

V. Chemical weapon control and disarmament

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The Chemical Weapons Convention (CWC) contains a comprehensive and unequivocal prohibition of chemical weapons and chemical warfare. There was no change to states parties to the CWC during 2022: as of December 2022, there were still 193 states parties and 4 states not party to the CWC, including Israel, which has signed but not ratified it, and Egypt, North Korea and South Sudan, which have neither signed nor ratified or acceded to the CWC.¹

On 29 April 2022 the CWC celebrated the 25th anniversary of its entry into force. In a speech, the director-general of the Organisation for the Prohibition of Chemical Weapons (OPCW, the implementing body for the CWC), Fernando Arias, emphasized both the achievements of the CWC to date and the challenges it is facing. These challenges included, among others, the risk of chemical weapons proliferation and use, a changing industry landscape, technological developments, and non-state actors harbouring an interest in chemical weapons.² The OPCW held its official commemorative event on 20 May 2022 at its headquarters in The Hague. During two panel discussions, diplomats, OPCW representatives and external experts addressed opportunities for strengthening the implementation of the CWC, threats from chemical terrorism, and raising awareness of the CWC and OPCW, particularly among the younger generation.³

This section provides an update on other developments in relation to the CWC and OPCW during 2022.

Chemical weapon destruction

By the end of 2022, more than 99 per cent of all declared chemical weapon stockpiles worldwide had been destroyed under OPCW verification.⁴ Destruction is ongoing in the United States as well as in relation to chemical weapons abandoned in China by Japan. All three states submitted progress reports on the destruction and removal processes to the OPCW Executive Council.⁵ The process of the removal and destruction of abandoned chemical

¹ For a summary and other details of the Chemical Weapons Convention see annex A, section I, in this volume.

² OPCW, Director-General, 'Achievements of the Chemical Weapons Convention and future challenges', Speech at the launch of the Competence Network CBWNet, 29 Apr. 2022, Berlin.

³ OPCW, 'OPCW @ 25: Seminar focusses on achievements, future challenges and opportunities', OPCW News, 20 May 2022.

⁴ OPCW, 'Destruction progress: As of 31 December 2022', OPCW by the numbers.

⁵ OPCW, Executive Council, Report of the 101st session of the Executive Council, EC-101/5, 7 Oct. 2022, paras 6.8–6.9. The respective documents are listed in the report as EC-101/NAT.1 (USA), EC-101/NAT.2 (China), and EC-101/NAT.3 (Japan) but are not publicly available.

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weapons in China was hampered by the Covid-19 pandemic, but China and Japan resumed their activities in 2022 and jointly submitted a destruction plan for future activities to the Executive Council.⁶ The USA reported that as of September 2022, over 98.27 per cent of its declared stockpile had been eliminated and that the destruction of the remaining stocks was expected to be completed according to schedule by the end of 2023.⁷

Developments in the OPCW

International cooperation and assistance

The Technical Secretariat reported on a range of cooperation and assistance activities carried out during 2022, including in the ‘three focus areas of integrated chemical management, enhancement of laboratory capabilities, and chemical knowledge promotion and exchange’.⁸ The area of chemical management encompassed a wide range of issues related to capacity building in chemical safety and security.⁹ Activities to enhance laboratory capacities included ‘a range of general analytical chemistry courses . . . , the Laboratory Twinning and Assistance Programme, proficiency testing training, customs laboratory training, and the Equipment Exchange Programme’.¹⁰ In the area of chemical knowledge promotion and exchange, the Secretariat continued its work through its standing programmes on support for conferences and research projects as well as a fellowship programme, and awareness-raising activities.¹¹

The end of 2022 saw the conclusion of the fifth phase of the Africa Programme of the OPCW.¹² This programme is tailored to the particular needs of African countries in promoting the peaceful use of chemistry and enhancing chemical safety and security.¹³ Like many other areas, the implementation of the programme was still impacted by the Covid-19 pandemic in 2022. The Secretariat had to adapt its activities accordingly before it could return to a more regular course of action later in the year. One major innovation was the establishment of the OPCW Africa Network and the launch of an annual OPCW Africa Bulletin.¹⁴ In March 2022 the Technical Secretariat started

⁶ OPCW, EC-101/5 (note 5), paras 6.9, 6.13, 6.14.

⁷ United States, Statement by HE Ambassador Joseph Manso, Permanent representative of the United States of America to the OPCW at the 101st session of the Executive Council, 29 Sep. 2022, p. 1.

⁸ OPCW, Executive Council, ‘Progress made and review of the status of implementation of Article XI of the Chemical Weapons Convention’, Report by the director-general, EC-101/DG.9, 31 Aug. 2022, para. 2.

⁹ OPCW, EC-101/DG.9 (note 8), paras 20–40.

¹⁰ OPCW, EC-101/DG.9 (note 8), para. 41; see also paras 42–61 for details of the activities.

¹¹ OPCW, EC-101/DG.9 (note 8), para. 62; see also paras 63–71 for details of the programmes.

¹² For details see OPCW, Executive Council, ‘The Programme to Strengthen Cooperation with Africa on the Chemical Weapons Convention’, Note by the director-general, EC-101/DG.12, 7 Sep. 2022.

¹³ OPCW, ‘Capacity building: Africa Programme’.

¹⁴ OPCW, EC-101/DG.12 (note 12), para. 41.

preparing for the sixth phase of the programme, intended to cover the period 2023–25.¹⁵ Several states parties from the African Group commented positively on the programme and its previous implementation, encouraged its continuation, and called for it to be funded from the regular budget instead of from voluntary contributions.¹⁶

Organizational matters

At the 101st session of the Executive Council in October 2022, states parties discussed and agreed several administrative and governance issues, including a revised programme and budget for 2023. Budgetary issues have been subject to a vote ever since the Investigation and Identification Team (IIT) was established in 2018 and included in the budget of the Technical Secretariat, since not all states parties accept the addition of the IIT as legitimate (see section IV in this chapter). Of the 41 members of the Executive Council, 35 voted in favour of the budget decision, China and Russia voted against it, and Pakistan and Sudan abstained.¹⁷ The conference of the states parties (CSP) likewise adopted the revised programme and budget for 2023 by majority vote—with 99 votes in favour, 7 against and 15 abstentions—on 29 November 2023.¹⁸

Another key decision, adopted by consensus on 28 November 2022, provides for the continued option to rehire individuals who had previously been employed as OPCW inspectors under certain conditions.¹⁹ This topic is related to the broader question of the OPCW's tenure policy. Due to a combination of different factors, including an increased turnover rate during the pandemic and scheduled separations, the turnover rate is expected to be significantly higher in the coming years than initially envisaged. To maintain the necessary capabilities within the Technical Secretariat, the tenure policy will have to be addressed including and beyond the question of the rehiring

¹⁵ OPCW, EC-101/DG.12 (note 12), paras 24 and 26.

¹⁶ See e.g. Kenya, Statement by Ambassador Judith Sijeny of the permanent representation of the Republic of Kenya to the OPCW at the 100th session of the Executive Council, EC-100/NAT.25, 5 July 2022; Ghana, Statement by HE Ambassador Francis Danti Kotia, Permanent representative of the Republic of Ghana to the OPCW at the 99th session of the Executive Council, EC-99/NAT.20, 8 Mar. 2022; and Senegal, Statement by HE Ambassador Momar Gueye, Permanent representative of the Republic of Senegal to the OPCW at the 99th session of the Executive Council, EC-99/NAT.80, 8 Mar. 2022.

¹⁷ OPCW, Executive Council, 'Draft revised programme and budget of the OPCW for 2023', Decision, EC-101/DEC.6, 5 Oct. 2022; and OPCW, EC-101/5 (note 5), para. 10.21.

¹⁸ OPCW, Conference of the States Parties, 'Revised programme and budget of the OPCW for 2023', Decision, C-27/DEC.11, 29 Nov. 2022; and OPCW, Conference of the States Parties, Report of the 27th session of the conference of the states parties, C-27/5, 1 Dec. 2022, para. 13.5.

¹⁹ OPCW, Conference of the States Parties, 'Rehiring of inspectors', Decision, C-27/DEC.9, 28 Nov. 2022; OPCW, C-27/5 (note 18), para. 17.8; and OPCW, Executive Council, 'Rehiring of inspectors', Decision, EC-DEC.5, 5 Oct. 2022.

of inspectors. States parties are expected to discuss this topic during the fifth review conference (RevCon5).²⁰

The new OPCW Centre for Chemistry and Technology

The construction of a new OPCW Centre for Chemistry and Technology (ChemTech Centre) was initiated in 2017 to upgrade and expand the capabilities of the previous OPCW Laboratory and Equipment Store. The new centre is intended to fulfil a range of purposes, including enabling research to strengthen verification, enhancing the OPCW's analytical capabilities, acting as a 'knowledge repository', and providing capabilities for capacity building, training and education, among other things.²¹

According to the director-general the construction of the ChemTech Centre was on schedule, both in terms of timing and expenditures, despite the pandemic and rising costs.²² Construction was completed at the end of 2022 and the project entered a training and testing phase to prepare for the final transition from the old facility in Rijswijk to the new centre in early January 2023.²³ The OPCW expects the ChemTech Centre to be fully operational by April 2023, and has planned a high-level inauguration ceremony for 12 May 2023.²⁴

The project is being funded by voluntary contributions to the ChemTech Centre Trust Fund received from 54 countries, the European Union (EU), six non-governmental entities and from 'personal contributions'; as of October 2022, all of these contributions totalled approximately €34.32 million.²⁵

Impact of the Covid-19 pandemic and the Executive Council Business Continuity Initiative

During 2022, the OPCW returned to more regular proceedings after the pandemic had disrupted many of its activities.²⁶ In particular, inspections and cooperation activities resumed in higher frequency, and meetings were held in-person again.²⁷ The number of scheduled industry inspections was reduced from 241 in previous years to 180 inspections in 2022. While ongoing pandemic-related restrictions meant the Technical Secretariat was still

²⁰ See e.g. OPCW, Conference of the States Parties, Opening statement by the director-general to the conference of the states parties at its twenty-seventh session, C-27/DG.16, 28 Nov. 2022, para. 21.

²¹ OPCW, 'Centre for Chemistry and Technology Project'.

²² OPCW, Technical Secretariat, 'Progress in the project to upgrade the OPCW Laboratory and Equipment Store to a Centre for Chemistry and Technology', S/2112/2022, 17 Nov. 2022, p. 6.

²³ OPCW, Technical Secretariat, 'Centre for Chemistry and Technology: Inauguration ceremony 12 May 2023', S/2119/2022, 14 Dec. 2022; and OPCW, S/2112/2022 (note 22), pp. 2–3.

²⁴ OPCW, S/2119/2022 (note 23).

²⁵ OPCW, 'Centre for Chemistry and Technology Project' (note 21).

²⁶ McLeish, C., 'Chemical weapons: Arms control and disarmament', *SIPRI Yearbook 2021*, p. 495; and Jakob, U., 'Allegations of chemical weapons use in Syria', *SIPRI Yearbook 2022*, p. 507.

²⁷ See e.g. OPCW, Executive Council, Opening statement by the director-general to the Executive Council at its 101st session, EC-101/DG.28, 4 Oct. 2022, para. 46.

unable to carry out all scheduled inspections, it expected to complete 90 per cent of them by the end of 2022—a significantly higher number than the one-third that were achieved under pandemic conditions.²⁸

Supported by a group of like-minded states, Germany continued to pursue the Executive Council Business Continuity Initiative, which ‘aims at defining procedures that allow the Council to convene when in-person meetings are not possible, using virtual meeting technology’.²⁹ Germany reported that there was very wide cross-regional support for the initiative. However, by the end of 2022 there was no consensus and consultations will continue with the aim of tabling a revised draft decision at the 102nd session of the Executive Council in 2023.³⁰

Security challenges for the OPCW

The OPCW has been faced with challenges in terms of both physical and cybersecurity threats. In December 2021, about 40 protesters stormed the OPCW building during a violent demonstration.³¹ In the wake of this incident, the Technical Secretariat initiated upgrades of the physical security measures at OPCW headquarters. By the end of 2022, completed measures included enhanced access controls and reinforcement of the perimeter fence, gates and entrance area, with a few additional measures still under construction. The Netherlands as host country has been providing additional security support such as enhanced police protection.³²

The OPCW has also faced increasing numbers of cyber attacks, including phishing, malware and network perimeter attacks. As the director-general reported to the CSP in November 2022, approximately 30 000 attacks against the OPCW’s internet-based services had been registered in the four months preceding the conference. Consequently, the Technical Secretariat installed additional cybersecurity measures, largely funded by voluntary contributions from states parties.³³

Scientific Advisory Board of the OPCW

The Scientific Advisory Board (SAB) held three meetings during 2022. While the first meeting in March still had to be held virtually due to the ongoing

²⁸ OPCW, C-27/DG.16 (note 20), para. 39.

²⁹ Germany, Statement by HE Ambassador Gudrun Lingner, Permanent representative of the Federal Republic of Germany to the OPCW at the 99th session of the Executive Council, EC-99/NAT.13, 8 Mar. 2022, p. 3. For an earlier version of a draft decision and an explanatory memorandum see also Germany, Verbal Note no. 33/2021, CW 370.45/7-DEU, 28 Sep. 2021.

³⁰ Germany, Statement by HE Ambassador Thomas Schieb, Permanent representative of the Federal Republic of Germany to the OPCW at the 101st session of the Executive Council, EC-101/NAT.15, 4 Oct. 2022, p. 3.

³¹ OPCW, Executive Council, Opening statement by the director-general to the Executive Council at its 99th session, EC-99/DG.17, 8 Mar. 2022, para. 13.

³² OPCW, EC-101/DG.28 (note 27), paras 14–18.

³³ OPCW, C-27/DG.16 (note 20), para. 15.

Covid-19 pandemic, the June and September meetings were in-person meetings.³⁴ The SAB heard several presentations from external experts on technical matters and research projects of relevance to the CWC. These included the chemical attribution signatures of VX nerve agents; risks arising from additive manufacturing in the context of chemical weapon proliferation; the neutralization and detection of organophosphates, forensic signature(s) of the nerve agent precursor DMPADC; insects as environmental samplers; and a method for the attribution of sulfur mustard.³⁵ Other important topics included discussions on possible activities that could be hosted at the new ChemTech Centre, continued consideration of central nervous system-acting chemicals, and the preparation of the SAB report for RevCon5.³⁶ This report, published in February 2023, contains a summary of relevant scientific and technological developments in chemistry and other relevant scientific fields such as artificial intelligence (AI), additive manufacturing and biotechnology, and it provides a number of recommendations to the OPCW that are designed to help it keep up with current and potential challenges.³⁷

In addition to its regular sessions, the SAB held two thematic workshops in June 2022, one in partnership with the International Union of Pure and Applied Chemistry (IUPAC) on AI-assisted chemistry, and one together with industry partners on emerging scientific trends and directions in the chemical industry.³⁸

The SAB's temporary working group (TWG) on the analysis of biotoxins, established in 2021, held three meetings in 2022, in March (virtually), June and October 2022. The TWG discussed a range of topics related to identification and analysis of biological toxins with external experts and internally in five TWG subgroups. The subgroups covered, among other things, the underlying and the technical requirements for the analysis of biotoxins and for investigations of their use as weapons; the most relevant biotoxins as well as compounds of biological origin other than toxins that could also be relevant in a CWC context; analytical standards and requirement of other investigative authorities, including the UN secretary-general's mechanism for

³⁴ OPCW, Scientific Advisory Board, Report of the Scientific Advisory Board at its 34th session, SAB-34/1, 17 Mar. 2022, p. 1; Report of the Scientific Advisory Board at its 35th session, SAB-35/1, 16 June 2022, p. 1; and Report of the Scientific Advisory Board at its 36th session, SAB-36/1, 29 Sep. 2022, p. 1.

³⁵ OPCW, SAB-34/1 (note 34), p. 2. DMPADC stands for N,N-dimethylphosphoramidic dichloride, which is a precursor for the nerve agent Tabun (para 10.1).

³⁶ OPCW, SAB-34/1 (note 34); SAB-35/1 (note 34); and OPCW, SAB-36/1 (note 34), p. 1. On central nervous system-acting chemicals see OPCW, 'Understanding regarding the aerosolised use of central nervous system-acting chemicals for law enforcement purposes', C-26/DEC.10, 1 Dec. 2021.

³⁷ OPCW, Review Conference, Report of the Scientific Advisory Board on developments in Science and Technology to the fifth special session of the conference of the states parties to review the operation of the Chemical Weapons Convention, Report by the director-general, RC-5/DG.1, 22 Feb. 2023.

³⁸ OPCW, Executive Council, 'Response to the report of the 35th session of the Scientific Advisory Board', Note by the director-general, EC-101/DG.21, 19 Sep. 2022, para. 19.

investigation of alleged use of chemical and biological weapons (UNSGM); possibilities for harmonization of laboratory capabilities for the analysis of biotoxins; and measures to facilitate cooperation between the OPCW and other relevant organizations. The TWG is expected to complete its work and present its final report in 2023.³⁹

OPCW Advisory Board on Outreach and Education

The Advisory Board on Outreach and Education (ABEO) met twice in 2022, virtually in February and in person in July.⁴⁰ The focus of the board's work in 2022 was on e-learning as well as outreach and the dissemination of information about the OPCW and the CWC, including a 'contact pack' for universities.⁴¹ The ABEO also discussed its potential role in raising awareness of job opportunities at the OPCW to enhance geographical and gender balance within the Technical Secretariat.⁴²

Open-ended working group on terrorism

The open-ended working group on terrorism (OEWG-T), initiated in 2001, continues to serve as 'the primary platform for States Parties to exchange views on chemical terrorism'.⁴³ In 2022, it met three times: in February, March and September. The participants of the OEWG-T heard briefings from the Technical Secretariat on OPCW activities related to chemical terrorism as well as presentations on EU and Association of Southeast Asian Nations (ASEAN) approaches to the topic. Topics discussed included measures related to national implementation of the CWC and to awareness-raising, and the sharing of experiences and best practices. In preparation for RevCon5, the group discussed possible contributions to the preparatory process.⁴⁴

The work of the OEWG-T in 2022 coincided with investigations carried out by the UN Investigative Team to Promote Accountability for Crimes Committed by Da'esh/Islamic State in Iraq and the Levant (UNITAD). These

³⁹ OPCW, SAB-36/1 (note 34), para. 9; 'Summary of the fifth meeting of the Scientific Advisory Board's temporary working group on the analysis of biotoxins', SAB-36/WP.2, 17 Nov. 2022; and 'Summary of the fourth meeting of the Scientific Advisory Board's temporary working group on the analysis of biotoxins', SAB-36/WP.1, 29 July 2022.

⁴⁰ OPCW, Advisory Board on Outreach and Education, Report of the 13th session of the Advisory Board on Education and Outreach', ABEO-13/1, 21 July 2022; and Report of the 12th session of the Advisory Board on Education and Outreach', ABEO-12/1, 10 Feb. 2022.

⁴¹ OPCW, ABEO-12/1 (note 40), para. 11.

⁴² OPCW, ABEO-12/1 (note 40), para. 13.

⁴³ OPCW, Executive Council, Report by HE Ambassador Vusimuzi Philemon Madonsela, chairperson of the open-ended working group on terrorism to the Executive Council at its 99th session, EC-99/WP.3, 9 Mar. 2022, para. 2.

⁴⁴ OPCW, EC-99/WP.3 (note 43); Report by HE Ambassador Vusimuzi Philemon Madonsela, chairperson of the open-ended working group on terrorism to the Executive Council at its 100th session, EC-100/WP.3, 6 July 2022; and Report by HE Ambassador Vusimuzi Philemon Madonsela, chairperson of the open-ended working group on terrorism to the Executive Council at its 101st session, EC-101/WP.2, 5 Oct. 2022.

investigations revealed more detailed insights into ISIL's chemical and biological weapon capabilities and found that ISIL had established a 'centre of operations to produce chemical weapons', including sulfur mustard, ricin and chlorine, at the University of Mossul, Iraq.⁴⁵

Preparations for the fifth CWC review conference

From 15 to 19 May 2023, the states parties to the CWC will hold the fifth review conference of the treaty. To prepare for this conference, the Executive Council in March 2022 established the open-ended working group of the fifth review conference (OEWG-RC). The objective of the OEWG-RC is to structure the preparatory process and in cooperation with the Technical Secretariat carry out substantive preparations for RevCon5. The group is led by a bureau of representatives from all regional groups and chaired by Ambassador Lauri Kuusing of Estonia.⁴⁶

The OEWG-RC held its first meeting on 7 June 2022 and subsequently held nine more meetings before the end of 2022. This meeting cycle represented the first work phase and covered the review part of the preparations. The meetings were held in hybrid format to facilitate participation by national authorities and other delegates or experts. In identifying the issues that should be addressed in the preparatory process and at the review conference, the OEWG-RC followed a thematic approach and elicited input from states parties through consultations and a survey regarding their views on past achievements, possible recommendations from RevCon5 and priority areas for the future.⁴⁷ The OEWG-RC heard various presentations from the Technical Secretariat (see below) as well as from the SAB and the ABEO, and it also interacted with industry representatives and received submissions on key issues from civil society actors.⁴⁸ The second work phase starting from January 2023 will see more substantive work through a 'draft provisional text' prepared by the chair of the OEWG-RC and based on discussions of the OEWG-RC, proposals and papers submitted by states parties, the results of the survey, and presentations and papers presented by the Secretariat.⁴⁹

The programme of work for RevCon5 had not been finalized by the end of 2022, but the OEWG-RC chair's report contained indications as to which

⁴⁵ United Nations, Security Council, Eighth report of the special adviser and head of the United Nations Investigative Team to Promote Accountability for Crimes Committed by Da'esh/Islamic State in Iraq and the Levant, S/2022/434, 26 May 2022, paras 10–14.

⁴⁶ OPCW, Conference of the States Parties, Report by HE Ambassador Lauri Kuusing of Estonia, Chairperson of the open-ended working group for the preparation of the fifth review conference to the conference of the states parties at its twenty-seventh session, C-27/WP.1, 30 Nov. 2022, p. 1.

⁴⁷ OPCW, C-27/WP.1 (note 46).

⁴⁸ OPCW, Conference of the States Parties, 'Engaging the chemical industry associations', Note by the director-general, C-27/DG.14, 20 Oct. 2022, para. 25.

⁴⁹ OPCW, C-27/WP.1 (note 46), p. 3.

topics would figure prominently, stemming from the purpose of the review conference itself as well as from the discussions within the OPCW organs over the past few years. The Technical Secretariat's presentations at the 10 meetings 'focused on key achievements since the fourth review conference and provided food for thought regarding future challenges and priorities' for RevCon5, covering the following key themes: 'verification-related issues'; 'non-routine missions'; 'international cooperation and assistance'; 'engagement with external stakeholders'; 'contribution of the OPCW to the global counterterrorism efforts'; and 'organisational governance'.⁵⁰ One prominent example in the latter category is the question of the OPCW's tenure policy and the rehiring of inspectors.⁵¹ Given the current situation and known challenges, discussion at RevCon5 on the other themes would likely include key issues such as the transition to the post-destruction phase and the prevention of the re-emergence of chemical weapons, adaptations to the changing chemical industry landscape, and the reactions to Syria's chemical weapon use. Conference deliberations will also likely cover the report of the SAB and its implications, the new ChemTech Centre, and the issue of gender and chemical weapons.⁵²

Outlook

In 2023, 30 years after the CWC was opened for signature in Paris, the convention and the OPCW will reach several important milestones. The new ChemTech Centre, which will become operational and be formally inaugurated by May 2023, is expected to provide new and enhanced capacities and possibilities for analytics, international cooperation and outreach activities. The USA is expected to destroy the last of its remaining chemical weapon stocks by the end of 2023, thereby completing the destruction of all declared chemical weapon stockpiles worldwide. Last but not least, RevCon5 will discuss a range of important topics in particularly challenging circumstances, given the stark polarization in the OPCW's policy-making organs over compliance politics. At the same time, the review conference might set important landmarks for the way ahead.

⁵⁰ OPCW, C-27/WP.1 (note 46), p. 2.

⁵¹ OPCW, C-27/DEC.9 (note 19), p. 2.

⁵² See also Ghionis, A., Kelle, A. and Garzón Maceda, M., 'Preparing for success at the fifth review conference of the Chemical Weapons Convention: A guide to the issues' (United Nations Institute for Disarmament Research: Geneva, 2023), pp. 23–28.