stipulate their destruction under international verification. Article I prohibits the development, production, and stockpiling as well as the transfer of chemical weapons. Chemical weapons are defined as all toxic chemicals and their precursors, except where intended for purposes not prohibited under the CWC (Art. II). This general purpose criterion

A brief history of chemical weapons

- In World War I, both German and Allied troops used tear gas as well as the pulmonary agents chlorine gas and phosgene from 1915 onwards. From 1917 onwards, both sides also deployed the newly developed mustard gas. The use of chemical agents in WWI caused about 90'000 deaths and around 1 million injuries.
- After end of the war, efforts were intensified to ban this category of weapons. On 17 June 1925, the Geneva Protocol was signed that outlawed the deployment of chemical and bacteriological weapons, though not the production and possession of the same.
- In the mid-1930s, Nazi Germany developed the significantly more effective nerve agents tabun, sarin, and soman. However, during WWII, none of the combatants in the European theatre of war deployed chemical weapons, though Germany's opponents also had huge stockpiles of chemical weapons (but no nerve agents) at their disposal.
- During the Cold War, chemical weapons were a factor in the East-West conflict. Both the US and the Soviet Union produced enormous amounts of chemical agents. Also, new nerve agents were developed that had greater effects and longer persistency, such as VX in the US and Novichok agents in the Soviet Union.
- Beginning in the 1970s, the danger of chemical weapons proliferating to more and more states increased. During the Iran-Iraq War of 1980-88, Saddam Hussein deployed chemical weapons against the numerically superior Iranian armed forces. In March 1988, he used nerve agents against his own population in the mainly Kurdish town of Halabja, killing several thousand people.
- In 1995, the Aum sect carried out an attack on the Tokyo underground system using the nerve agent sarin. Twelve people were killed and several hundred injured.

is intended to ensure that all chemicals are covered that could be used as warfare agents, regardless of scientific and technical progress. A more restrictive definition would have risked leaving loopholes in a general ban for chemical compounds that were still unknown at the time of ratification.

Unlike any other disarmament and non-proliferation treaty, the CWC has a dedicated agency founded specifically for its purposes, the Organisation for the Prohibition of Chemical Weapons (OPCW), headquartered in The Hague. It consists of a Conference of the States Parties, an Executive Council to which 41 signatory states are elected for two year at a time according to a regional distribution key, and a Technical Secretariat headed by the OPCW director-general. The OPCW supervises the destruction of chemical agents and the related production facilities, carries out inspections of the chemical industry, supports the national implementation of CWC rules, coordinates protection and aid measures for the victims of chemical weapons attacks, and facilitates cooperation in the peaceful use of chemical agents.

In the first years of the CWC's implementation, the OPCW primarily focused on the verification of the destruction of huge chemical weapons arsenals in Russia and the United States. As work in this area progresses, the organisation is gradually changing from a chemical disarmament authority into a chemical weapons non-proliferation agency. The number of inspectors has already been reduced. Practically all states parties are under tremendous financial pressure and are therefore pushing for the OPCW budget to be reduced from currently (2012) more than €70 million. Also, countries that have large chemical industries but are not suspected of producing chemical weapons want to keep the costs resulting from inspections in civilian facilities as low as possible.

Membership is not universal

Currently, the CWC has 188 states parties. Only a small group of countries refrained from joining: Angola, Egypt, Israel, Myanmar, North Korea, Somalia, Southern Sudan, and Syria. Some of them have no or almost no chemical infrastructure. Others, such as Egypt, are suspected of possessing chemical weapons and not wanting to abolish them. Of particular concern is the Syrian chemical weapons programme, which is believed to be considerably more substantial. Though the facts are generally unclear, Damascus probably has not only mustard gas, but also nerve agents such as sarin and VX at its disposal. These agents may have been weaponised for delivery by artillery shells, but possibly also by warheads for SS-21 short-range missiles. Both Egypt and Syria argue that they will only join the CWC when Israel joins the Nuclear Non-Proliferation Treaty and gives up the nuclear weapons it is suspected of possessing. Israel for its part is also suspected of maintaining a chemical weapons program. An international conference scheduled for December 2012 on the creation of a WMD-free zone in the Middle East – if it takes place at all – is not expected to yield any sweeping results for the region. North Korea has also been working on chemical agents since the 1950s. Pyongyang may possess several thousand tons of these, including nerve agents. It is believed that chemical agents are stored at artillery emplacements near the border with South Korea.

The OPCW is changing from a chemical disarmament authority into a chemical weapons non-proliferation agency.

Non-state actors, too, are interested in acquiring chemical agents. The best-known case has been that of the Japanese Aum sect, which distributed sarin gas in Tokyo's subway system in March 1995. However, the nerve agent was of low quality; also, the terrorists were remarkably inept. Nevertheless, they killed 12 people and injured several hundred. Al-Qaida, too, has apparently repeatedly expressed an interest in chemical agents, although there are no indications that it has managed to acquire any.

Delays in destroying chemical stockpiles

Originally, according to the CWC, all chemical weapons had been scheduled to be destroyed within ten years of the CWC's entry into force, i.e., by April 2007. However, as it turned out, this deadline was too ambitious. Therefore, the parties to the convention extended it by a five-year period until April 2012, as allowed for under the CWC. But this date also passed without Russia, the US, and Libya having destroyed all their chemical stockpiles.

The political will of the parties concerned to liquidate their chemical weapons arsenals was not in doubt, though. Rather, the delays were due to unexpectedly high costs, high safety and environmental standards, and local resistance to the facilities for chemical weapons destruction. In December 2011, the Conference of the States Parties therefore permitted the US, Russia, and Libya to complete the destruction of their stockpiles at the earliest possible date while observing special reporting and verification procedures and presenting a detailed schedule for destruction. Unusually, this decision was not

passed unanimously, since Iran regarded the delay as a violation of the treaty and voted against the extension.

The Russian chemical arsenal was by far the greatest, with declared 40'000 tons of agents. Moscow had already been receiving international assistance for chemical disarmament since the early 1990s, which was further intensified beginning in 2002. At the end of the same year, the destruction of Russia's chemical weapons began. In the meantime, Russia has destroyed more than 60 per cent of them in six destruction facilities. In two of these locations, the process has already been completed. Four facilities remain operational, while construction of the last planned destruction facility has yet to be completed. Moscow aims to have destroyed all chemical agents by the end of 2015.

The US declared the second-largest stockpile of chemical weapons with 28'500 tons of agents. Destruction already began in the summer of 1990 on the Johnston Atoll. There were delays due to technical problems and later because of a lack of funding by the George W. Bush administration. In the meantime, about 90 per cent of the agents have been liquidated in seven destruction facilities. The remainder of about 2'700 tons are to be destroyed by 2023 at the latest in two facilities that have yet to be built in Pueblo, Colorado and Blue Grass, Kentucky. Commissioning of both of these installations has been delayed repeatedly by strict environmental regulations and protests by local residents.

After Muammar Ghaddafi's basic decision in 2003 to abandon all WMD programs, Libya declared about 18 tons of chemical agents. During the civil war of 2011, destruction of these stockpiles was interrupted. After the end of the Ghaddafi regime, further undeclared depots of chemical agents were discovered. Iraq for its part did not join the CWC until 2009 and has yet to begin with the destruction of its small quantities of agents. On the other hand, chemical disarmament efforts have been successfully concluded in India (about 1'000 tons of agents), South Korea (about 600 tons), and Albania (about 14 tons). Altogether, more than 75 per cent of the chemical weapons reported by treaty members have already been destroyed.

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Three categories of chemical weapons

Pulmonary agents: These attack the human lung directly, disrupting the supply of oxygen to the body with deadly effects. Pulmonary agents include chlorine and phosgene, which were used in WWI from 1915 onwards. Effective protection is possible using gas masks.

Blister agents: The damage these weapons do to the human skin may be lethal, depending on the exposed skin surface. The best-known blister agent is mustard gas, which was developed during WWI and deployed from 1917 onwards. A full-body protective suit can ward of their effects.

Nerve agents: These block an enzyme in the human nervous system, paralysing important parts of the body. They also trigger severe muscle cramps. Among the nerve agents developed during WWII and the 1990s are sarin (GB), tabun (GA), soman (GD), and VX. Here, too, only a full-body protective suit offers protection.

The CWC also stipulates the destruction of old chemical weapons, i.e., those produced before 1945. Such agents continue to be found occasionally in the course of construction and clearing work. Also, the CWC covers the destruction of former production facilities for chemical weapons. Such installations have been declared not only by states possessing chemical agents, but also by seven other states parties. Facilities formerly used for the production of chemical agents may be converted to peaceful use, subject to compliance with certain regulations.

Weaknesses of the inspections regime

In order to ensure that the chemical weapons ban can be properly verified, the states parties have to adopt effective national legislation measures. Only then can OPCW inspectors, for instance, get access to privately owned industrial sites. Moreover, a national authority must be appointed as the point of contact for the OPCW. Finally, national laws are required that set penalties for violations of the CWC by private individuals. Such regulations include export controls as well as penal law that targets individuals who illegally acquire chemical agents. Although the OPCW offers comprehensive assistance to the states parties in implementing the convention, more than half of them have yet fully to adapt their legislation.

The focus of the OPCW verification activities currently still is on destruction of chemical weapons. One of the main reasons is that monitoring of the three Russian destruction facilities that are in full-time operation requires a continuous presence of inspectors. However, the number of inspections in the chemical industry is on the rise. Here, the purpose is to ensure that no clandestine resumption of chemical weapons programmes takes place. Many chemicals produced on an industrial scale for civilian purposes are also suitable as precursor components for chemical agents (dual-use goods).

In order to limit the effort of inspection, the CWC defines three lists of chemicals according to their hazardousness. Together with the definitions of quantities, these lists serve as guidelines to determine which chemical industrial plants must be declared as well as the interval of inspections. About 5'000 chemical plants are relevant for the purposes of the CWC. Significantly more than 2'000 routine inspections have been carried out in chemical plants in 80 countries so far. Though this verification regime is in principle quite comprehensive, one of its problems is that the lists do not reflect the advances in chemistry made since entering into force of the CWC. Also, the CWC verification regime must keep pace with the constantly growing number of chemical facilities.

In addition to the routine inspections, the CWC stipulates the option of conducting challenge inspections. These may be requested by any party to the convention. The OPCW Executive Council can prevent challenge inspections from being carried out with a three-quarter majority. Challenge inspections, which have only very short lead time, may in principle take place at any location on the territory of a state party, not only in declared facilities. However, although there have been repeated doubts as to the compliance of individual member states with the CWC's terms, no challenge inspections have so far been requested. Presumably, state parties are concerned about having to disclose intelligence sources to justify their initial suspicion, or they are afraid of public embarrassment should their suspicions prove to

be unfounded. This reticence has weakened the CWC inspections regime, because challenge inspections were originally conceived as a "safety net" in addition to routine inspections.

In April 2013, the third CWC Review Conference will take place. It could become an important milestone in the development of one of the most important global nonproliferation regimes. In addition to the destruction of chemical agents and the continued strengthening and adaptation of the inspections regime to a changing environment, the main focus of efforts should be on implementing the CWC in all countries, if possible.

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ISSN: 2296-0244

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