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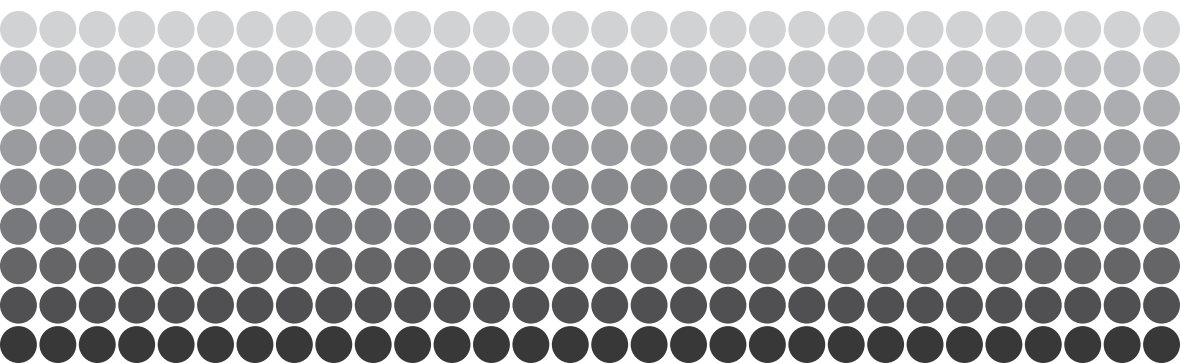
SIPRI YEARBOOK 2013

Armaments, Disarmament and International Security

Chemical weapon arms control and disarmament

JOHN HART



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II. Chemical weapon arms control and disarmament

JOHN HART

Although the deadline for the final destruction of chemical weapons under the 1993 Chemical Weapons Convention (CWC) passed on 29 April 2012, destruction continued in four states and this remained the primary focus of the CWC regime.[1] No new states joined the CWC in 2012. As of 31 December, 188 states had ratified or acceded to the convention; 2 states had signed but not ratified it; and 6 states had neither signed nor ratified it.[2]

Developments in the OPCW and the Conference of States Parties

The 17th Conference of the States Parties (CSP) approved a 2013 programme and budget of €69 803 800 ($92.7 million) of which €32 166 900 ($42.7 million) is devoted to verification costs.[3] Many delegates at the CSP expressed regret at the lack of full implementation of national obligations by some states parties. As of 27 July 2012, 88 parties (47 per cent) had put in place legislation that covers all key areas of CWC implementation obligations.[4] Since the numbers are self-reported, the actual status may be worse. The Organisation for the Prohibition of Chemical Weapons (OPCW) Technical Secretariat launched a pilot programme to facilitate exchanges between national authorities (e.g. financial support and technical advice) that entails 'twinning' of authorities.[5] The Technical Secretariat continued to develop various model legislation packages for the benefit of parties that are at the start of this process.[6]

As part of efforts to achieve universal membership, the Director-General of the OPCW, Ahmet Üzümcü, held bilateral consultations with officials from four non-parties: Angola, Myanmar, Somalia and South Sudan. Myanmar also agreed to receive a technical assistance visit in early 2013.[7] North

[1] For a summary and other details of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction see annex A in this volume.

[2] The states that had signed but not ratified the CWC were Israel and Myanmar. The UN member states that had neither signed nor ratified the convention were Angola, Egypt, North Korea, Somalia, South Sudan and Syria.

[3] OPCW, 'Programme and budget of the OPCW for 2013', Decision, C-17/DEC.4, 27 Nov. 2012, para. 3(c). Excluding the line item for the Third CWC Review Conference, the 2013 budget is 1.1% less than that of 2012. Documents relating to the CWC can be found on the website of the Organisation for the Prohibition of Chemical Weapons (OPCW), <http://www.opcw.org/documents-reports/>.

[4] OPCW, Conference of the States Parties, 'Status of implementation of Article VII of the Chemical Weapons Convention', Report by the Director-General, EC-70/DG.4, C-17/DG.7, 28 Aug. 2012, p. 2. See previous editions of the SIPRI Yearbook for corresponding figures in prior years.

[5] OPCW, Conference of the States Parties, 17th Session, Opening statement by the Director-General, C-17/DG.16, 26 Nov. 2012, para. 99.

[6] OPCW, C-17/DG.16 (note 5), para. 101.

[7] OPCW, C-17/DG.16 (note 5), para. 126.

Korea continued to ignore the OPCW's outreach efforts, while prior informal contact with Syria remained in abeyance due to the ongoing civil war in that country. Israel, a signatory to the convention, stated that it 'attaches great importance to the Chemical Weapons Convention and supports its goals' and that it 'look[s] forward to continuing our constructive dialogue with the OPCW'. While Israel generally refrains from issuing official statements regarding its policy on achieving a zone free of weapons of mass destruction (WMD) in the Middle East, it stated at the CSP that its approach to regional security and arms control 'is rooted in its belief that all security concerns of regional members should be considered and addressed within the regional context' and that the prerequisites for a WMD-free zone in the Middle East include 'comprehensive and durable peace between the regional parties, and full compliance by all regional States with their arms control and non-proliferation obligations'.[8] Although an international conference on a WMD-free zone in the Middle East was scheduled to be held in December 2012, hosted by Finland, the co-sponsors announced in November that, since some states in the region had not agreed to participate, it would be delayed.[9] Iran refuses direct negotiations with Israel, and the other states in the region generally wish to agree various preconditions to talks on a WMD-free zone, including by linking nuclear, biological and chemical weapons.

On 27 November 2012 the OPCW and the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) signed 'interface procedures' for, among other things, the coordination of assistance activities during response to emergencies involving the use or threat of use of toxic chemicals as a method of warfare.[10] The OPCW and the UN also concluded a supplementary arrangement to their Relationship Agreement that establishes the 'necessary modalities' for carrying out an investigation of alleged chemical weapon use if requested by the UN Secretary-General.[11] The OPCW carried out one challenge inspection exercise in 2012, in the United Kingdom on 1–4 October (named 'McCavity'). It also carried out an investigation of alleged chemical weapon use on 8–20 October in Serbia.[12] A comprehensively revised inspection manual was also issued in 2012.[13]

[8] OPCW, Conference of the States Parties, 17th Session, 'Israel: statement by Mr Eyal Propper, Director arms control policy department, Ministry of Foreign Affairs', C-17/NAT.15, 27 Nov. 2012, pp. 1–3.

[9] E.g. Russian Ministry of Foreign Affairs, 'Press statement on the 2012 conference on the establishment of a Middle East zone free of weapons of mass destruction', 24 Nov. 2012, <http://www.mid.ru/bdomp/brp_4.nsf/0/FDB6A81FF09D276A44257AC2004D9362>.

[10] OPCW, 'OPCW signs interface procedures with UN OCHA', 27 Nov. 2012, <http://www.opcw.org/news/article/opcw-signs-interface-procedures-with-un-ocha/>.

[11] OPCW, C-17/DG.16 (note 5), para. 10.

[12] OPCW, C-17/DG.16 (note 5), para. 64.

[13] OPCW, C-17/DG.16 (note 5), para. 79.

During 2012 the temporary working groups to the OPCW's Scientific Advisory Board (SAB) examined (*a*) sampling and analysis protocols, (*b*) the convergence of biology and chemistry, and (*c*) education and outreach on science and technology.[14] Üzümcü requested the SAB to establish a new temporary working group devoted to reviewing select aspects of the CWC verification regime, including the chemical industry.[15]

A total of 14 international capacity-building activities in the field of assistance and protection were carried out in 2012 by the Technical Secretariat, which also undertook to maintain and strengthen ties with the chemical industry, partly through a dialogue with the International Council of Chemical Associations (ICCA).[16] The OPCW also participated in a variety of outreach and capacity-building meetings and exercises, including an emergency medical assistance training course held at the Ukrainian Scientific and Practical Centre of Emergency Medical and Disaster Medicine.[17] The Technical Secretariat established the Trust Fund for the International Support Network for Victims of Chemical Weapons in accordance with a decision taken by the 16th CSP in 2011.[18] It also continued to work with the World Customs Organization (WCO) and the Green Customs Initiative to develop an electronic learning module on CWC provisions for customs officers, which was completed in 2012 and expected to be available to the WCO in early 2013.[19]

A scientific subcommittee of the WCO has approved changes to the Harmonized Commodity Description and Coding System (HS) codes for the most traded chemicals. While the WCO codes are based on the HS, the CWC coding is based on Chemical Abstracts Service (CAS) numbers. CAS numbers are used as an aid to identify chemicals on the CWC's Annex on Chemicals and can, in practice, be used to exclude a chemical in its salt form. The HS structure, in contrast, is divided into 21 sections and 96 chapters. Such factors are relevant to consideration of whether and how regulatory and treaty regimes cover controlled chemicals and their precursors.[20]

Finally, a number of review and evaluation activities were carried out, partly in preparation for the Third CWC Review Conference—on 7 June 2012 the Working Group for the Preparation of the Third Review Confer-

[14] On 10 Dec. the SAB temporary working groups on the convergence of biology and chemistry, and education and outreach on science and technology organized a side event at the BTWC's Meeting of States Parties.

[15] OPCW, C-17/DG.16 (note 5), para. 71. The sampling and analysis working group concluded its work in 2013.

[16] OPCW, C-17/DG.16 (note 5), para. 112.

[17] OPCW, C-17/DG.16 (note 5), para. 110.

[18] OPCW, C-17/DG.16 (note 5), para. 114.

[19] OPCW, C-17/DG.16 (note 5), para. 55.

[20] See OPCW, Executive Council, 'Draft report of the OPCW on the implementation of the Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction in 2011', C-17/CRP.1, 11 July 2012, para. 2.18.

ence held its first meeting—and partly to inform longer-term discussions on the balance and focus of activities of the regime as the destruction of declared chemical weapon stockpiles approaches completion.[21]

Destruction of chemical weapons

As of 31 October 2012, 54 258 tonnes of category 1 chemical weapons had been destroyed, representing 78 per cent of the 69 430 tonnes declared.[22] As of December 2012, 13 states had declared 70 former chemical production facilities, of which 43 have been destroyed and 21 converted to peaceful purposes. Seven states have declared chemical weapon stockpiles to the OPCW: Albania, India, Iraq, South Korea, Libya, Russia and the United States. Albania, India and South Korea have destroyed their stockpiles.

Iraq provided additional information on chemical weapons stored in two bunkers at the Al Muthanna Chemical Weapons Complex, including explosive, chemical and physical hazards.[23] On 16 February 2012 the Iraqi Parliament passed the 'Law on the National Monitoring Directorate to prevent chemical, nuclear and biological weapons'.[24]

On 30 July Iraq and the UK signed an agreement whereby specialists from the British Defence Science and Technology Laboratory will train Iraqi personnel at Porton Down, UK, in the safe disposal of the 'remnants of munitions and chemical warfare agents' at the Al Muthanna complex.[25] This will reduce the possibility of exposure during the destruction of Iraqi chemical weapon remnants, which is an ongoing concern. Some suspect that the demolition of an Iraqi weapon depot at Khamisiyah in March 1991,

[21] OPCW, Technical Secretariat, 'Report of the advisory panel on future priorities of the Organisation for the Prohibition of Chemical Weapons' (Ekéus report), S/951/2011, 25 July 2011; OPCW, Conference of the States Parties, 'Report of the Scientific Advisory Board on developments in science and technology for the Third Special Session of the Conference of the States Parties to review the operation of the Chemical Weapons Convention', RC-3/DG.1, 29 Oct. 2012; and Smallwood, K. et al., 'Impact of scientific developments on the Chemical Weapons Convention (IUPAC technical report)', *Pure and Applied Chemistry*, vol. 85, no. 4 (2013). The IUPAC submitted a draft report to the OPCW in late 2012 to help inform its preparations for the 3rd CWC Review Conference. See also OPCW, 'Preparations begin for 3rd Review Conference', 8 June 2012, <http://www.opcw.org/news/article/preparations-begin-for-3rd-review-conference/>.

[22] OPCW, C-17/DG.16 (note 5), para. 18. The CWC's Annex on Chemicals comprises 3 'schedules'. Schedule 1 chemicals consist of chemicals and their precursors judged to have few, if any, peaceful applications. Chemicals listed in schedules 2 and 3 have wider peaceful, including commercial, applications. The definition of chemical weapon categories, which is partly based on what schedule a chemical may be listed under, is given in CWC (note 1), Verification Annex, Part IV(A), para. 16.

[23] OPCW, C-17/DG.16 (note 5), para. 34. For more on the bunkers see Hart, J., 'Chemical weapon arms control and disarmament', *SIPRI Yearbook 2012*, pp. 399–400.

[24] OPCW, Conference of the States Parties, 17th Session, 'Republic of Iraq: statement by H. E. Ambassador Ahmad Bamrani Head of the Department of International Organisations and Cooperation in the Iraqi Ministry of Foreign Affairs, Baghdad', C-17/NAT.32, 26 Nov. 2012, p. 3.

[25] British Embassy Baghdad, 'Chemical weapons disposal', 30 July 2012, <http://ukiniraq.fco.gov.uk/en/news/?view=News&id=794635182>. See also British Defence Science and Technology Laboratory, 'MOD experts to help Iraqis destroy legacy chemical weapons', Press release, 31 July 2012, <https://www.dstl.gov.uk/downloads/Legacy%20Chemical%20Weapons.pdf>.

during the 1990–91 Gulf War, aerosolized the organophosphorus nerve agent sarin and exposed troops in a downwind plume. Some military personnel who fought in the conflict have complained of a variety of ailments, collectively termed Gulf War Syndrome. A 2012 epidemiological study concluded 'current evidence supports long-distance transit', that epidemiologic studies of 'chronic postwar illness' should be reviewed on the basis of whether veterans heard nerve gas alarms as a factor in determining probable exposure and that bombing of the site contributed more to such illness than did post-conflict demolition operations.[26]

As of November 2012 Libya had destroyed 13.5 tonnes (51 per cent of its declared 26 tonnes) of category 1 sulphur mustard chemical weapons.[27] As of the same date, it had destroyed 555.7 tonnes (40 per cent) of its category 2 chemical weapons.[28] In November 2011 Libya revealed the existence of previously undeclared chemical weapons. On 9 February 2012 it formally amended its declaration, which was then verified by OPCW inspectors on 18 April 2012.[29] The destruction of these weapons (mainly empty and sulphur mustard-filled artillery shells) is to start in 2013.[30] The current schedule for Libya is to complete the destruction of category 1 chemical weapons by 31 December 2013, and category 2 chemical weapons by 31 December 2016.[31] Libya will employ a static detonation chamber technology for destruction of the previously undeclared chemical munitions and will hydrolyse the sulphur mustard.[32] Canada announced that it would provide 6 million Canadian dollars ($5.9 million) to support Libya's programme—the largest voluntary offer by a party to the convention since its entry into force in 1997.

As of November 2012 Russia had destroyed 27 653 tonnes (61 per cent) of its declared category 1 chemical weapons and all of its category 2 and 3 chemical weapons. It plans to complete destruction of its stockpile by December 2015.[33] In 2012 four chemical weapon destruction facilities were operating at Leonidovka, Maradykovsky, Pochep and Shchuchye (operations have been completed at Gorny and Kambarka). The last facility, at

[26] Haley, R. W. and Tuite, J. J., 'Epidemiologic evidence of health effects from long-distance transit of chemical weapons fallout from bombing early in the 1991 Persian Gulf War', *Neuroepidemiology*, vol. 40, no. 3 (14 Dec. 2012), pp. 178–89; and Tuite, J. J. and Haley, R. W., 'Meteorological and intelligence evidence of long-distance transit of chemical weapons fallout from bombing early in the 1991 Persian Gulf War', *Neuroepidemiology*, vol. 40, no. 3 (14 Dec. 2012), pp. 160–77. See also previous editions of the SIPRI Yearbook.

[27] OPCW, Conference of the States Parties, 17th Session, 'Libya: annual report on progress achieved towards completion of the destruction of the remaining stockpile of chemical weapons', C-17/NAT.2, 1 Nov. 2012, para. 1.

[28] OPCW, C-17/NAT.2 (note 27), para. 2.

[29] OPCW, C-17/NAT.2 (note 27), para. 3.

[30] OPCW, C-17/DG.16 (note 5), paras 19 and 24.

[31] OPCW, C-17/NAT.2 (note 27), para. 5.

[32] OPCW, C-17/NAT.2 (note 27), para. 7.

[33] OPCW, C-17/DG.16 (note 5), para. 27.

Kizner, was scheduled to start operating in 2013.[34] A minor leak of VX nerve agent occurred in July at Pochep. OPCW officials were on site at the time and an organization official stated that 'The leakage/spill occurred within the toxic area and was handled in a very professional and efficient manner by site personnel'.[35]

As of November 2012 the USA had destroyed 24 924 tonnes (90 per cent) of its declared category 1 chemical weapons, and all of its category 2 and 3 chemical weapons.[36] In 2012 it completed destruction operations at Tooele, Utah.[37] Two chemical weapon destruction facilities remain to be constructed and operated at Blue Grass (Richmond), Kentucky, and Pueblo, Colorado, respectively. The former contains 1.7 per cent of the original US stockpile, while the latter contains 8.5 per cent of the original stockpile.[38] Destruction operations are scheduled to begin at Blue Grass in April 2020 and at Pueblo in December 2015.[39] The USA estimated that it would complete destruction at Pueblo in late 2019 and at Blue Grass in 2023.[40]

Old, abandoned and sea-dumped chemical weapons

As of 2012, 3 countries had declared that abandoned chemical weapons (ACW) are present on their territories, and 15 had declared that they have possessed old chemical weapons (OCW) since the CWC's entry into force.[41] In 2012 OCW inspections were carried out in Belgium, Germany, Italy, Japan and the UK.[42]

[34] OPCW, C-17/DG.16 (note 5), para. 28.

[35] Winfeld, G., 'Watching the watchmen!', *CBRNe World* (Aug. 2012), p. 36.

[36] OPCW, C-17/DG.16 (note 5), para. 31, p. 6.

[37] The final items destroyed were 10 1-ton containers filled with lewisite, 59 M104 projectiles filled with sulphur mustard and 139 M110 projectiles filled with sulphur mustard. Hopkins, A. T., 'US Department of Defense, United States Chemical Demilitarization Program', Presentation at 17th Conference of the CWC States Parties, Nov. 2012, p. 4. The Tooele facility started operations in 1993.

[38] The Kentucky facility contains sarin, sulphur mustard and VX filled into rockets and projectiles. The agents will be destroyed using a neutralization and supercritical water oxidation process. The Colorado facility has mortars and projectiles filled with sulphur mustard that will be destroyed by a process that uses neutralization followed by biotreatment of hydrolysates. Hopkins (note 37), p. 5.

[39] OPCW, C-17/DG.16 (note 5), para. 32, p. 6.

[40] Hopkins (note 37), p. 17; and US Deputy Assistant Secretary of Defense (Threat Reduction and Arms Control), Presentation to OPCW, Executive Council, 68th Session, 1 May 2012.

[41] The 15 countries that have declared OCW are Austria, Australia, Belgium, Canada, France, Germany, Italy, Japan, Poland, Russia, Slovenia, Solomon Islands, Switzerland, the UK and the USA. China, Iran, Italy and Panama have declared ACW. However, the Technical Secretariat determined that the munitions declared by Iran were conventional. Unconfirmed or unidentified unexploded chemical munitions or their remnants may be present on the territory of Iran.

ACW are defined as chemical weapons that were abandoned by a state after 1 Jan. 1925 on the territory of another state without the permission of the latter. CWC (note 1), Article II, para. 6.

OCW are defined as chemical weapons that were produced before 1925 or chemical weapons produced between 1925 and 1946 that have deteriorated to such an extent that they are no longer usable in the manner for which they were designed. CWC (note 1), Article II, para. 5. On other such cases see previous editions of the SIPRI Yearbook.

[42] OPCW, C-17/DG.16 (note 5), para. 39.

On 14–16 May the Helsinki Commission (HELCOM, the Baltic Marine Environment Protection Commission) ad hoc expert group to update and review the existing information on dumped chemical munitions in the Baltic Sea held its fourth meeting.[43]

France announced in 2012 that it will destroy World War I-era OCW and old conventional munitions at the Suippes military base, starting in 2016.[44]

As of November 2012, approximately 75 per cent of the 48 000 ACW that have been recovered thus far in China had been destroyed.[45] (The ACW were abandoned in China by Japan during World War II.) A total of 300 000–400 000 ACW were estimated to be buried at Haerbaling, Jilin province.[46] Japan allocated approximately €200 million ($266 million) in 2012 for the destruction of ACW in China.[47] Two mobile destruction units were employed at several sites in north-east China, while a fixed chemical weapon destruction facility, consisting of a detonation chamber and a static kiln detonation furnace, was used at Nanjing, Jiangsu province. On 11 June 2012 the mobile destruction facility in Nanjing had completed the destruction of all 35 681 chemical weapons (disposal of contaminated waste had yet to be completed).[48] The Nanjing mobile unit will be deployed to Wuhan, Hubei province. Further destruction operations will occur at Shijiazhuang, Hebei province, while excavation and recovery operations will be carried out in Haerbaling. Excavation and recovery operations were conducted in 2012 at Guangzhou, Guangdong province, and Hunchung and Lianhuapao, both located in Jilin province.[49] X-ray identification work in 2012 was carried out at Longjing, Jilin province, and Shouyang, Shanxi province, while 12 new suspected ACW sites were jointly investigated by China and Japan.[50]

[43] Helsinki Commission, Ad hoc expert group to update and review the existing information on dumped chemical munitions in the Baltic Sea, Fourth Meeting, Kaliningrad, Russia, 14–16 May 2012, HELCOM MUNI 4/2012, <http://meeting.helcom.fi/c/document_library/get_file?p_l_id=18975&folderId=1786543&name=DLFE-49884.pdf>.

[44] Cornevin, C., 'La France va détruire 250 tonnes de bombes chimiques' [France will destroy 250 tonnes of chemical bombs], *Le Figaro*, 22 Feb. 2012.

[45] OPCW, 17th Conference of the States Parties, 'Japan, abandoned chemical weapons in China: progress in 2012', Poster session, The Hague, Nov. 2012.

[46] OPCW, 'Japan, abandoned chemical weapons in China: progress in 2012' (note 45).

[47] OPCW, 'Japan, abandoned chemical weapons in China: progress in 2012' (note 45).

[48] OPCW (note 45), section 3.1; OPCW, C-17/DG.16 (note 5), para. 36; and OPCW, Conference of the States Parties, 17th Session, 'Japan: statement by H. E. Mr Yasumasa Nagamine, Ambassador and Permanent Representative of Japan', C-17/NAT.22, 26 Nov. 2012.

[49] OPCW (note 45), section 6. The operations at Lianhuapao, which began in 2005, were completed in 2012.

[50] OPCW (note 45), section 6.1.