

16. Chemical and biological warfare developments and arms control

RICHARD GUTHRIE, JOHN HART, FRIDA KUHLAU and JACQUELINE SIMON

I. Introduction

A new form of annual meetings for states parties to the 1972 Biological and Toxin Weapons Convention (BTWC)¹ and the First Review Conference of the 1993 Chemical Weapons Convention (CWC) were held in 2003,² and a new ad hoc cooperative mechanism aimed at stopping the spread of chemical and biological methods of warfare, the Proliferation Security Initiative (PSI), was established.³ In 2003 the military occupation of Iraq also occurred, and Libya unilaterally renounced chemical and biological weapons.

The first of the annual series of expert and political meetings of states parties to the BTWC was held in accordance with the decision of the reconvened 2002 Fifth BTWC Review Conference. These are scheduled to continue until the Sixth Review Conference in 2006. The focus of the meetings in 2003 was on ensuring that the parties adopt the necessary national measures to implement the convention's prohibitions, including through the enactment of penal legislation, and on establishing and effectively implementing national mechanisms to maintain the security and oversight of pathogenic organisms and toxins.

The First Review Conference of the CWC agreed two documents: a political declaration and a consolidated review document that identifies implementation areas requiring attention and recommends measures for improvement. A special conference of the parties to the CWC, held during the review conference, took a final decision to implement a policy that limits the tenure of employees in the Technical Secretariat (TS) of the Organisation for the Prohibition of Chemical Weapons (OPCW) to seven years. The OPCW also

¹ The Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction is reproduced on the SIPRI Chemical and Biological Warfare Project Internet site at URL <<http://projects.sipri.se/cbw/docs/bw-btwc-text.html>>. Complete lists of parties and signatory and non-signatory states are available on the SIPRI CBW Project Internet site at URL <<http://projects.sipri.se/cbw/docs/bw-btwc-mainpage.html>>. See also annex A in this volume.

² The Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction (corrected version), 8 Aug. 1994, is reproduced at URL <<http://projects.sipri.se/cbw/docs/cw-cwc-texts.html>>. The 31 Oct. 1999 amendment to Part VI of the Verification Annex of the CWC is reproduced at URL <<http://projects.sipri.se/cbw/docs/cw-cwc-verannex5bis.html>>. Complete lists of parties and signatory and non-signatory states are available on the SIPRI CBW Project Internet site at URL <<http://projects.sipri.se/cbw/docs/bw-btwc-mainpage.html>>. See also annex A in this volume.

³ See also chapter 14 in this volume.

began implementing a 'plan of action' to ensure that the parties have effectively implemented their obligations in the area of national implementation measures.

Like-minded states continue to rely on national and ad hoc cooperation measures on specific issues of concern to meet perceived chemical and biological warfare (CBW) threats. The PSI was established by a group of such states that have agreed a set of 'interdiction principles' with the objective of preventing the shipment of weapons of mass destruction (WMD), their delivery systems and related materials.⁴

In early 2003, inspectors from the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) and the International Atomic Energy Agency (IAEA) carried out inspections in Iraq. In March these inspectors were withdrawn from Iraq, and the country was attacked and occupied by forces of the United States, the United Kingdom and a number of their coalition partners.⁵ Initially, mobile exploitation teams (METs) were attached to the coalition forces and tasked to uncover Iraqi holdings of nuclear, biological and chemical (NBC) weapons and ballistic missiles with a range of more than 150 km that were prohibited by UN Security Council resolutions. In June the METs were replaced by the Iraq Survey Group (ISG). By the end of the year, large quantities of paperwork and some equipment had been collected; however, no prohibited munitions had been uncovered by the coalition teams and no clear evidence that prohibited chemical weapons (CW) and biological weapons (BW) existed at the time of the attack had been made public. Questions were raised in the UK, the USA and elsewhere about the reliability of intelligence assessments on Iraq and the degree to which these assessments might have been politicized to help strengthen domestic and international support for the attack.

In December, Libyan President Colonel Muammar Qadhafi made a public commitment to disclose and dismantle his country's WMD, including its CW stockpile, following several months of secret negotiations with the UK and the USA. This commitment includes accepting international inspections in Libya to verify the destruction and the dismantling of such weapons and programmes. Libya publicly urged that the Middle East and Africa be made free of WMD. In January 2004 Libya acceded to the CWC.

The results of the 2003 expert and political meetings of the BTWC parties are discussed in section II. Developments related to the CWC are described in section III. Section IV summarizes proliferation allegations made against a number of states in 2003. Section V describes the efforts to uncover chemical and biological weapons and associated programmes by UNMOVIC and then by the occupation forces in Iraq. Section VI summarizes efforts outside the BTWC and CWC. Section VII presents the conclusions.

⁴ See also chapter 14 and chapter 1 in this volume.

⁵ See also chapter 2 and chapter 3 in this volume.

II. Biological weapon disarmament

The BTWC entered into force on 26 March 1975.⁶ As of 14 November 2003, 151 states had ratified it. In 2003 Antigua and Barbuda, Palau, Sudan and Timor-Leste (East Timor) acceded to the convention, and Mali ratified it. An additional 16 states have signed but not ratified the convention.⁷

In 2003 the parties to the BTWC held a Meeting of Experts and a Meeting of States Parties. The meetings, which will continue to be held annually until the Sixth Review Conference's scheduled meeting in 2006, are the result of a decision taken by the reconvened Fifth Review Conference of the States Parties to the BTWC in 2002.⁸

The 2003 meetings of the states parties to the BTWC

The mandate for the 2003 meetings was to 'discuss, and promote common understanding and effective action' on 'the adoption of necessary national measures to implement the prohibitions set forth in the Convention, including the enactment of penal legislation; and national mechanisms to establish and maintain the security and oversight of pathogenic micro-organisms and toxins'.⁹

The Meeting of Experts

The Meeting of Experts was held in Geneva on 18–29 August 2003 and was considered to be a moderate success,¹⁰ especially in the context of the tense atmosphere of the Fifth Review Conference in both its 2001 and 2002

⁶ See note 1.

⁷ 'List of participants', BTWC Meeting of Experts document BWC/MSP.2003/MX/INF.2, 27 Aug. 2003, URL <www.opbw.org/new-process/mx2003/bwc-msp.2003_mx_inf02.pdf>.

⁸ The first session of the Fifth Review Conference was adjourned in 2001 following the US proposal to end the mandate of the Ad Hoc Group (AHG), which had met periodically between Jan. 1995 and Aug. 2001 to draft a protocol to strengthen compliance with the BTWC. (The USA stated that the protocol would *inter alia* not ensure compliance and would unduly put at risk confidential business information and sensitive information regarding biodefence activities.) Although the negotiating mandate remains in effect, AHG negotiations have been suspended since 2001. The parties agreed to meet annually until the next review conference. The 'take it or leave it' manner in which the 2002 agreement was reached was regarded by a number of parties as 'better than nothing'. See Hart, J., Kuhlau, F. and Simon, J., 'Chemical and biological weapon developments and arms control', *SIPRI Yearbook 2003: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2003), pp. 646–50; Sims, N. A., 'Biological disarmament diplomacy in the doldrums: reflections after the BWC Fifth Review Conference', *Disarmament Diplomacy*, no. 70 (Apr.–May 2003), available at URL <<http://www.acronym.org.uk/dd/dd70/70op2.htm>>; and Chevrier, M., 'Waiting for Godot or saving the show?: the BWC Review Conference reaches modest agreement', *Disarmament Diplomacy*, no. 68 (Dec. 2002/Jan. 2003), available at URL <<http://www.acronym.org.uk/dd/dd68/68bwc.htm>>.

⁹ Final Document of the Fifth Review Conference of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) Weapons and on Their Destruction, BTWC Review Conference document BWC/CONF.V/17, para. 18 (a), p. 3, available at URL <http://www.opbw.org/rev_cons/5rc/5rc_conf.htm>.

¹⁰ Littlewood, J., 'Substance hidden under a mountain of paper: the BWC experts' meeting in 2003', *Disarmament Diplomacy*, no. 73 (Oct.–Nov. 2003), available at URL <<http://www.acronym.org.uk/dd/dd73/73news05.htm>>; and Pearson, G. S., 'Report from Geneva: the Biological Weapons Convention new process', *CBW Conventions Bulletin*, no. 61 (Sep. 2003), pp. 8–14, available at URL <<http://www.sussex.ac.uk/spru/hsp/cbwcb61.pdf>>.

sessions. Expectations prior to the meeting were therefore low, but there was a high level of attendance, with 416 participants from 83 states parties, 2 signatory states,¹¹ 1 observer state,¹² 8 specialized agencies and intergovernmental organizations,¹³ and 15 non-governmental organizations (NGOs).¹⁴

The mandate provided by the Fifth Review Conference was intentionally brief, and the chairman of the 2003 meetings, Ambassador Tibor Tóth of Hungary, assumed the primary responsibility for translating it into a concrete, result-based approach. This approach was conveyed to the parties prior to the meeting to assist in their preparation of a provisional agenda, programme of work and annotated agenda.¹⁵ These documents were approved at the first session of the Meeting of Experts, on 18 August 2003. The parties submitted 66 working papers—more than were submitted at the Fifth Review Conference.¹⁶ In addition, at the meeting over 90 presentations were made by the parties.¹⁷ These presentations were assembled into daily collations and consolidated in Part II of the final report of the meeting.¹⁸

The standard submission of national statements generally reflected well-known country positions. Faced with a new type of exercise in a new forum, the parties initially seemed unsure of how to proceed. Tóth used various approaches to promote additional discussion including identifying possible key issues for oral and written discussion. By the second week, the parties seemed to have adapted to the new format of work, and exchanges between national experts were frequent and detailed. The hesitant attitude which many delegates had before the meeting appeared to change after it became evident that the Meeting of Experts could serve a valuable purpose by providing a

¹¹ The signatory states were Egypt and Madagascar.

¹² Israel was the observer state.

¹³ These were the Food and Agriculture Organization (FAO), the International Centre for Genetic Engineering and Biotechnology (ICGEB), the International Committee of the Red Cross (ICRC), the Organisation for Economic Co-operation and Development (OECD), the OPCW, the World Health Organization (WHO), the World Organisation for Animal Health (Official International des Epizooties, OIE) and the World Trade Organization.

¹⁴ These were the BioWeapons Prevention Project; the Maryland Center for International and Security Studies; the South African Centre for Conflict Resolution; the European Group for Non-Proliferation Studies; the Federation of American Scientists (FAS); the Institute for Medical Risk Studies; the Program on Preventing Disease Weaponization; the International Federation of Pharmaceutical Manufacturers Associations; the International Network of Engineers and Scientists for Global Responsibility (INES), Interpharma Switzerland; the Johns Hopkins Center for Civilian Biodefense Strategies; the London School of Economics and Political Science; the Mountbatten Centre for International Studies; the Quaker United Nations Office; the University of Bradford; and the Verification Research, Training and Information Centre (VERTIC). For a list of all participants see 'List of participants' (note 7).

¹⁵ 'Provisional agenda for the Meeting of Experts', BTWC Meeting of Experts document BWC/MSP.2003/MX/1*, 7 Aug. 2003; and 'Provisional programme of work for the Meeting of Experts', BTWC Meeting of Experts document BWC/MSP.2003/MX/2, 28 July 2003. The first draft of this document was distributed to parties at regional group meetings on 16 July 2003. 'Annotated provisional agenda for the Meeting of Experts', BTWC Meeting of Experts document BWC/MSP.2003/MX/3, 7 Aug. 2003.

¹⁶ For a complete list of documents from the Meeting of Experts see 'Report of the Meeting of Experts (part I)', BTWC Meeting of Experts document BWC/MSP.2003/MX/4, 18 Sep. 2003, pp. 5–10. Part I lists meeting documents; part II contains the full collation of presentations and statements made at the Meeting of Experts as submitted to the Secretariat.

¹⁷ 'Closing remarks of chair in open session', BTWC Meeting of Experts, 29 Aug. 2003.

¹⁸ 'Report of the Meeting of Experts (part II)', BTWC Meeting of Experts document BWC/MSP.2003/MX/4, 18 Sep. 2003.

forum for the exchange of high-quality, useful information on the two main topics: implementation of national measures, including penal legislation and security; and oversight of pathogenic micro-organisms and toxins.¹⁹

The Meeting of Experts focused on the two topics provided in the mandate. The first week was dedicated to a discussion of national measures to implement the BTWC. National implementation was discussed in a framework of pre-defined sub-topics: legal, regulatory and administrative measures; prohibitions; restrictions; practical implementation and enforcement; and criminalization and law enforcement.²⁰

Core elements for an effective approach to national implementation were identified, including the need for legislation which encompasses the full scope of the prohibitions of the BTWC; appropriate penal provisions to punish and deter violators; and effective regulations or legislation to control and monitor transfers of relevant technologies. Lists of controlled items (i.e., items whose transfer is subject to domestic and/or international monitoring or licensing), catch-all clauses (including recognition of the general purpose criterion),²¹ domestic inter-agency cooperation and regular reviews to ensure that the monitoring and control system keeps pace with scientific and technological advances were all mentioned as key elements of an effective system for implementing the prohibitions.²²

One of the main conclusions regarding the issue of national implementation of the BTWC's prohibitions was that significant differences exist in the level and format of implementation and with regard to how the penal provisions associated with violations should be addressed.²³ The discussions were facilitated by a compilation of national measures that was prepared by the Secretariat²⁴ and provided to the parties on compact disc. The first version of this inventory of legislation was provided to the parties on 11 June 2003 with a request that they review their national legislation and submit any additions or changes to the Secretariat.

The documents of the meeting and other complementary sources of information were added to this 'Information Repository', and a final version was distributed at the Meeting of States Parties in November 2003.²⁵ Several parties

¹⁹ See note 16.

²⁰ 'Annotated provisional agenda for the Meeting of Experts' (note 15).

²¹ The general purpose criterion is embodied in Article I of the BTWC, and essentially means that all activities are considered prohibited unless there is a legitimate justification for the activity. See also chapter 14 in this volume.

²² 'Report of the Meeting of Experts (part II)' (note 18). For a list of relevant working papers, see also Report of the Meeting of Experts (part I)' (note 16).

²³ Ruppe, D., 'Conference finds great variance in how biological weapons treaty is implemented', Global Security Newswire, 11 Nov. 2003, URL <http://www.nti.org/d_newswire/issues/2003_11_11.html#F7DCCA7C>.

²⁴ To create this inventory, the Secretariat drew upon legislation in past CBM reports, on-line sources, information provided by the OPCW, the Landau Network, VERTIC and, ultimately, information provided by parties. Responses to a questionnaire distributed by Germany to European Union member states were also utilized. Those responses were later compiled in 'Austria, Belgium, Finland, France, Germany, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden, United Kingdom—BTWC and related legislation', BTWC Meeting of Experts document BWC/MSP.2003/MX/WP.62, 4 Sep. 2003.

²⁵ A similar project was conducted by VERTIC, which released a preliminary report at the Aug. meeting and a final report in Nov. See Woodward, A., *Time to Lay Down the Law: National Legislation to*

commented on the usefulness of this initiative, and it has been noted that this exchange represents a step towards fulfilling the requests for information on national implementation made at the First Review Conference, in 1980.²⁶

Week two of the Meeting of Experts addressed the topic of the security and oversight of pathogenic micro-organisms and toxins in a framework of pre-defined sub-topics including legal, regulatory and administrative measures; facilities; personnel; transport and transfer; and oversight and enforcement.²⁷ The parties shared various approaches to protecting pathogenic micro-organisms and toxins from deliberate unauthorized acquisition, misuse and release, and also addressed response mechanisms.

A key point of discussion was how 'biosecurity' relates to 'biosafety'. It was clear that these terms had slightly different meanings for different parties, which caused confusion. For some delegations, the term meant both biosafety and biosecurity, but other delegations did not share this view. For example, the USA defines biosecurity as 'effective measures to protect dangerous pathogens and toxins from illicit or malicious diversion'.²⁸ Other states considered that their existing measures for biosafety (i.e., measures intended to prevent the release of biological material that could lead to disease in humans, animals or plants) contain adequate provisions to stop such material from falling into the possession of unauthorized persons. Nevertheless, there was general recognition that in many circumstances measures could be strengthened to help prevent unauthorized access to these materials. The needs for risk assessments, training and education, legislative oversight and enforcement, and enhanced security measures at facilities with pathogenic micro-organisms and toxins were also discussed.²⁹

The technical and legal presentations made by the parties at the meeting were supplemented by presentations made outside the meeting. Fifteen presentations were made by a range of intergovernmental organizations including: the World Health Organization (WHO), the World Trade Organization (WTO), the Food and Agriculture Organization (FAO), the UN Environment Programme (UNEP), the OPCW, the Secretariat of the Basel Convention, Interpol,³⁰ the European Commission, the UN Counter-Terrorism Committee, the International Center for Genetic Engineering and Biotechnology (ICGEB) and the International Committee of the Red Cross (ICRC).

Enforce the BWC (VERTIC: London, Nov. 2003). The report and on-line listings of relevant legislation are available at URL <[http://www.vertic.org/assets/Time to lay down the law-final report.pdf](http://www.vertic.org/assets/Time%20to%20lay%20down%20the%20law-final%20report.pdf)>.

²⁶ Littlewood (note 10); and Sims, N. A., 'A proposal for putting the 26 March 2005 anniversary to best use for the BWC', *CBW Conventions Bulletin*, no. 62 (Dec. 2003), pp. 1–6, available at URL <<http://www.sussex.ac.uk/spru/hsp/cbwcb62.pdf>>.

²⁷ 'Annotated provisional agenda for the Meeting of Experts' (note 15).

²⁸ USA, 'Specific measures taken by the United States relevant to security of dangerous pathogens and toxins', BTWC Meeting of Experts document BWC/MSP.2003/MX/WP.6, 4 July 2003, p. 1.

²⁹ 'Report of the Meeting of Experts (part II)' (note 18). For a list of relevant working papers see 'Report of the Meeting of Experts (part I)' (note 16). See also, Tucker, J. B., *Biosecurity: Limiting Terrorist Access to Deadly Pathogens*, Peaceworks no. 52 (United States Institute of Peace: Washington, DC, 11 Nov. 2003), available at URL <<http://www.usip.org/7pubs/peaceworks/pwks52.pdf>>.

³⁰ Interpol is a new participant in the BTWC forum and has launched a strategy to deal with bioterrorism. Agres, T., 'Interpol pushes research controls', *The Scientist*, 21 July 2003, URL <<http://www.biomedcentral.com/news/20030721/03>>.

Two presentations were made by industry associations—the European Biosafety Association, and the American Biosafety Association. In addition, a number of NGOs attended, four of which made presentations. The NGOs were also given an opportunity to address the parties as was the practice at the Fifth Review Conference.

The chairman asserted that the Meeting of Experts had served as an important forum for the identification of key issues, challenges and needs and also for the sharing of ‘best practices’ to deal with these challenges. Tóth stated that this would be especially beneficial for parties seeking technical assistance and information to improve their national capacity to respond to the issue of biological weapons.³¹ At its final session, the Meeting of Experts approved a procedural report and agreed two annexes.³²

The Meeting of States Parties

The Meeting of States Parties was held in Geneva on 10–14 November 2003. Tóth attempted to build on the work of the Meeting of Experts and to focus on the key issues brought forward there. He had met with the regional groups on 24 September to outline his approach and to ask the parties to submit papers in advance and prepare presentations as they had done for the Meeting of Experts. Tóth indicated that he hoped to move beyond technical discussions to focus on practical measures.³³ Although no papers were submitted before the Meeting of States Parties, possibly owing to the short time frame and to the fact that many representatives were occupied at the First Committee meeting at UN headquarters in New York, 10 working papers were submitted during the meeting.³⁴

On Tóth’s request, the Secretariat compiled a list of the main proposals made by the parties at the Meeting of Experts in statements, papers and presentations. This list provided a starting point for the development of the provisional agenda,³⁵ the provisional programme of work³⁶ and the provisional annotated agenda,³⁷ all of which were approved at the Meeting of States Parties. (An informal summary of the proposals was included in the version of the Information Repository that was distributed to the parties at the end of the Meeting of Experts.) It became apparent that a large number of concrete proposals had been made, and that there was much common ground in terms of

³¹ Ambassador Tóth, Remarks at Press Conference, Geneva, 29 Aug. 2003.

³² See note 16.

³³ United Nations Office at Geneva, ‘Biological Weapons Convention members hold first annual meeting’, Press Release, 7 Nov. 2003, URL <<http://www.unog.ch/news2/documents/newsen/dc0344e.htm>>.

³⁴ For a list of all documents of the Meeting of States Parties, see ‘Report of the Meeting of States Parties’, BTWC Meeting of States Parties document BWC/MSP/2003/4, vol. I, 26 Nov. 2003. The scheduling of the 2004 meetings has taken this issue into account in order to provide additional time for preparations.

³⁵ ‘Provisional agenda’, BTWC Meeting of States Parties document BWC/MSP2003/1, 23 Oct. 2003.

³⁶ ‘Provisional programme of work for the Meeting of States Parties’, BTWC Meeting of States Parties document BWC/MSP/2003/2*, 5 Nov. 2003.

³⁷ ‘Annotated provisional agenda for the Meeting of States Parties’, BTWC Meeting of States Parties document BWC/MSP/2003/3, 4 Nov. 2003. See also section VI below and chapter 14 in this volume.

the identification of key issues for further work, in addition to the sharing of best practices.

Ninety-two parties, 4 signatories, 2 observer states, 2 intergovernmental organizations and 9 NGOs attended the Meeting of States Parties.³⁸ The NGOs were given an opportunity to address a formal session of the meeting on the afternoon of 13 November 2003. The Meeting of States Parties began collegially, building on the Meeting of Experts, with discussions on implementation, licensing, enforcement, biosecurity evaluation and procedures, and efforts by relevant international bodies.³⁹ This atmosphere deteriorated, however, once negotiations on a draft final report began because certain states parties believed that they were being presented with a 'take it or leave it' text. A draft was circulated on 12 November, and discussions took place in regional group meetings with Tóth moving between the groups to broker agreement on a final text.⁴⁰

On 14 November, the parties agreed a final document to be appended to the procedural report in which they 'stressed the need for undertaking activities at the national level in keeping with their obligations and responsibilities to strengthen and implement' the BTWC. The parties 'agreed, to that end, on the value of the following':

To review, and where necessary, enact or update national legal, including regulatory and penal, measures which ensure effective implementation of the prohibitions of the Convention, and which enhance effective security of pathogens and toxins.

The positive effects of cooperation between States Parties with differing legal and constitutional arrangements. States Parties in a position to do so may wish to provide legal and technical assistance to others who request it in framing and/or expanding their own legislation and controls in the areas of national implementation and biosecurity.

The need for comprehensive and concrete national measures to secure pathogen collections and the control of their use for peaceful purposes. There was a general recognition of the value of biosecurity measures and procedures, which will ensure that such dangerous materials are not accessible to persons who might or could misuse them for purposes contrary to the Convention.⁴¹

The second point, on cooperation, built on offers made at the Meeting of Experts by Cuba, Germany, the UK and the USA to provide expertise to other parties in order to assist them to implement their national legislation obligations.⁴² The UK and the USA supplemented this offer by distributing a list of national experts whom other parties could contact.⁴³ These offers were

³⁸ See 'Report of the Meeting of States Parties', vol. I (note 34); and 'List of participants', BTWC Meeting of States Parties document BWC/MSP/2003/INF.1, 13 Nov. 2003.

³⁹ 'Report of the Meeting of States Parties', vol. II (note 34).

⁴⁰ Scott, A., 'Bioweapon talks reopen', *The Scientist*, 17 Nov. 2003, URL <<http://www.biomedcentral.com/news/20031117/05>>.

⁴¹ 'Report of the Meeting of States Parties' (note 34), p. 5. See also chapter 14 in this volume.

⁴² BWC/MSP.2003/MX/4 (part II) (note 18).

⁴³ These lists were distributed to all parties during the Meeting of Experts but were not included in BWC/MSP.2003/MX/4 (part II) (note 18).

supplemented by an additional offer from Switzerland⁴⁴ and the provision of a list of relevant ministries by Germany.⁴⁵

As agreed at the Fifth Review Conference, the 2004 meetings will be chaired by a representative of the Non-Aligned Movement (NAM).⁴⁶ The Meeting of States Parties approved the NAM's nomination of Peter Goosen of South Africa as incoming chairman. The 2004 meetings are to examine enhancing international capabilities for responding to, investigating and mitigating the effects of cases of alleged use of biological or toxin weapons or suspicious outbreaks of disease; and strengthening and broadening national and international institutional efforts and existing mechanisms for the surveillance, detection, diagnosis and combating of infectious diseases affecting humans, animals and plants. The Meeting of Experts will take place in Geneva on 19–30 July, and the Meeting of States Parties will be held on 6–10 December.⁴⁷ Without a mechanism to review progress on the 2003 programme of work, it will be difficult to evaluate the outcome of the 2003 meetings (e.g., the extent to which the parties have enacted the necessary legislation and other measures, including for the security of pathogens) until the Sixth Review Conference convenes in 2006.

III. Chemical weapon disarmament

As of 31 December 2003, 158 states had ratified or acceded to the CWC and a further 22 states had signed it; 14 countries had neither signed nor ratified the convention.⁴⁸ The First Review Conference of the States Parties to the CWC was held on 28 April–9 May. The Eighth Conference of the States Parties (CSP) met on 20–24 October. It agreed a 'plan of action' to ensure that the parties effectively implement their obligations under Article VII of the CWC (National Implementation Measures).

In 2003 the Council of the European Union (EU) adopted an Action Plan for the Implementation of the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction, which called for the EU to discuss activating the challenge inspection mechanism and for the parties to the CWC to support challenge inspection requests where there is an 'absence of specific

⁴⁴ 'Working paper submitted by Switzerland: national surveillance of activities with pathogenic and genetically modified organisms: offer to share expertise with interested state parties of the BWC', BTWC Meeting of States Parties document BWC/MSP/2003/WP.9, 12 Nov. 2003.

⁴⁵ 'Working paper submitted by the Federal Republic of Germany: sources of expert advice on national BTWC implementing legislation and legislation on security and oversight of dangerous pathogens in the Federal Republic of Germany', BTWC Meeting of States Parties document BWC/MSP/2003/WP.4, 11 Nov. 2003.

⁴⁶ A list of the NAM states is given in the glossary in this volume.

⁴⁷ 'Working paper submitted by the Federal Republic of Germany' (note 45), p. 5.

⁴⁸ The states that have neither signed nor ratified the CWC are Angola, Antigua and Barbuda, Barbados, Egypt, Iraq, North Korea, Lebanon, Libya, Niue, Solomon Islands, Somalia, Syria, Tuvalu and Vanuatu.

information disproving the basis for the challenge'.⁴⁹ No challenge inspections have been carried out since the convention's entry into force on 29 April 1997.

The First Review Conference of the States Parties to the Chemical Weapons Convention

On 28 April–9 May 2003, the First Review Conference of the States Parties to the Chemical Weapons Convention met to 'take into account any relevant scientific and technological developments', and a number of other relevant matters.⁵⁰ The conference agreed two documents: a political declaration and a consolidated review document.⁵¹ The latter document identifies implementation areas that require attention and recommends measures for improvement.⁵² No major policy decisions were taken or shifts in implementation procedure made.⁵³ A number of the points contained in the final documents relate to the need for universal membership and to ensuring that the parties have enacted and implemented the required national legislation. This area has become a major focus of the work of the OPCW (see below).

On 1 May, as part of the review conference programme, the OPCW sponsored the Open Forum on the Chemical Weapons Convention, at which leading figures from the NGO community and diplomats made presentations in The Hague. A major focus of the meeting, which was opened by OPCW Director-General Ambassador Rogelio Pflirter, was on how CWC provisions should be interpreted with regard to non-lethal weapons that contain toxic chemicals (including riot control agents and other incapacitants). There was no agreement on how the provisions of the CWC should be applied, and the issue was not formally considered by the review conference.⁵⁴

Second Special Session of the Conference of the States Parties

In 1999 the Fourth CSP approved OPCW staff regulations which stated that the OPCW is a non-career organization and that the total length of service for

⁴⁹ European Union, 'Action Plan for the Implementation of the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction', Council of the European Union document 10354/1/03 REV 1, 13 June 2003, para. 6, URL <<http://ue.eu.int>>. See also the Introduction, chapter 1 and chapter 14 in this volume.

⁵⁰ CWC (note 2), Article VIII, para. 22.

⁵¹ OPCW, 'Political declaration as approved by the First Special Session of the Conference of the States Parties to review the operation of the Chemical Weapons Convention (First Review Conference)', OPCW document RC-1/3, 9 May 2003; and OPCW, 'Review document, as approved by the First Special Session of the Conference of the States Parties to review the operation of the Chemical Weapons Convention', unnumbered OPCW document, 9 May 2003.

⁵² 'Where to from here?: the First CWC Review Conference and the next five years', *CBW Conventions Bulletin*, no. 60 (June 2003), pp. 1–5, URL <<http://www.sussex.ac.uk/spru/hsp/cbwc60.pdf>>.

⁵³ See Mathews, B., 'Reviewing the Chemical Weapons Convention: gently does it', *Verification Yearbook 2003* (VERTIC: London, 2003), pp. 103–24, URL <http://www.vertic.org/assets/YB03/VY03_Mathews.pdf>.

⁵⁴ 'Open Forum on the Chemical Weapons Convention: Challenges to the Chemical Weapons Convention Ban', The Hague, Netherlands, Official Transcript, 1 May 2003, available at URL <www.sussex.ac.uk/spru/hsp/OpenForumCWC.pdf>. For background on non-lethal weapon issues see Hart, Kuhlau and Simon (note 8), pp. 659–66; and Lewer, N. (ed.), *The Future of Non-Lethal Weapons: Technologies, Operations, Ethics and Law* (Frank Cass & Co. Ltd.: London, 2002).

individual staff members should not exceed seven years.⁵⁵ However, agreement was not reached regarding the date on which the policy would take effect. The tenure policy was implemented in 2003 when the CSP met in special session, in parallel with the review conference, and agreed a decision to implement the policy retroactively from 2 July 1999.⁵⁶ As a result, beginning in 2003, the average rate of turnover of TS staff is to be one-seventh per year.⁵⁷ Translators and locally recruited support staff are exempt. The Director-General may grant contract extensions which will result in a total length of service that exceeds seven years in exceptional cases if necessary in order ‘not to compromise the [OPCW’s] financial stability and operational effectiveness’.⁵⁸ After 31 December 2009, no TS staff who have experience from the period immediately following the CWC’s entry into force will remain, except for those exempt from the regulations.⁵⁹ The first TS staff to leave under the policy left the organization in December 2003.

The implementation of this policy has short- and long-term implications, including for the organization’s ability to maintain institutional memory and to effectively and efficiently transmit the necessary information to future employees. The process has resulted in uncertainty among TS staff regarding when and how their contracts end. Higher staff turnover and the recruitment and training of new personnel will have budgetary implications. It is important that the parties remain actively involved in political and financial matters in order to ensure that the expertise of the OPCW is preserved and that the necessary expertise and knowledge are transmitted to future employees.

The Conference of the States Parties to the CWC

In agreeing the programme and budget for 2004, the Eighth Session of the CSP, held on 20–24 October, considered a range of issues similar to those discussed in previous years.⁶⁰ These issues are related to the cost, scope and intrusiveness of OPCW activities necessary for effective treaty implementation. They include the status of the destruction of CW stockpiles and production facilities, the distribution and scope of chemical industry inspections, and ways to increase adherence to the convention—both in terms of membership and of ensuring that all parties have adopted effective national implementing legislation. The CSP also discussed implementation of the CWC’s provisions for assistance and protection against chemical weapons (Article X) and economic and technological development provisions (Article XI).

⁵⁵ OPCW, ‘Decision, OPCW staff regulations’, OPCW document C-IV/DEC.25, 2 July 1999, regulation 4.4.

⁵⁶ OPCW, ‘Decision, tenure policy of the OPCW’, OPCW document C-SS-2/Dec. 1, 30 Apr. 2003.

⁵⁷ The decision does not specify the mathematical type of ‘average’ and therefore might allow additional flexibility in the implementation of the policy.

⁵⁸ ‘Decision, tenure policy of the OPCW’ (note 56), para. 1(b).

⁵⁹ Some former Technical Secretariat employees may rejoin their national delegations or remain as temporary consultants.

⁶⁰ OPCW, ‘Decision, programme and budget and working capital fund’, OPCW document C-8/DEC.17, 24 Oct. 2003.

The CSP approved a budget for 2004 of €73 153 390 (c. \$92 000 000), a 6.7 per cent increase over the 2003 budget. The OPCW's recent financial difficulties have largely been addressed, and it is expected to be able to carry out its scheduled activities in 2004. The CSP also approved a 'plan of action' to ensure that all parties effectively implement their obligations under Article VII of the CWC (National Implementation Measures), including by passing penal legislation that prohibits individuals and groups under a party's jurisdiction or control from carrying out activities that are banned by the CWC. The plan of action is based in part on the political declaration and review document agreed by the review conference.⁶¹ First, the plan tasks the TS with identifying and analysing the problems and needs. Second, provisions are included for helping to ensure that the plan receives the necessary financial, political and other support from the OPCW's constituent organs, including through the creation of a voluntary support fund. Third, a time frame for completing the plan is provided during which the parties *inter alia* agree to enact the necessary legislation, including penal legislation, and/or adopt administrative measures to implement the CWC no later than the 10th CSP (scheduled to be held in November 2005). Fourth, the plan provides for the Executive Council (EC) and the CSP to exercise oversight of its implementation.⁶² The plan of action, which mirrors similar efforts recently undertaken by the parties to the BTWC, is considered necessary because many states parties have failed to implement the required national legislation.⁶³ The plan of action was also developed owing to renewed concern about the possible threat posed by non-state actors (i.e., terrorists) using toxic materials.⁶⁴

The CSP also approved the extension of the intermediate deadlines for the destruction of CW stockpiles held by South Korea, Russia and the USA.⁶⁵

⁶¹ See OPCW, 'Committee of the Whole: report to the First Special Session of the Conference of the States Parties to review the operation of the Chemical Weapons Convention', OPCW document RC-1/CoW.1, 9 May 2003, paras. 16–7, 74–83, pp. 4, 21–24.

⁶² OPCW, 'Decision, plan of action regarding the implementation of Article VII obligations', OPCW document C-8/DEC.16, 24 Oct. 2003.

⁶³ For information on the status of national implementation measures taken by the parties to the CWC, see OPCW, 'Note by the Director-General, report on national implementation measures', OPCW document C-8/DG.5, 18 Sep. 2003. A similar plan of action was proposed, but not agreed, at the BTWC Meeting of States Parties in Nov. 2003.

⁶⁴ E.g., the review conference 'noted with concern that, along with the continued threat of possible use of chemical weapons by States, the international community faces a growing danger of the use of chemical weapons by terrorists'. 'Committee of the Whole' (note 61), para. 10, p. 7.

⁶⁵ OPCW, 'Decision, extension of the intermediate and final deadlines for the destruction by the Russian Federation of its Category 1 chemical weapons', OPCW document C-8/DEC.13, 24 Oct. 2003; OPCW, 'Decision, request by a state party for an extension of the intermediate phase 3 deadline for the destruction of its Category 1 chemical weapons stockpiles, OPCW document C-8/DEC.14, 24 Oct. 2003; and OPCW, 'Decision, extension of the intermediate and final deadlines for the destruction by the United States of America of its Category 1 chemical weapons', OPCW document C-8/DEC.15, 24 Oct. 2003.

Destruction of chemical weapons

The states that are declared possessors of chemical weapons are Albania, India, South Korea, Russia and the USA.⁶⁶ In 2003, 1048 tonnes of Category 1 CW (i.e., weapons containing chemicals listed in Schedule 1 of the CWC's Annex on Chemicals and their parts and components) and 97 tonnes of Category 2 chemical weapons (i.e., weapons containing all other chemicals and their parts and components) were verifiably destroyed.⁶⁷ As of 31 December 2003, 11.4 per cent of the declared Category 1 stockpiles and all declared Category 2 stockpiles had been destroyed.⁶⁸ Publicly available information on the destruction of the Albanian, Indian and South Korean CW stockpiles is limited.⁶⁹

US chemical weapon destruction

The total cost of destroying the US CW stockpile, which is located at eight sites, is currently estimated to be more than \$25 billion.⁷⁰ As of 11 December 2003, approximately 26 per cent of the USA's 31 279.74 agent-tonne stockpile and approximately 39 per cent of stockpiled munitions had been destroyed.⁷¹ As of the same date, about 45 per cent of the agents located at Tooele, Utah, had been destroyed. In 2003, destruction began at the Aberdeen, Maryland, and Anniston, Alabama, facilities. In addition, the construction of destruction facilities was completed at Pine Bluff, Arkansas, and Umatilla, Oregon, while

⁶⁶ As of 15 Dec. 2003, 61 production facilities had been declared by 11 parties and 41 of these facilities had been destroyed or converted. The countries are: Bosnia and Herzegovina, China, France, India, Iran, Japan, Russia, South Korea, the UK, the USA and Yugoslavia (Serbia and Montenegro). The CWC defines such a facility as any facility that produced chemical agents at any time since 1 Jan. 1946. CWC (note 2), Article II, para. 8.

⁶⁷ OPCW official, Private communication with R. Guthrie and J. Hart, 12 Mar. 2004. The CWC's Annex on Chemicals comprises 3 schedules. Schedule 1 chemicals are 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 CW categories are defined in part on the basis of the schedule on which a chemical may be listed. See CWC (note 2), Part IV(A), Verification Annex, para. 16. For information on the destruction of Category 2 and Category 3 weapons in Russia see Zanders, J. P., Hart, J. and Kuhlau, F., 'Chemical and biological weapon developments and arms control', *SIPRI Yearbook 2002: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2002), p. 689.

⁶⁸ OPCW official, Private communication with Guthrie and Hart (note 67).

⁶⁹ See Zanders, Hart and Kuhlau (note 67), p. 686.

⁷⁰ US General Accounting Office (GAO), *Chemical Weapons: Better Management Tools Needed to Guide DOD's Stockpile Destruction Program*, GAO-04-221T (US General Accounting Office: Washington, DC, 30 Oct. 2003), p. 7. The stockpiles are located at Aberdeen Proving Ground, Md.; Anniston Army Depot, Ala.; Lexington-Blue Grass Army Activity, Ky.; Newport Army Ammunition Plant, Ind.; Pine Bluff Arsenal, Ark.; Pueblo Depot Activity, Colo.; Tooele Army Depot, Utah; and Umatilla Depot Activity, Oreg.

⁷¹ US Army Program Manager for the Elimination of Chemical Weapons, 'PM ECW: making chemical weapons history', URL <http://www.pmc.d.apgea.army.mil/default.asp?menu_text.asp&title_text.asp&home.asp>. Types and quantities of the US stockpile are listed in Zanders, J. P., Eckstein, S. and Hart, J., 'Chemical and biological weapon developments', *SIPRI Yearbook 1997: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1997), pp. 449–51. For information on the US destruction programme see Zanders, Hart and Kuhlau (note 67), pp. 686–88; and Zanders, J. P. and Hart, J., 'Chemical and biological weapon developments and arms control', *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1998), pp. 461–63.

construction of a destruction facility at Newport, Indiana, was 98 per cent complete, as of 11 December 2003.⁷² Construction of destruction facilities is most delayed at the Lexington–Blue Grass Army Activity in Kentucky and the Pueblo Depot Activity in Colorado. There is both local and national political opposition to the use of incineration to destroy the stockpiles. The US Army will therefore conduct pilot-scale tests of two non-incineration-based destruction technologies at these facilities before a final decision is reached on whether these technologies or incineration-based destruction technologies should be used.⁷³

The US General Accounting Office (GAO) reported that the USA will be unable to complete the destruction of its CW stockpile until after 2012.⁷⁴ The reasons for the delays and the rising cost include the necessity of meeting environmental and worker safety requirements, implementing emergency preparedness programmes for local communities and addressing plant safety issues.⁷⁵ The pace of destruction slowed in 2002–2003 owing to the suspension of destruction operations at Tooele in July 2002, after a maintenance worker was injured following an accidental exposure to sarin. The incident resulted in a review of safety procedures. Destruction operations resumed at Tooele on 28 March 2003 and are scheduled to be completed in 2007.⁷⁶ In 1992 the estimated cost of destroying the US's stockpiled CW was approximately \$8 billion.⁷⁷ The dismantling of the Johnston Atoll Chemical Agent Disposal System (JACADS) destruction facility, located south-west of Hawaii, was completed in 2003.⁷⁸

⁷² US Army Program Manager for the Elimination of Chemical Weapons (note 71).

⁷³ On 16 July 2002, the US Department of Defense (DOD) decided to test a destruction technology using neutralization followed by biodegradation at the Pueblo Depot Activity. On 3 Feb. 2003 the DOD decided to test a technology using neutralization followed by supercritical water oxidation at the Lexington–Blue Grass Army Activity.

⁷⁴ US General Accounting Office (note 70), p. 1. The CWC requires that stockpiles be destroyed no later than 29 Apr. 2012. Although the CWC does not provide for specific penalties if destruction deadlines are not met, the OPCW's Executive Council and the Conference of the States Parties would consider the matter closely which, in turn, could be politically or financially embarrassing. This would be especially true if there were a perception that a party was not implementing its destruction programme in good faith. In this case, such a party might also find its ability to influence OPCW matters weakened.

⁷⁵ For a review of health and safety issues and incidents at US destruction facilities see US National Research Council, *Evaluation of Chemical Events at Army Chemical Agent Disposal Facilities* (National Academies Press: Washington, DC, Jan. 2002), available at URL <<http://books.nap.edu/books/0309086299/html/index.html>>.

⁷⁶ US Army Chemical Materials Agency, Deseret Chemical Depot, 'Tooele chemical agent disposal facility begins VX agent/munitions destruction operations', News Release, 28 Mar. 2003, URL <<http://www.pmed.army.mil/include/docrendition.asp?DocID=003672256>>.

⁷⁷ Stock, T., 'Chemical and biological weapons: developments and proliferation', *SIPRI Yearbook 1993: World Armaments and Disarmament* (Oxford University Press: Oxford, 1993), pp. 273–74.

⁷⁸ US Army Chemical Materials Agency, 'Closure of JACADS to be celebrated—Honolulu ceremony will be followed by a ceremony at Johnston Island', Press Release, 23 Oct. 2003, URL <<http://www.pmed.army.mil/include/docrendition.asp?DocID=003672947>>.

Russian chemical weapon destruction

The declared Russian stockpile of chemical weapons consists of approximately 40 000 agent tonnes, stored at seven locations.⁷⁹ The estimated cost of destroying the stockpile is \$6–7 billion. In 2003, Russia completed the destruction of 1 per cent of its CW stockpile.⁸⁰ Large-scale destruction operations were carried out at Gorny, and the construction of destruction facilities at Kambarka and Shchuchye was under way.⁸¹ As of 11 December, construction of the Shchuchye destruction facility was approximately 3 per cent complete.⁸² Construction of a destruction facility at Leonidovka (Penza *oblast*) was scheduled to begin in 2004, and the facility should be ready for operation in 2–3 years.⁸³ The destruction of the sulphur mustard stockpile located at Gorny was essentially completed on 14 November 2003.⁸⁴ On 25 November the destruction of lewisite, sulphur mustard–lewisite and sulphur mustard–lewisite–dichloroethane mixtures began.⁸⁵ The OPCW has approved a revised, intermediate deadline for the destruction of 20 per cent of Russia's stockpile. Russia now has until 29 April 2007 to destroy 20 per cent of its Category 1 weapons.⁸⁶

The level of funding, and the extent to which foreign destruction assistance will or should facilitate destruction operations, continued to be a major factor affecting CW destruction in Russia.⁸⁷ Foreign assistance for Russia's CW destruction in 2003 was estimated to be \$216 million.⁸⁸

⁷⁹ The 7 locations are Kambarka, Udmurtia Republic; Gorny, Saratov *oblast*; Kizner, Udmurtia Republic; Maradikovsky, Kirov *oblast*; Pochep, Bryansk *oblast*; Leonidovka, Penza *oblast*; and Shchuchye, Kurgan *oblast*. For background on Russian destruction see Hart, J. and Miller, C. D. (eds), *Chemical Weapon Destruction in Russia: Political, Legal and Technical Aspects*, SIPRI Chemical & Biological Warfare Studies no. 17 (Oxford University Press: Oxford, 1998). Information on the status of destruction in Russia, including foreign assistance, is provided by the Russian Munitions Agency, the body responsible for overseeing destruction in Russia and Russia's National Authority to the OPCW, at URL <<http://www.munition.gov.ru>>.

⁸⁰ Kirienco, S. V., 'Statement by the Head of the Russian Delegation, Chairman of the State Committee of the Russian Federation on Chemical Disarmament, S. V. Kirienco, at the first session of the conference to review the functioning of the Chemical Weapons Convention', Russian Federation statement to the First CWC Review Conference, The Hague, Netherlands, Apr. 2003.

⁸¹ For a review of Russia's destruction programme and related issues see Kalinina, N., 'Analysis: effectiveness of Chemical Weapons Convention depends on Russia's actions', *Yaderny Kontrol* (Moscow), 10 Feb. 2003, pp. 89–122, in 'Russia: effectiveness of Chemical Weapons Convention depends on Russia's actions', Foreign Broadcast Information Service, *Daily Report–Central Eurasia (FBIS-SOV)*, FBIS-SOV-2003-0621, 13 July 2003.

⁸² US Army Program Manager for the Elimination of Chemical Weapons (note 71).

⁸³ Shabayev, S., 'Chemical processing plant planned for Russia's Penza region', ITAR-TASS, 13 Aug. 2003, in FBIS-SOV-2003-0813, 14 Aug. 2003.

⁸⁴ Only the sulphur mustard that drained readily from the containers was destroyed. The containers still contain sulphur mustard residue which must be destroyed. The amount of residue depends on the degree to which the CW agent has polymerized. All CW located at Gorny is stored in bulk storage containers (not in filled munitions).

⁸⁵ Hart, J., Private communication with OPCW official, Feb. 2004.

⁸⁶ 'Decision, extension of the intermediate and final deadlines for the destruction by the Russian Federation of its Category 1 chemical weapons' (note 65).

⁸⁷ The countries and bodies providing CW destruction-related assistance include, Canada, the Czech Republic, the EU, Finland, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland, the UK and the USA. For information on CW destruction assistance to Russia, see Zanders, Hart and Kuhlau, (note 67), pp. 691–93.

⁸⁸ 'Russia: foreign funds for chemical disarmament to reach \$216 million in 2003', Interfax (Moscow), 24 Apr. 2003, in FBIS-SOV-2003-0424, 25 Apr. 2003.

Old and abandoned chemical weapons

As of 22 December 2003, three countries had declared that abandoned chemical weapons (ACW) are present on their territories, and 10 countries had declared that they possess old chemical weapons (OCW).⁸⁹

In 2003, *Australia* became the tenth party to the CWC to declare the possession of old chemical weapons, which date to World War II, to the OPCW. The bombs, which reportedly were intended to have been filled with phosgene or sulphur mustard (but which were apparently never filled), were awaiting destruction at the end of 2003.⁹⁰

The head of the Japanese delegation to the CWC Review Conference announced that, on 25 April, *China* and *Japan* had agreed 'the selection of main technologies' for the destruction of ACW that Japan had abandoned in China at the end of World War II. The countries also agreed that the destruction facility will be located in north-eastern China near the Haerbaling district of Dunhua City (Jilin Province).⁹¹ The ACW will be transported to this facility from temporary storage facilities or directly from the sites where the weapons are recovered.⁹² Most of the known ACW in China, totalling at least 700 000 munitions, have been uncovered in Jilin Province.⁹³ Neither delegation gave a date for the beginning of destruction operations. On 4 August 2003, up to 43 Chinese workers were contaminated with sulphur mustard at a construction site in the city of Qiqihar, located in north-eastern China.⁹⁴ At

⁸⁹ The countries that have declared ACW to the OPCW are China, Italy and Panama. The countries that have declared OCW to the OPCW are Australia, Belgium, Canada, France, Germany, Italy, Japan, Slovenia, the UK and the USA. ACW are defined as those that were abandoned by a state after 1 Jan. 1925 on the territory of another state without the permission of the latter. CWC (note 2), Article II, para. 6. OCW are defined as those produced before 1925 or between 1925 and 1946 that have deteriorated to such an extent that they can no longer be used as chemical weapons. CWC (note 2), Article II, para. 5. For information on countries not discussed in the present chapter, see previous SIPRI Yearbook chapters on chemical and biological weapon developments, available at URL <<http://projects.sipri.se/cbw/research/cbw-yearbook.html>>.

⁹⁰ In Feb. and Mar., 22 mortar shells, which were originally filled with sulphur mustard, were uncovered in Tinaroo, Northern Queensland, and destroyed. Analysis by Australian authorities indicated that the agent had degraded into essentially non-toxic chemicals. In May 8, 250-lb (c. 110 kg) air-delivered bombs were uncovered in New South Wales. Embassy of Australia (Stockholm), Private communication with J. Hart, 3 Dec. 2003. For background see Goodwin, B., *Keen as Mustard: Britain's Horrific Chemical Warfare Experiments in Australia* (University of Queensland Press: St Lucia, 1998); Haug, M., *Historical Chemical Weapons Sites in the Asia-Pacific Region* (Australian National University: Canberra, 1996); Mellor, D. P., *The Role of Science and Industry, Australia in the War of 1939-1945*, series 4 (Civil), vol. 5 (Griffin Press: Adelaide, 1958), pp. 368-80; and Gillis, R. G. (ed.), *Peace Research Centre, The Gillis Report: Australian Field Trials with Mustard Gas, 1942-1945*, Peacedoc series no. 1 (Australian National University: Canberra, 1992).

⁹¹ OPCW, 'Japan, Chemical Weapons Convention Review Conference: abandoned chemical weapons in China', OPCW document RC-1/NAT.7, 25 Apr. 2003, pp. 2-3, para. 5.2.

⁹² All known ACW appear to be located in north-eastern China only.

⁹³ Hart, J., 'A review of sea-dumped chemical weapons (with an annex on the decommissioning of Russian nuclear-powered submarines)', Paper presented at The Environment and the Common Fisheries Policy, Threats to and Constraints on Sustainability, Greenwich Forum, 27 Jan. 2000, London, pp. 4-5.

⁹⁴ Xinhua (Beijing), 18 Aug. 2003, in 'Xinhua: official says Japanese-abandoned chemical weapons "disinfected"', Foreign Broadcast Information Service, *Daily Report-China (FBIS-CHI)*, FBIS-CHI-2003-0818, 18 Aug. 2003.

least one of the workers later died.⁹⁵ Japan agreed to pay 300 million yen (c. \$2.7 million) in compensation.⁹⁶

In November, the Japanese Government made public the findings of a six-month survey of possible sites in *Japan* at which the Japanese military may have stored or disposed of chemical weapons at the end of World War II. The survey found that, out of at least 138 locations, weapons may be located at 37 sites of which 4 sites were 'very likely' to contain buried munitions.⁹⁷ Two of the 4 sites are alleged to be located at Kamisu and Narashino, where the Japanese Imperial Army trained personnel in chemical warfare.⁹⁸ The groundwater in Kamisu is reportedly contaminated with arsenic, possibly owing to leakage from buried CW that contain arsenic (e.g., lewisite).⁹⁹ Information from a 1973 Japanese Government report on chemical stocks and their locations in Japan at the end of World War II was also made public.¹⁰⁰ The report estimated that approximately 3 875 tonnes of chemical warfare agents, including diphenylchloroarsine, hydrogen cyanide, lewisite and sulphur mustard, were located at 18 military facilities in Japan when hostilities ended.¹⁰¹

IV. Proliferation allegations and past programmes

Allegations of possession and transfers

In 2003 a number of allegations were made that states had acquired or possess chemical or biological weapons.¹⁰² Many of the published allegations are from US sources because the USA places more allegations on the public record than any other country. Selected allegations are provided below, except for those related to Iraq, which are discussed in section V.

⁹⁵ 'Chinese worker dies after exposure to gas', Chinastar.com (Beijing), 22 Aug. 2003, URL <<http://news.1chinastar.com/news.shtml?l=english&a=express&p=1276007>>.

⁹⁶ 'Toxic past: Japan's somersault over lethal chemicals left in China after the war', *Far Eastern Economic Review*, vol. 166, no. 43 (30 Oct. 2003), p. 8; and 'Japan pays China gas damages', BBC News Online, 19 Oct. 2003, URL <<http://news.bbc.co.uk/1/hi/world/asia-pacific/3205350.stm>>.

⁹⁷ Kamisu and Narashino are both located west of Tokyo. Agence France-Presse (AFP, Hong Kong), 'Fukuda, Environment Minister on World War II chemical weapons in Japan', 28 Nov. 2003, in Foreign Broadcast Information Service, *Daily Report—East Asia (FBIS-EAS)*, FBIS-EAS-2003-1128, 28 Nov. 2003. For background on Japan's World War II chemical warfare programme and efforts to dispose of such weapons in Japan following the war see Kurata, H., 'Lessons learned from the destruction of the chemical weapons of the Japanese Imperial Forces', SIPRI, *Chemical Weapons: Destruction and Conversion* (Taylor & Francis Ltd.: London, 1980), pp. 77–93.

⁹⁸ Agence France-Presse (note 97).

⁹⁹ Yamaguchi, M., 'Abandoned WWII chemical weapons pose risk to residents nationwide, says government survey', *Environmental News Network*, 28 Nov. 2003, URL <http://www.enn.com/news/2003-11-28/s_10853.asp>.

¹⁰⁰ Agence France-Presse (note 97); and Yamaguchi (note 99).

¹⁰¹ Agence France-Presse (note 97); and Yamaguchi (note 99).

¹⁰² Owing to the frequent, and sometimes exclusive, use of the term 'weapon of mass destruction' in some allegations, however, it is unclear in a number of cases what type of weapon (nuclear, chemical or biological) is referred to.

Iran

In the CWC Review Conference the USA claimed that Iran was one of a number of countries either currently possessing or 'actively pursuing' chemical weapons.¹⁰³ In response, the Iranian delegation reiterated its commitment to the CWC and stated that the USA has enacted treaty implementation legislation that is not in accordance with CWC requirements, and that the USA had provided scheduled chemicals to Israel (see below).¹⁰⁴ The USA has not invoked formal OPCW procedures to lodge an accusation of Iranian non-compliance with the CWC.

Israel

In its response to the US allegations against Iran at the 2003 CWC Review Conference, Iran stated that 'huge amounts' of scheduled chemicals¹⁰⁵ have been transferred from the USA to Israel which, according to Iran, possesses chemical weapons and 'has active clandestine activities'.¹⁰⁶

Libya

On 19 December 2003, Libya announced a public commitment to disclose and dismantle all 'weapons of mass destruction' in its possession.¹⁰⁷ According to British and US statements made the same day, Libya agreed, immediately and

¹⁰³ The US representative stated: 'We are most troubled by the activities of Iran, which we believe continues to seek chemicals, production technology, training, and expertise from abroad. The United States believes Iran already has stockpiled blister, blood, and choking agents. We also believe it has made some nerve agents. We have discussed our concerns with Iran, but those concerns have not been dispelled. Those concerns need to be resolved rapidly and in the most transparent and cooperative manner possible'. USA, 'National Statement to the First Review Conference of the Chemical Weapons Convention by Assistant Secretary of State for Arms Control Stephen G. Rademaker', The Hague, Netherlands, 28 Apr. 2003, URL <http://www.cwc.gov/Industry_Outreach/speeches_and_pressreleases/Rademakerspeech>.

¹⁰⁴ 'Statement by the delegation of the Islamic Republic of Iran, exercising the right of reply in response to the US delegation statement', CWC Review Conference, The Hague, Netherlands, 28 Apr. 2003, URL <www.opcw.org/cwcrevcon/doc/NAT/Iran_reply_2_US.pdf>. The statement apparently refers to the conditions the US Senate imposed when ratifying the CWC on 24 Apr. 1997. See 'U.S. Senate's conditions to ratification of the CWC', US Chemical Weapons Convention Internet site, URL <http://www.cwc.gov/ratification_conditions>; and Zanders and Hart (note 71), p. 458. The CWC requires that the convention shall not be subject to reservations. CWC (note 2), Article XXII.

¹⁰⁵ Scheduled chemicals are listed in the CWC (note 2), Annex on Chemicals.

¹⁰⁶ 'Statement by the delegation of the Islamic Republic of Iran' (note 104). Israel has signed, but not ratified, the CWC. Chemicals appearing in Schedules 1 and 2 of the CWC's Annex on Chemicals can only be transferred to other states parties to the CWC. Schedule 3 chemicals can be transferred to non-states parties if end-user certificates are provided and the chemicals are not re-transferred. CWC (note 2), Verification Annex: Part VI, para. 3; Part VII, paras. 31–32; and Part VIII, paras. 26–27. Certain exceptions to these restrictions apply. For an overview of transfer requirements and restrictions see OPCW, 'Transfer of scheduled chemicals', OPCW information sheet, URL <http://www.opcw.org/html/db/chemind_transfer.html>

¹⁰⁷ For background on Libya's CBW programme see Stock, T. and De Geer, A., 'Chemical weapon developments', *SIPRI Yearbook 1994* (Oxford University Press: Oxford, 1994), pp. 317–18; Lundin, S. J. and Stock, T., 'Chemical and biological warfare: developments in 1990', *SIPRI Yearbook 1991: World Armaments and Disarmament* (Oxford University Press: Oxford, 1991), pp. 91–93; Zanders, Eckstein and Hart (note 71), pp. 462–63; and Wiegele, T. C., *The Clandestine Building of Libya's Chemical Weapons Factories: A Study in International Collusion* (Southern Illinois University Press: Carbondale, Ill., 1992).

unconditionally, to allow international inspectors to enter Libya to verify the destruction of weapons and programmes.¹⁰⁸ At the time of the announcement, Libya was a party to the BTWC and it indicated that it intended to become a party to the CWC.¹⁰⁹

Secret negotiations apparently began in March 2003 and resulted in two visits to Libya, in October and December, by British and US officials, including from the US Central Intelligence Agency (CIA) and the British Secret Intelligence Service (SIS, commonly known as MI6). During these visits, the officials conducted interviews with Libyan scientists and were said to be struck by the openness of Libyan officials.¹¹⁰ The UK and the USA confirmed that Libya possessed an ageing, but viable, CW stockpile consisting of ‘dozens of tons’ of sulphur mustard and 250-lb, air-delivered bombs.¹¹¹ Libya also reportedly had carried out experimental work with sarin and soman. However, ‘no concrete evidence of an existing’ biological warfare programme was uncovered, and Libya’s weapon laboratories were characterized as ‘weak, inefficient and demoralized’.¹¹²

According to Libya’s official news agency, the country provided British and US officials with information on ‘materials, equipment and programmes [for weapons of mass destruction] which led to the manufacture of internationally banned weapons with centrifuges and containers for the transfer of chemical materials’.¹¹³ It stated that Libya ‘decided with its free will to dispose of these materials, equipment and programmes and to be completely free from internationally banned weapons [of mass destruction]’ and that the country would abide by the provisions of the BTWC and the CWC as well as the 1968 Non-Proliferation Treaty (NPT) and the Missile Technology Control Regime (MTCR) Guidelines.¹¹⁴ Libya also said it would work towards achieving a Middle East and Africa that was free of ‘weapons of mass destruction’.¹¹⁵

North Korea

The CIA stated that, in 2003, North Korea ‘continued to acquire dual-use chemicals that could potentially be used to support Pyongyang’s long-standing chemical warfare program’. It also concluded that the country ‘has pursued biological warfare (BW) capabilities since the 1960s’ and that it has a

¹⁰⁸ White House, ‘President Bush: Libya pledges to dismantle WMD programs’, Press Release, Washington, DC, 19 Dec. 2003, URL <<http://www.whitehouse.gov/news/releases/2003/12/print/20031219-9.html>>; and Tyler, P. E. and Risen, J., ‘Libya arms talks lasted months’, *International Herald Tribune*, 22 Dec. 2003, pp. 1, 6.

¹⁰⁹ Libya ratified the CWC on 6 Jan. 2004. OPCW, ‘Libya joins the Chemical Weapons Convention’, Press Release no. 1, 14 Jan. 2004, URL <http://www.opcw.org/html/global/press_releases/2k4/PR1_2004.html>.

¹¹⁰ Tyler and Risen (note 108).

¹¹¹ Slevin, P. and Pincus, W., ‘Libya made progress in nuclear goal’, *Washington Post*, 21 Dec. 2003, p. A01, URL <<http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&contentId=A18171-2003Dec20¬Found=true>>.

¹¹² Slevin and Pincus (note 111). See also chapter 15 in this volume.

¹¹³ Jamahiriya News Agency (Jana), ‘Foreign Liaison Secretary-Statement’, 20 Dec. 2003, URL <<http://www.jamahiriyanews.com>>.

¹¹⁴ Jamahiriya News Agency (note 113).

¹¹⁵ Jamahiriya News Agency (note 113). See also chapter 14 and chapter 15 in this volume.

'munitions production infrastructure that would have allowed it to weaponize BW agents, and may have such weapons available for use'.¹¹⁶ North Korea is a party to the BTWC, but not to the CWC.

Sudan

The USA stated that it was working with *Sudan*, which is a party to the CWC, to reconcile US concerns about Sudanese 'attempts to seek capabilities from abroad to produce chemical weapons'.¹¹⁷

Syria

At the beginning of 2003, a CIA assessment stated that Syria had sought CW-related precursors and expertise from foreign sources, that it possesses a stockpile of sarin and that it is 'apparently' attempting to develop 'more toxic and persistent' nerve agents. The assessment also concluded that it was 'highly probable' that Syria is 'developing an offensive BW capability'.¹¹⁸

In April the US Government issued several statements warning Syria not to assist groups in Iraq that are opposed to US-led coalition forces. A number of these statements alleged that Syria was maintaining active CBW programmes.¹¹⁹ There were also reports that elements of Iraq's CBW programme might have been removed to Syria.¹²⁰ US Secretary of Defense Donald H. Rumsfeld stated that the USA had evidence that Syria had carried out CW tests over the previous 12–15 months.¹²¹ Syria denied that it possessed chemical and biological weapons.¹²²

It was reported that, in July, Under Secretary of State for Arms Control and International Security John R. Bolton was prepared to tell members of a House of Representatives International Relations subcommittee that Syria's development of NBC weapons had progressed to such a point that they posed a threat to stability in the region. The *Miami Herald* reported 'the CIA and other intelligence agencies said that assessment was exaggerated'. The testimony

¹¹⁶ Central Intelligence Agency (CIA), 'Attachment A: unclassified report to Congress on the acquisition of technology relating to weapons of mass destruction and advanced conventional munitions, 1 January through 30 June, 2003', URL <http://www.cia.gov/cia/reports/721_reports/jan_jun2003.htm>.

¹¹⁷ USA (note 103).

¹¹⁸ Central Intelligence Agency (note 116).

¹¹⁹ US Department of State, 'Foreign Press Center Briefing, Secretary Colin L. Powell', 15 Apr. 2003, Press Briefing, URL <<http://www.state.gov/secretary/rm/2003/19662.htm>>. For a review of issues affecting Syrian-US relations see Prados, A. B., *Syria: U.S. Relations and Bilateral Issues* (Congressional Research Service: Washington, DC, 11 Apr. 2003).

¹²⁰ Alon, G. and Schiff, Z., 'Military intelligence: Iraq may be hiding weapons in Syria', *Haaretzdaily.com*, 31 Mar. 2003, URL <<http://www.haaretzdaily.com/hasen/pages/ShArt.jhtml?itemNo=278925&contrassID=1&subContrassID=5&sbSubContrassID=0&listSrc=Y>>.

¹²¹ Public Broadcasting Service, 'Powell says U.S. to examine "diplomatic, economic" measures against Syria', Online News Hour Update, 14 Apr. 2003, URL <http://www.pbs.org/newshour/updates/syria_04-14-03.html>.

¹²² MENA (Cairo), 'Syria denies developing chemical weapons, says fully cooperating with US', 16 Apr. 2003, in Foreign Broadcast Information Service, *Daily Report-Near East & South Asia* (FBIS-NES), FBIS-NES-2003-0416, 17 Apr. 2003.

was delayed until September.¹²³ Bolton's written testimony, prepared for an evidence session to the subcommittee on 16 September, alleged that Syria has 'a stockpile of the nerve agent sarin that can be delivered by aircraft or ballistic missiles, and has engaged in the research and development of more toxic and persistent nerve agents such as VX'. Bolton also asserted that Syria 'is continuing to develop an offensive biological weapons capability'.¹²⁴ This assessment is similar to the CIA assessment produced at the beginning of the year.¹²⁵

The role of intelligence in allegations

The accuracy of government statements regarding alleged secret CBW programmes in other countries cannot be ascertained fully on the basis of publicly available information. However, allegations that some countries have pursued covert NBC weapon programmes were shown to have a factual basis by events in 2003: for example, declarations of chemical and nuclear weapon programmes in Libya and confirmation of a nuclear weapon programme in North Korea. There was no confirmation that Libya had more than a rudimentary research programme in the biological field.¹²⁶

With regard to Iraq, the case for military action that was presented to the public and to other governments by the British and US governments relied in large part on intelligence information indicating a substantial threat from stockpiles of WMD held by Iraq. Once the territory of Iraq was under the control of coalition forces, there was a notable lack of discovery of weapons banned by UN Security Council Resolution 687.¹²⁷ Many questions were subsequently raised about the quality of intelligence available before the military action. In Australia, a Parliamentary Committee started investigations into the quality and use of intelligence.¹²⁸ In the UK, the handling of intelligence formed a significant part of the evidence to the Hutton Inquiry, established to

¹²³ Strobel, W. P. and Landay, J. S., 'CIA: assessment of Syria's WMD exaggerated', *Miami Herald*, 15 July 2003, URL <<http://www.miami.com/mld/miamiherald/6310763.htm?1c>>.

¹²⁴ John R. Bolton, Under Secretary for Arms Control and International Security, Syria's weapons of mass destruction and missile development programs', Testimony Before the House International Relations Committee, Subcommittee on the Middle East and Central Asia, Washington, DC, 16 Sep. 2003, URL <<http://www.state.gov/t/us/rm/24135.htm>>.

¹²⁵ CIA (note 116).

¹²⁶ This would include, e.g., a 'defensive' or 'offensive' BW programme.

¹²⁷ UN Security Council Resolution 687, 3 Apr. 1991.

¹²⁸ On 18 June 2003, the Parliamentary Joint Committee on the Australian Secret Intelligence Organisation (ASIO), the Australian Secret Intelligence Service (ASIS) and the Defence Signals Directorate (DSD), which provides oversight of the administration of Australia's 3 primary intelligence collection agencies, initiated an inquiry that 'will examine the nature and accuracy of intelligence information received by Australia's intelligence services—and the nature, accuracy and independence of assessments made by Australia's intelligence agencies of that information—in relation to the existence of, the capacity and willingness of Iraq to use, and threat posed by, Iraq's weapons of mass destruction.' 'Inquiry into intelligence on Iraqis weapons of mass destruction (WMD)', URL <<http://www.aph.gov.au/house/committee/pjcaad/WMD/index.htm>>.

examine the circumstances of the death of the government scientist Dr David Kelly.¹²⁹

The public presentation of information derived from intelligence and the actions taken on the basis of intelligence information will continue to play an important role in international efforts to prevent chemical and biological warfare in future. This is true for both traditional multilateral arms control and disarmament regimes and for ad hoc coalitions of like-minded countries such as, for example, the countries participating in the PSI.

The development and use of information derived from national technical means (NTM), essentially defined as information available to a national government including that obtained from intelligence, has been a key issue in the implementation of arms control and disarmament agreements. The use of NTM is widely regarded as a key contributor to the work done by the United Nations Special Commission on Iraq (UNSCOM) and its successor, UNMOVIC. Given its sensitive nature, there has been a great reluctance by states to formally discuss the use of NTM in multilateral treaty regimes. This is partly because of concern over protecting intelligence sources and methods and partly owing to practical problems associated with presenting information (which can be subject to multiple interpretation) that is politically convincing to all member states of a multilateral regime. Most states have little or no access to their own NTM. The capabilities of the NTM available to states also vary greatly in terms of quality. The implications of such considerations need to be more fully considered.

Past chemical and biological weapon programmes

In 2003 the *United States* Department of Defense (DOD) completed an investigation, begun in 2000, to identify and make public health-related information about chemical and biological weapon dispersion tests conducted in 'Project 112'.¹³⁰ The tests, which included Operation Shipboard Hazard and Defense (SHAD), were carried out at sea and on the territory of at least three countries (Canada, the UK and the USA) between 1963 and 1974. The US Congress has indicated that it would like to obtain additional information from

¹²⁹ Lord Hutton reported on 28 Jan. 2004 and decided to keep to a narrow interpretation of his remit. In para. 9 of his final report, he states 'My terms of reference were "urgently to conduct an investigation into the circumstances surrounding the death of Dr Kelly"... There has been a great deal of controversy and debate whether the intelligence in relation to weapons of mass destruction set out in the dossier published by the Government on 24 September 2002 was of sufficient strength and reliability to justify the Government in deciding that Iraq under Saddam Hussein posed such a threat to the safety and interests of the United Kingdom that military action should be taken against that country... I gave careful consideration to the view expressed by a number of public figures and commentators that my terms of reference required or, at least, entitled me to consider this issue. However I concluded that a question of such wide import, which would involve the consideration of a wide range of evidence, is not one which falls within my terms of reference'. The report 'Investigation into the Circumstances Surrounding the Death of Dr David Kelly' and selected evidence are available at URL <<http://www.the-hutton-inquiry.org.uk>>. See also the Introduction in this volume.

¹³⁰ DeploymentLINK, 'SHAD—Project 112—Deseret Center investigation draws to a close', Press Release, 30 June 2003, URL <http://www.deploymentlink.osd.mil/news/jun03/news_063003_001.shtml>.

the DOD, and some members of Congress have stated that they disagree with the DOD's decision to end the investigation.¹³¹ Veterans have complained of ailments similar to those reported by veterans who claim to suffer from Gulf War illnesses.¹³² The US Department of Veterans Affairs maintains an Internet site at which Project 112 participants can obtain information about the tests and report health problems that may be related to them.¹³³

V. Activities in Iraq

Introduction

The end of the 1991 Gulf War led to the establishment of UNSCOM under UN Security Council Resolution 687. Its mission was to identify and oversee the elimination of Iraq's chemical and biological weapons and ballistic missiles with a range of more than 150 km.¹³⁴

For seven years UNSCOM worked to determine the status of Iraq's prohibited weapon holdings and programmes, to verify the destruction of such weapons and related programmes, and to conduct ongoing monitoring and verification (OMV). UN Security Council Resolution 707 required Iraq to make a full, final and complete disclosure (FFCD) for each of the banned classes of weapon.¹³⁵ However, the submitted weapon declarations were regarded as inaccurate and incomplete by UNSCOM.¹³⁶ Owing to lack of cooperation and information from Iraq, UNSCOM was forced to withdraw in 1998 without having obtained a complete picture of the actual status of Iraq's weapon holdings and the related programmes and capabilities.¹³⁷ The discrepancies in the assessments of the Iraqi capability triggered a decision by the UK and the USA to initiate military action in December 1998 against Iraq on the basis of their claims that Iraq possessed banned weapons.

In 1999 UNSCOM was superseded by UNMOVIC, which was created under UN Security Council Resolution 1284.¹³⁸ After four years of denial of

¹³¹ Thompson, M., 'Open letter by Congressman Mike Thompson to US Secretary of Defense Donald H. Rumsfeld', 14 Jan. 2004, URL <http://www.house.gov/mthompson/press_release_Dr_Spendlove_Testimony_Reaction_and_DoD_Letter.htm>.

¹³² Official documentation on the tests is available at the DOD Internet site 'Project 112', URL <http://www.deploymentlink.osd.mil/current_issues/shad/shad_intro.shtml>. For information about Gulf War illnesses, see Zanders, J. P., Hersh, M., Simon, J. and Wahlberg, M., 'Chemical and biological weapon developments and arms control', *SIPRI Yearbook 2001: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 2001), pp. 545–47; and Zanders and Hart (note 71), pp. 486–88.

¹³³ Office of Public Health and Environmental Hazards, Veterans Health Administration, Department of Defense, 'Project 112 (including Project SHAD)', URL <<http://www1.va.gov/SHAD/>>.

¹³⁴ UN Security Council Resolution 687 (note 127). The IAEA was tasked with similar functions with regard to the Iraqi nuclear weapon programme.

¹³⁵ United Nations Security Council Resolution 707, 15 Aug. 1991.

¹³⁶ 'Letter dated 27 January 1999 from the Permanent Representatives of the Netherlands and Slovenia to the United Nations addressed to the President of the Security Council', UN document S/1999/94, 29 Jan. 1999, URL <<http://www.iraqwatch.org/un/UNSCOM/coverletter.htm>>.

¹³⁷ Wahlberg, M., Leitenberg, M. and Zanders, J. P., 'The future of chemical and biological weapons disarmament in Iraq: from UNSCOM to UNMOVIC', *SIPRI Yearbook 2000: Armaments, Disarmament and International Security* (Oxford University Press: Oxford 2000, pp. 570–74).

¹³⁸ UN Security Council Resolution 1284, 17 Dec. 1999.

access to Iraq, UN Security Council Resolution 1441 was unanimously adopted and UN inspectors restarted inspections and monitoring activities in Iraq on 27 November 2002, giving Iraq a 'final opportunity' to comply with its disarmament obligations.¹³⁹

In early February 2003 the USA presented claims to the UN Security Council that Iraq was in 'material breach' of Resolution 1441 (including the possession of substantial BW and CW stockpiles and mobile BW production facilities) and challenged the UN to enforce its resolutions on Iraq.¹⁴⁰ This view was not shared by all members of the Security Council and considerable disagreement ensued. The UK and the USA stated that Iraq's actions amounted to non-compliance with Resolution 1441 and cited the paragraph of the resolution on the enforcement of 'serious consequences' in the event of non-compliance.¹⁴¹ In statements to the Security Council, a majority of its members argued that Iraq was, at a minimum, cooperating on the inspection process and that weapon inspections should continue.¹⁴²

The meaning of the phrase 'serious consequences' and whether or not it implied an automatic trigger to military action, was the main issue of concern. Spain, the UK and the USA submitted draft resolutions to the Security Council which would have declared Iraq to be in material breach and authorized the use of military force.¹⁴³ France, Germany and Russia opposed the draft resolutions and agreed that a new resolution authorizing war ought not to be passed by the Security Council.¹⁴⁴ On 17 March, Spain, the UK and the USA withdrew their draft resolutions because of the refusal by France, Germany and Russia to support a resolution with language that could be used to justify military action.¹⁴⁵

¹³⁹ UN Security Council Resolution 1441, 8 Nov. 2002.

¹⁴⁰ US Department of State, 'Remarks to the United Nations Security Council', statement by US Secretary of State Colin L. Powell, 5 Feb. 2003, URL <<http://www.state.gov/secretary/rm/2003/17300.htm>>.

¹⁴¹ UN Security Council Resolution 1441 (note 139), para. 13. The elements that would constitute a material breach (false statements and failure to comply) together or separately (depending on interpretation) provide the basis for determining whether 'serious consequences' will be enforced.

¹⁴² United Nations, 'Iraq cooperating with disarmament procedures, but many banned weapons remain unaccounted for, inspectors tell Security Council', Press Release SC/7664, 14 Feb. 2003, URL <<http://www.un.org/News/Press/docs/2003/sc7664.doc.htm>>; and United Nations, 'United Nations weapons inspectors report to the Security Council on progress in disarmament of Iraq', Press Release SC/7682, 7 Mar. 2003.

¹⁴³ United Nations, 'Iraq: US/UK/Spain draft resolution: 24 February 2003', 24 Feb. 2003, URL <<http://www.un.int/usa/scdraft-iraq-2-24-03>>; and United Nations, 'Spain, United Kingdom of Great Britain and Northern Ireland and United States of America: draft resolution', UN Security Council document S/2003/215, provisional, 7 Mar. 2003, URL <www.un.org/News/dh/iraq/res-iraq-07mar03-en-rev.pdf>.

¹⁴⁴ A memorandum from Russia, Germany and France was submitted to the UN in response to the draft resolution by the USA, the UK and Spain. French Embassy, Australia, 'Franco-German-Russian memorandum on Iraq submitted to the United Nations Security Council', 24 Feb. 2003, URL <<http://www.ambafrance-au.org/media/pages/s2003/s2003.en.htm>>; 'Joint declaration by Russia, Germany and France on Iraq', 10 Feb. 2003 <<http://www.ambafrance-au.org/media/pages/s2003/s1103.en.htm>>; and 'Iraq: joint statement by Russia, Germany and France', 5 Mar. 2003, URL <<http://www.ambafrance-au.org/media/pages/s2003/s2303.en.htm>>.

¹⁴⁵ United Nations, 'United Kingdom, United States and Spain won't seek vote on draft resolution', 17 Mar. 2003, URL <<http://www.un.org/av/photo/sc/sc031703.htm>>.

The UN weapon inspectors left Iraq on 18 March, about 24 hours before the US-led coalition launched its military action against the country. The stated principal reason for the war was the view held by the USA, the UK and others that Iraq possessed banned weapons and that the Iraqi regime constituted a grave threat to international peace and security.¹⁴⁶ Their view was that UNMOVIC had failed to uncover these weapons, and that the only way to disarm Iraq was by military action.¹⁴⁷

Assessments of Iraqi capabilities

On 6 March 2003, UNMOVIC submitted to the Security Council a 175-page report, which became known as the 'Working Document' and which described the unresolved issues in Iraq.¹⁴⁸ Notable issues in the report included discrepancies involving VX and sulphur mustard, in the chemical field, and anthrax and botulinum toxin, in the biological field.

UNMOVIC concluded that it was doubtful that any significant quantities of VX were produced before the Gulf War, based on the evaluation of the presumed method used to produce VX (referred to as 'route B').¹⁴⁹ According to UNMOVIC, this method of production requires that the agent 'must be used relatively quickly after production (about 1–8 weeks)' so that it does not degrade to the point of being unviable.¹⁵⁰ The presence of traces of a VX degradation product and a chemical known to be a stabilizer for VX were apparently found on remnants of missile warheads that Iraq had unilaterally destroyed. Iraq repeatedly denied the validity of these findings.¹⁵¹

The production of sulphur mustard constituted an important part (about 70 per cent by weight) of Iraq's total declared production of CW. According to UNMOVIC, strong evidence suggests that most quantities of sulphur mustard remaining in 1991, as declared by Iraq, were destroyed under UNSCOM supervision. Remaining gaps in the reporting include accounting for sulphur

¹⁴⁶ White House, 'President's remarks at the United Nations General Assembly' Press Release, 12 Sep. 2002, URL <<http://www.whitehouse.gov/news/releases/2002/09/20020912-1.html>>; British Government, *Iraq's Weapons of Mass Destruction: the Assessment of the British Government* (Stationery Office Limited: London, 24 Sep. 2002), available at URL <<http://www.official-documents.co.uk/document/rep/iraq/iraqdossier.pdf>>; White House, President Bush discusses Iraq in national press conference', 6 Mar. 2003, URL <<http://www.whitehouse.gov/news/releases/2003/03/20030306-8.html>>; and 10 Downing Street, 'PM focuses on Iraq and domestic agenda', 28 Apr. 2003, URL <<http://www.number-10.gov.uk/output/Page3535.asp>>.

¹⁴⁷ In a letter from President Bush to Congress he stated 'reliance by the United States on further diplomatic and other peaceful means alone will neither (A) adequately protect the national security of the United States against the continuing threat posed by Iraq nor (B) likely lead to enforcement of all relevant United Nations Security Council resolutions regarding Iraq', White House, 'Presidential letter', 18 Mar. 2003, URL <<http://www.whitehouse.gov/news/releases/2003/03/20030319-1.html>>.

¹⁴⁸ UNMOVIC Working Document, 'Unresolved disarmament issues: Iraq's proscribed weapons programmes', 6 Mar. 2003, URL <<http://www.un.org/Depts/unmovic/documents/cluster6mar.pdf>>.

¹⁴⁹ UNMOVIC assigned letters to designate various production methods for producing CW agents, apparently, partly for ease of reference and partly to avoid providing excessive detail on possible production routes.

¹⁵⁰ UNMOVIC Working Document (note 148), p. 82.

¹⁵¹ An initial chemical analysis showed traces of the degradation product. However, 2 other laboratories found no nerve agent degradation products, and there was no consensus on how to interpret the findings of previous chemical analyses. UNMOVIC Working Document (note 148), pp. 81–82.

mustard-filled shells and aerial bombs; 550 artillery projectiles and 450 aerial bombs (possibly filled with approximately 80 tonnes or more of sulphur mustard) could remain from 1991.¹⁵² There was also a further discrepancy related to aerial bombs which resulted from the discovery of the so-called air force document that was found by inspectors in 1998 and subsequently taken from them.¹⁵³ This document apparently indicated that 6526 fewer chemical weapons had been used in the war with Iran than Iraq had previously declared. This implies that some such weapons may still exist, although doubt has been expressed regarding the accuracy of the data in this document. Additional information, if still available, would have to be provided by Iraq for 1982–90 in order for these discrepancies to be resolved.¹⁵⁴

According to the Working Document, UNMOVIC could not confirm the destruction of 8500 litres of anthrax spores, which Iraq claimed to have destroyed in 1991. On the basis of the amount of growth media unaccounted for, UNMOVIC estimated that the potential production capability of anthrax spores could have been 15 000–25 000 litres or, with better equipment, 22 000–39 000 litres.¹⁵⁵ On the basis of the available evidence, UNMOVIC concluded that there was a ‘strong presumption’ that approximately 10 000 litres of anthrax had not been destroyed and, therefore, may still exist.¹⁵⁶

Regarding botulinum toxin (referred to by UNMOVIC as Agent A) the assessed figure of Iraqi total production is 19 000 litres (the amount declared by Iraq). According to UNSCOM, however, Iraq could have produced at least twice this amount. Iraq claimed that it had destroyed all production records, and UNSCOM was therefore unable to verify the amounts of agent produced and destroyed. UNMOVIC reported that, given Iraq’s fermenter capacity and the unaccounted for bacterial growth media, production could have greatly exceeded the amount declared by Iraq.¹⁵⁷

The absence of documentation submitted by Iraq on the production and destruction of CBW agents generally resulted in significant discrepancies and complicated international efforts to assess the number and type of proscribed weapons that might have been retained.

The public estimates of Iraq’s capabilities that were produced by the coalition partners differed from those reported by UNMOVIC. According to a February 2003 fact sheet produced by the US Department of State, 1.5 tonnes of VX were still unaccounted for. The fact sheet also stated that the UN estimated that Iraq was able to produce 26 000 litres of anthrax spores and 38 000 litres of botulinum toxin.¹⁵⁸

¹⁵² UNMOVIC Working Document (note 148), pp. 75–76.

¹⁵³ Zanders, J. P., French, E. M. and Pauwels, N., ‘Chemical and biological weapon developments and arms control’, *SIPRI Yearbook 1999: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1999), p. 590.

¹⁵⁴ UNMOVIC Working Document (note 148), pp. 50, 76–77.

¹⁵⁵ UNMOVIC Working Document (note 148), p. 95.

¹⁵⁶ UNMOVIC Working Document (note 148), p. 98.

¹⁵⁷ UNMOVIC Working Document (note 148), pp. 99–100.

¹⁵⁸ US Department of State, ‘Iraq’s hidden weapons: failing to disclose and disarm’, Fact Sheet, 27 Feb. 2003, URL <<http://www.state.gov/documents/organization/18130.pdf>>.

British assessments of Iraqi capabilities and Iraqi concealment efforts were presented in two dossiers: the first published in September 2002,¹⁵⁹ and the second published in February 2003.¹⁶⁰ Both dossiers appear to contain inaccuracies. For example, the September dossier stated that ‘some of these [chemical and biological] weapons were deployable within 45 minutes of an order to deploy them’.¹⁶¹

UN inspection activities

Inspection mandate

The relevant UN Security Council resolutions, outlined above, required Iraq to provide declarations of all aspects of its programmes to develop NBC weapons, ballistic missiles and other delivery systems and to verifiably destroy relevant items. On 7 December 2002, Iraq submitted a more than 12 000-page declaration.¹⁶² Notwithstanding the size of the document, UNMOVIC concluded that it consisted of largely the same content as previous declarations with little new information that might assist in settling the unresolved questions regarding Iraq’s weapon capabilities.¹⁶³

UNMOVIC’s weapon findings

UNMOVIC began intense inspections in Iraq in November 2002. At the end of February 2003, 202 personnel (of whom 84 were inspectors) were present in Iraq. They conducted 731 inspections, covering 411 sites (of which 88 had not previously been inspected) by the time inspection activities were suspended on 18 March 2003.¹⁶⁴ The inspectors uncovered a total of 18 undeclared 122-mm chemical warheads and motors.¹⁶⁵ UNMOVIC found and destroyed 14 filled 155-millimetre shells, which had been stored since 1997. These shells contained sulphur mustard that had been produced over 15 years earlier but which was still 97 per cent pure.¹⁶⁶ On 21 and 25 February Iraq informed UNMOVIC that two complete BW (R-400) aerial bombs (one

¹⁵⁹ British Government, *Iraq’s Weapons of Mass Destruction, the Assessment of the British Government* (Stationery Office Ltd: London, 24 Sep. 2002), available at URL <<http://www.official-documents.co.uk/document/rep/iraq/iraqdossier.pdf>>.

¹⁶⁰ 10 Downing Street, ‘Iraq: its infrastructure of concealment, deception and intimidation’, Jan. 2003, URL <<http://www.number-10.gov.uk/files/pdf/Iraq.pdf>>. This dossier was the subject of some controversy after it was revealed that sections had been taken from a doctoral thesis without attribution.

¹⁶¹ British Government (note 146), p. 5.

¹⁶² ‘News Chronology’, *CBW Conventions Bulletin*, no. 59 (Mar. 2003), p. 21, URL <<http://www.sussex.ac.uk/spru/hsp/cbwc59.pdf>>.

¹⁶³ UNMOVIC’s 12th Quarterly Report is attached as an annex to United Nations, Security Council document S/2003/232, 28 Feb. 2003, paras. 6–12. It is available at the UNMOVIC Internet site at URL <<http://www.unmovic.org/>>.

¹⁶⁴ UNMOVIC’s 13th Quarterly Report is attached as an annex to United Nations, Security Council document S/2003/580, 30 May 2003, para. 17. It is available at the UNMOVIC Internet site at URL <<http://www.unmovic.org/>>.

¹⁶⁵ A commission was established by Iraq to investigate and search for similar cases. In late Jan. its mandate was extended to include a search for documents.

¹⁶⁶ UNMOVIC’s 13th Quarterly Report (note 164), p. 30.

with 'liquid' contents) had been excavated at Al-Aziziyah.¹⁶⁷ UNMOVIC concluded that the genotype of the anthrax strain in the samples was identical to the genotype of the strain declared by Iraq as selected for weaponization.¹⁶⁸

Coalition inspection activities

The coalition deployed its own inspectors both before and after 1 May 2003, the date on which US President George W. Bush declared that major hostilities in Iraq were over. Units were organized to identify weapon holdings and to disarm Iraq, the task formerly ascribed to UNMOVIC and the IAEA.¹⁶⁹ The sharing of information, findings, experiences and expertise between UNMOVIC and the coalition has been essentially non-existent.¹⁷⁰

From March to June 2003, US site survey teams totalling approximately 100 personnel were deployed to examine and evaluate suspected WMD-related sites. The number and size of these teams were reduced in May. In the same period mobile exploitation teams, led by the US military,¹⁷¹ were also deployed in Iraq with the task of uncovering and documenting WMD. The groups totalled approximately 600 personnel including intelligence officers, computer specialists and WMD experts.¹⁷² In June the inspection structure was reorganized and the Iraq Survey Group, commanded by US Army Major-General Keith Dayton, replaced the METs.¹⁷³ The ISG was a considerable expansion of effort, building on the work done by the METs but with enhanced analytical capability and consolidation of the various intelligence disciplines participating.¹⁷⁴ It is comprised of Australian, British and US military and personnel from other government agencies. Its headquarters are located in Baghdad. The primary goal of the ISG is to uncover and eliminate NBC weapons. The group has had a staff of up to 1400 people, many of whom have been on temporary assignment. They report through military channels, via Major-General Dayton, to the US Central Command.¹⁷⁵

¹⁶⁷ UNMOVIC's 12th Quarterly Report (note 163), 28 Feb. 2003 paras. 40–43.

¹⁶⁸ UNMOVIC's 15th Quarterly Report is attached as an annex to United Nations, Security Council document S/2003/1135, 26 Nov. 2003, para. 5. It is available at the UNMOVIC Internet site at URL <<http://www.unmovic.org/>>.

¹⁶⁹ The IAEA was mandated to verify nuclear disarmament in Iraq.

¹⁷⁰ UNMOVIC's 13th Quarterly Report (note 164), para. 5; and UNMOVIC's 15th Quarterly Report (note 168), para. 3. Some informal information transfer occurred when, e.g., a number of former UNMOVIC employees subsequently became ISG inspectors.

¹⁷¹ It was also known as the 75th Exploitation Task Force and made up of 4 teams.

¹⁷² Cirincione, J. *et al.*, *WMD in Iraq: Evidence and Implications* (Carnegie Endowment for International Peace: Washington, DC, Jan. 2004), p. 19, available at URL <<http://www.ceip.org/files/pdf/Iraq3FullText.pdf>>.

¹⁷³ US Department of State, Bureau of International Information Programs, Denny, D. A., 'New WMD Survey Group to begin operation in Iraq soon', 30 May 2003, URL <<http://usinfo.state.gov/topical/pol/arms/03053004.htm>>.

¹⁷⁴ US Department of Defense, 'Briefing on the Iraq Survey Group', 30 May 2003, URL <<http://www.defenselink.mil/transcripts/2003/tr20030530-0231.html>>.

¹⁷⁵ US Department of Defense, Garamone, J., 'Iraq Survey Group to take over hunt for Iraqi weapons', 30 May 2003, URL <http://www.dod.mil/news/May2003/n05302003_200305305.html>. The task of the ISG is to collect and exploit documents and media related to terrorism, war crimes, prisoner of war and mission-in-action issues.

The ISG has more staff and other resources than did the METs. While, the number of dedicated ‘weapon searchers’ is only slightly larger in the ISG, greater focus is placed on analysis and other information collection, including interviewing Iraqis, dealing with human rights abuses and searching for terrorist connections. Emphasis has been placed on inspecting places indicated to be of potential interest by intelligence analysis rather than focusing on a given lists of sites.¹⁷⁶ The change in inspection methodology occurred at the same time as a marked change in the use of terminology referring to Iraq’s capabilities. When the ISG started its initial search, the language in the statements shifted from searching for chemical and biological ‘weapons’ to looking for ‘weapon programmes’.

The ISG report

In October 2003 an unclassified, interim report summarizing the post-war search for chemical and biological weapons in Iraq was presented by David Kay, CIA Special Advisor for Strategy Regarding Iraqi Weapons of Mass Destruction (WMD) Programs and ISG coordinator.¹⁷⁷ It concluded that no chemical or biological weapons or evidence of recent BW or CW production had been found. However, according to Kay, the ISG had ‘discovered dozens of WMD-related program activities and significant amounts of equipment that Iraq concealed from the United Nations during the inspections that began in late 2002’. The discoveries of undeclared activities, equipment and materials included: laboratories and safe houses containing equipment that the ISG claimed was suitable for continuing CBW research; reference strains, including a vial containing a live strain of *C. botulinum* Okra B concealed in the home of an Iraqi weapon scientist; and unmanned air vehicles (UAVs) not ‘fully’ declared and located at an undeclared production facility.¹⁷⁸

The report also stated that a number of Iraqi facilities (e.g., laboratories and government offices) had been ‘clearly sanitized’, including through the removal of equipment and the shredding or burning of documents. The report stated that no evidence had been found ‘to confirm pre-war reporting that Iraqi military units were prepared to use CW against Coalition forces’. It stated that the search for CW was complicated by the immense size of conventional munition dumps and the Iraqi practice of poorly marking or incorrectly marking CW munitions (CW were co-located with conventional munitions).¹⁷⁹

¹⁷⁶ US Department of Defense (note 174).

¹⁷⁷ CIA, ‘DCI Tenet announces appointment of David Kay as special advisor’, Press Release, 11 June 2003, URL <http://www.odci.gov/cia/public_affairs/press_release/2003/pr06112003.htm>.

¹⁷⁸ There was concern that Iraq might have been producing UAVs capable of carrying CBW agents. See the discussion in the subsection ‘Alleged use of UAVs as a chemical and biological weapon delivery system’ in this chapter. CIA Speeches and Testimony, ‘Statement by David Kay on the interim progress report on the activities of the Iraq Survey Group before the House Permanent Select Committee on Intelligence, the House Committee on Appropriations, Subcommittee on Defense, and the Senate Select Committee on Intelligence’, 2 Oct. 2003, URL <http://www.cia.gov/cia/public_affairs/speeches/2003/david_kay_10022003.html>.

¹⁷⁹ There are c. 130 Iraqi ammunition storage points (ASP) of which only 10 had been adequately searched at the time of Kay’s report. Many ASPs were said to exceed 80.5 sq km in area and to contain 600 000 munitions per site. CIA Speeches and Testimony (note 178).

Kay also stated that it would be necessary to conclude the process of interviewing Iraqi weapon scientists and technicians and further analysing large amounts of paperwork before more definite conclusions could be reached. On 23 January 2004 David Kay resigned and was succeeded by Charles A. Duelfer, a former inspector with and Deputy Executive Chairman of UNSCOM.¹⁸⁰ Shortly after his resignation, Kay stated that most Western intelligence services assessments of Iraq's chemical and biological weapon capabilities were wrong.

Alleged mobile biological weapon facilities

Citing intelligence information, the coalition leadership stated that Iraq possessed mobile units for the production of biological weapons. However, the Iraqi declaration of 7 December 2002 made no mention of such items.¹⁸¹ In late April and early May 2003 a specialized trailer and a second mobile facility were discovered.¹⁸² Both contained equipment, including what appeared to be fermenters. The trailer found in late April was similar to the description of mobile BW production facilities that was provided by a former Iraqi chemical engineer. The information provided by the engineer was used to illustrate US Secretary of State Colin L. Powell's speech to the UN Security Council in February 2003 on alleged Iraqi BW mobile programmes.¹⁸³ Powell's speech formed part of the basis for a public announcement by President Bush in May that the USA had found WMD and prohibited manufacturing equipment in Iraq.¹⁸⁴

The view that the trailers were mobile BW production facilities was widely disputed by a number of analysts, including British and US experts, who argued that it was premature to state that a biological warfare programme in Iraq still existed. They argued that the mobile units were more likely intended for other purposes such as the production of hydrogen for weather balloons or the production of rocket fuel.¹⁸⁵ One feature of the trailer that caused debate was the fact that it had canvas sides that could be rolled up to roof level. Although the canvas siding would provide poor containment for a biological laboratory, it would allow suitable ventilation for the handling of hazardous industrial chemicals, such as hydrogen or rocket fuel.¹⁸⁶ The ISG concluded in October 2003 that, while not ideal for the production of hydrogen, rocket fuel

¹⁸⁰ CIA, 'DCI announces Duelfer to succeed Kay as special adviser', Press Release, 23 Jan. 2004, URL <http://www.cia.gov/cia/public_affairs/press_release/2004/pr01232004.html>.

¹⁸¹ White House, 'What does disarmament look like?', Jan. 2003, p. 5, available at URL <http://www.whitehouse.gov/infocus/iraq/disarmament/02_examples.html>.

¹⁸² CIA and Defense Intelligence Agency (DIA), 'Iraqi mobile biological warfare agent production plants', 28 May 2003, URL <http://www.cia.gov/cia/reports/iraqi_mobile_plants/index.html>.

¹⁸³ US Department of State (note 140).

¹⁸⁴ Allen, M., 'Bush: "we found" banned weapons', *Washington Post*, 31 May 2003, URL <<http://www.washingtonpost.com/ac2/wp-dyn/A60140-2003May30?language=printer>>.

¹⁸⁵ Jehl, D., 'Agency disputes view of trailers as Iraqi weapons labs', *New York Times*, 26 June 2003, URL <<http://www.nytimes.com>>.

¹⁸⁶ Beaumont, P. and Barnett, A., 'Blow to Blair over "mobile labs"', *The Observer*, 8 June 2003, URL <<http://observer.guardian.co.uk/iraq/story/0,12239,973195,00.html>>.

or biological agents, the trailers could be used for all of these purposes.¹⁸⁷ As of 31 January 2004, there was still no reliable public information to establish the existence of a mobile BW production facilities in Iraq.

Alleged use of UAVs as a chemical and biological weapon delivery system

According to a US assessment, Iraq was exploring ways of using UAVs to deliver chemical and biological warfare agents.¹⁸⁸ Although Iraq had not declared any UAVs, during its inspections in the spring of 2003, UNMOVIC inspectors discovered a drone with a wingspan of 7.45 metres.¹⁸⁹ (Iraq had declared drones with a wingspan of up to 5.52 metres.¹⁹⁰) UNMOVIC was compelled to leave Iraq before determining whether these drones were capable of disseminating chemical and biological weapons. The assessment that drones could be used as delivery systems for such weapons was contradicted by the US Air Force, which stated that they were designed to be used for unarmed reconnaissance missions.¹⁹¹

The post-conflict status of UNMOVIC

On 22 May 2003 UN Security Council Resolution 1483 was adopted, with Syria abstaining.¹⁹² Resolution 1483 lifted the economic sanctions on Iraq and acknowledged the occupying powers (Coalition Provisional Authority)¹⁹³ as the ruling authority. The Goods Review List¹⁹⁴ ceased to exist and UNMOVIC no longer reviews contracts in order to determine what items are allowed to be imported.¹⁹⁵ Although international economic sanctions have been lifted, the arms embargo on Iraq remains in effect.¹⁹⁶ The resolution also underlines the UN's intention to 'revisit' its mandates and encourages the UK and the USA to inform the Security Council of the disarmament activities that they under-

¹⁸⁷ Conference call, David Kay and members of the press 3 Oct. 2003, as transcribed by Professional Word Processing and Transcribing.

¹⁸⁸ White House, 'President Bush outlines Iraqi threat', 7 Oct. 2002, URL <<http://www.whitehouse.gov/news/releases/2002/10/20021007-8.html>>.

¹⁸⁹ UNMOVIC Working Document (note 148), p. 14.

¹⁹⁰ Cirincione *et al.* (note 172).

¹⁹¹ Graham, B., 'Air Force analysts feel vindicated on Iraqi drones', *Washington Post*, 26 Sep. 2003, URL <<http://www.washingtonpost.com>>.

¹⁹² UN Security Council Resolution 1483, 22 May 2003; and United Nations, 'Security Council lifts sanctions on Iraq, approves UN role, calls for appointment of Secretary-General's Special Representative', Press Release SC/7765, 22 May 2003, URL <<http://www.un.org/News/Press/docs/2003/sc7765.doc.htm>>.

¹⁹³ See the Coalition Provisional Authority Internet site at URL <<http://www.cpa-iraq.org/>>.

¹⁹⁴ The Goods Review List was established by UN Security Council Resolution 1409, 14 May 2002. It comprises several categories of dual-use commodities and products and introduces 'smart sanctions' to ensure the rapid and unimpeded flow of civilian goods to the Iraqi people while maintaining critical controls on 'militarily useful' items.

¹⁹⁵ UNMOVIC's 14th Quarterly Report is attached as an annex to United Nations, Security Council document S/2003/844, 28 Aug. 2003, para. 5. It is available at the UNMOVIC Internet site at URL <<http://www.unmovic.org/>>.

¹⁹⁶ Zanders, J. P. *et al.*, *The Relevance of the Chemical Weapons Convention for Cases of Non-Compliance: Lessons from and for Iraq?*, SIPRI Policy Paper no. 5 (SIPRI: Stockholm, Oct. 2003), available at URL <<http://editors.sipri.se/recpubs.html>>, p. 8.

take in Iraq.¹⁹⁷ Although Resolution 1483 provided the groundwork which allowed the coalition to deny renewed inspections by UNMOVIC in Iraq, the UNMOVIC mandate has not been revoked. In general, if two resolutions cannot be reconciled the latter prevails over the earlier. However, the earlier resolutions remain in force and can be reconciled with a newer resolution.¹⁹⁸ The ongoing monitoring and verification arrangements,¹⁹⁹ whose implementation has been a long-term goal under UN resolutions relating to Iraq, may be revived in the future since UN Security Council Resolution 1483 appears not to have altered the mandate to implement the OMV.²⁰⁰

Although the resolutions guiding UNMOVIC's disarmament mandate have not been revoked, the occupation of Iraq has effectively altered the premises on which they were based, and they have become inoperable.²⁰¹ The manner in which the international inspection regime was handled has been viewed with disappointment, and concern has been expressed that the legitimacy of any future discoveries of WMD in Iraq would be undermined if the inspections were not internationally supervised. In the meantime, UNMOVIC has continued to work on tasks such as the development of monitoring requirements, including OMV that are tailored to the new environment in Iraq following the lifting of sanctions. These tasks include preparation of flow charts for chemical and biological processes and missile production, and identification of practical arrangements required at the national level to support an effective monitoring and verification system. Plans have also been made for additional analysis if samples of BW material (anthrax spores), which Iraq declared to have been unilaterally destroyed, are found. The core staff has been reduced to 51 weapon experts and other staff, compared to 202 staff members²⁰² before the war.²⁰³ Each month \$1.5 million is expended on continuing costs by UNMOVIC, which maintains that it is ready to resume the search if authorized to do so by the Security Council.²⁰⁴ On 1 July 2003, Demetrios Perricos replaced Hans Blix as Acting Executive Chairman of UNMOVIC.²⁰⁵

A decision by the Security Council is needed to establish guidelines on how to proceed in the future.²⁰⁶ A UN Security Council resolution would be required to terminate UNMOVIC's activities and declare Iraq's disarmament

¹⁹⁷ UN Security Council Resolution 1483 (note 192), para. 11.

¹⁹⁸ UNMOVIC's 13th Quarterly Report (note 164).

¹⁹⁹ UN Security Council Resolution 715, 11 Oct. 1991.

²⁰⁰ UNMOVIC's 14th Quarterly Report (note 195).

²⁰¹ UNMOVIC was particularly guided by UN Security Council resolutions 687 (1991), 1284 (1999) and 1441 (2002).

²⁰² UNMOVIC's 12th Quarterly Report (note 163).

²⁰³ UNMOVIC's 15th Quarterly Report (note 168).

²⁰⁴ UN News Centre, 'Unofficial transcript of comments to the press by UNMOVIC Executive Chairman Hans Blix following his briefing to the Security Council', 25 Nov. 2003, URL <<http://www.un.org/apps/news/infocusnewsiraq.asp?NewsID=267&SID=6>>.

²⁰⁵ Perricos was the Director of Planning and Operations of UNMOVIC. Previously, he worked for the IAEA and was a member of its Iraq Action Team, which carried out nuclear inspections of Iraq under the terms of UN Security Council Resolution 687. UNMOVIC, 'Executive Chairman', URL <<http://www.un.org/Depts/unmovic/new/pages/chairman.asp>>.

²⁰⁶ UN News Centre, 'Introduction of draft UNMOVIC Work Programme, Security Council 19 March 2003 Executive Chairman Dr Hans Blix', 19 Mar. 2003, URL <<http://www.un.org/apps/news/infocusnewsiraq.asp?NewsID=434&SID=6>>.

obligations completed. The UK and France, supported by *inter alia* Canada and Russia, proposed to transform UNMOVIC into a permanent UN agency of arms inspectors who would be authorized to investigate BW and missile programmes worldwide.²⁰⁷ In 2003 the Council of the European Union adopted an Action Plan for the Implementation of the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction. Under the plan, the EU will consider how the ‘unique verification and inspection competence’ of UNMOVIC in the area of BW and missiles could be retained and utilized in future. Such activities might include the possible establishment of a verification framework within the UN to undertake inspection and verification activities after a decision by the UN Security Council. A roster of experts would be maintained until such a time.²⁰⁸ The EU plan also reflects the view of a number of UN member states that a formal decision should be taken to determine the future of UNMOVIC and that an arrangement should be made to allow for the fulfilment of those parts of UNSCOM’s mandate that are still operable (e.g., to confirm that Iraq has met its disarmament obligations). A related issue is whether and how the OMV should be continued.²⁰⁹

VI. Other efforts to prevent chemical and biological warfare

In 2003 wide-ranging, interrelated national and international measures continued to be taken to prevent the use of chemical and biological weapons. Heightened concern that non-state actors (i.e., terrorists) could acquire and use chemical and biological weapons has led many states to take further steps to ensure that certain materials, equipment and technologies are not misused. Some of these measures were carried out using established mechanisms, including the Australia Group (AG)²¹⁰ and the World Health Organization; other measures and mechanisms, such as the PSI, have been established more recently.²¹¹

Non-proliferation efforts

European Union Action Plan and Strategy

In 2003 the Council of the European Union discussed the issue of WMD proliferation, including ways to prevent the means for the delivery of such weapons. It endorsed the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction and approved an Action Plan

²⁰⁷ Global Security Newswire, ‘France, United Kingdom want to convert UNMOVIC into permanent inspection agency’, 26 Nov. 2003, URL <http://www.nti.org/d_newswire/issues/print.asp?story_id=C94EDA36-CE67-4EB5-B923-DAECA44BF75B>. The OPCW implements a verification regime of the chemical industry and monitors the transfer of certain chemicals to help assure they are not misused for purposes prohibited by the CWC.

²⁰⁸ European Union, ‘Action Plan’ (note 49).

²⁰⁹ See also the Introduction and chapter 14 in this volume.

²¹⁰ The Australia Group Internet site is at URL <<http://www.australiagroup.net/>>.

²¹¹ See also the Introduction and chapter 14 in this volume.

for the Implementation of the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction.²¹² The EU Strategy (approved in December 2003) supersedes this document.²¹³

The Proliferation Security Initiative

The Proliferation Security Initiative is a new effort to counter attempts by states to acquire materials and technologies that could be used to support efforts to acquire chemical and biological weapons (as well as nuclear weapons and missiles with certain capabilities). Its creation was announced in a speech by US President Bush in Krakow, Poland, on 31 May 2003.²¹⁴ It is viewed as a major new initiative to prevent the spread of chemical and biological weapons.

The Iraqi International Center for Science and Industry

On 18 December the Coalition Provisional Authority²¹⁵ and the US Department of State launched a two-year, US-funded programme to provide civilian employment to Iraqi engineers, scientists and technicians who were formerly involved in Iraq's WMD programmes. Its purpose is to prevent such individuals from assisting countries of 'proliferation concern' and to support Iraq's economic and technological development. The programme will be implemented by the Iraqi International Center for Science and Industry (IICSI), which will be located in Baghdad, and will cost a reported \$2 million.²¹⁶

Law enforcement activities

The anthrax investigation

In 2003 investigations continued into the 2001 attacks in the USA with letters that were filled with concentrated anthrax spores.²¹⁷ There was continued speculation on whether those responsible were US citizens or foreign nationals and whether a non-state or state actor was involved. The Federal Bureau of Investigation (FBI) searched a number of bodies of water in the greater Washington, DC area looking for evidence.

In June the FBI drained a pond in a forest approximately 12.8 km from the US Army Medical Research Institute of Infectious Diseases (USAMRIID)

²¹² European Union, 'Action Plan' (note 49). See also chapter 14 in this volume.

²¹³ European Union, 'EU institutions press releases' (note 49).

²¹⁴ For more information see chapter 18 in this volume.

²¹⁵ See the Coalition Provisional Authority (note 193).

²¹⁶ US Department of State, Boucher, R., 'Redirection of Iraqi weapons of mass destruction (WMD) experts', Press Statement, 18 Dec. 2003, URL <<http://www.state.gov/r/pa/prs/ps/2003/27408.htm>>; and US Department of State, 'Redirection of Iraqi weapons of mass destruction (WMD) experts short-term program', Fact Sheet, 18 Dec. 2003, URL <<http://www.state.gov/r/pa/prs/ps/2003/27409pf.htm>>.

²¹⁷ See Federal Bureau of Investigation (FBI), 'Amerithrax: seeking information', URL <<http://www.fbi.gov/anthrax/amerithraxlinks.htm>>; Zanders, Hart and Kuhlau (note 67), pp. 696–703; Cole, L. A., *The Anthrax Letters: a Medical Detective Story* (Joseph Henry Press: Washington, DC, 2003); and Thompson, M. W., *The Killer Strain* (HarperCollins Publishers, Inc.: New York, 2003).

facility, located at Fort Detrick, Maryland. The searches were reportedly conducted to investigate the possibility that the letters had been filled using a submerged (or partially submerged) glove box in order to limit the possibility of self-exposure.²¹⁸ In addition to various items, including at least 1 handgun and assorted household refuse, the FBI took numerous soil and water samples. It is not known whether items that could have been used as a glove box were recovered or what the sample test results revealed.

Prosecutions in cases involving controlled materials

On 14 January 2003 Dr Thomas C. Butler, head of the Division of Infectious Diseases at Texas Tech University's Department of Internal Medicine, notified university authorities that more than 30 vials containing the bacterium that causes bubonic plague were missing. The university informed the FBI which questioned and then arrested Butler the next day. During questioning, Butler asserted that he had in fact destroyed the vials.²¹⁹ In a written statement, released on 16 January, Butler stated that he had made a 'misjudgement' in not telling investigators that the plague bacteria had already been 'accidentally destroyed' and that he therefore knew that they did not present a threat to the public.²²⁰ On 1 December, Butler was found guilty on 47 of 69 charges brought against him. He was scheduled to be sentenced in early March 2004 and could receive, at the judge's discretion, either no time or a sentence of up to 46–63 months.²²¹

The investigation and prosecution were seen by some as indicative of legal and social changes in the USA that have occurred partly as a consequence of the 2001 attacks in which letters filled with concentrated anthrax spores were mailed to politicians and members of the media. Such changes have involved the establishment of national regulations for working with pathogens that are deemed to pose a possible bioterrorism risk ('select pathogens'). These regulations, which are mainly implemented by the US Centers for Disease Control's Select Agent Program,²²² include federal background checks of civilian and military researchers who work with select pathogens and stricter regulations for working with such pathogens. The new regulations include the establishment of laboratory safety and security procedures and the reporting and tracking of all transfers of pathogens. Concern has been expressed that the new measures will hinder civilian research.²²³

²¹⁸ A glove box is a sealed container allowing hazardous materials to be handled safely.

²¹⁹ Blaney, B., 'Arrest made in missing vials case', 15 Jan. 2003, URL <<http://www.intellnet.org/news/2003/01/16/15377-1.html>>.

²²⁰ The statement is reproduced in Enserink, M. and Malakoff, D., 'The trials of Thomas Butler', *Science*, vol. 302, no. 5653 (19 Dec. 2003), p. 2061.

²²¹ Miller, J. D., 'Butler to resign professorship', *Daily News*, 27 Jan. 2004, URL <<http://www.biomedcentral.com/news/20040127/04>>. Court documents are available at the US District Court, Northern District of Texas Internet site, URL <<http://www.txnd.uscourts.gov/>>. Court documents and related articles are also available at 'In support of Thomas C. Butler', Federation of American Scientists Internet site at URL <<http://www.fas.org/butler/index.html>>.

²²² See the Select Agent Program, US Centers for Disease Control, Internet site at URL <<http://www.cdc.gov/od/sap/index.htm>>.

²²³ Enserink and Malakoff (note 220).

On 17 July 2003 Kenneth R. Olsen became the first person tried and convicted of violating the Chemical Weapons Statute, which forms part of the US domestic implementation legislation of the CWC. His crime was the possession of ricin.²²⁴ Olsen was sentenced on 28 October to 13 years and 9 months imprisonment and was also convicted of violating the US criminal code that prohibits the development, production, possession and use of biological weapons.²²⁵ The conviction demonstrated that, for the first time, the USA is prepared to prosecute suspects for the possession of prohibited chemical and biological substances without having to prove intent to use the substances as weapons. The case raised the question of whether and how such chemical weapons should be declared to the OPCW and verifiably destroyed.²²⁶ In addition, evidence that is used in criminal prosecutions in the USA is, as a rule, retained as long as the legal possibility for appeal remains.²²⁷

On 13 March 2003, 26 year-old Joseph Konopka, known as 'Dr Chaos', was sentenced to 13 years' imprisonment by a federal judge in Chicago on two counts of violating the Chemical Weapons Statute. Konopka was the first person to be sentenced²²⁸ under this law.²²⁹ Konopka had obtained two bottles, filled with potassium cyanide and sodium cyanide, from an abandoned warehouse in mid-2001. He stored them in an electrical substation on the Chicago metro system. Chicago police stated at the time of his arrest in March 2002 that, although Konopka did not appear to be planning an attack, he was 'intelligent and very capable of accomplishing some destructive things'.²³⁰

VII. Conclusions

There is agreement among its parties that the BTWC regime should be strengthened, and efforts to do so and to improve BTWC implementation are currently being carried out, for example, by holding annual meetings of the parties. However, there is a lack of consensus among the parties on the extent to which such efforts can or should be conducted in other forums (e.g., the Australia Group, the PSI and the WHO) and the extent to which they should

²²⁴ US Code, Title 18, part I, chap. 11B, sec. 229, available at URL <<http://www4.law.cornell.edu/uscode/18/229.html>>. The US implementing legislation for the CWC is available at 'U.S. Chemical Weapons Convention Web Site', URL <http://www.cwc.gov/Authorities/legislation/cwcIndex_html>.

²²⁵ US Code, Title 18, part I, chap. 10, secs. 175–8, available at URL <<http://www4.law.cornell.edu/uscode/18/plch10.html>>; and 'News chronology', *CBW Conventions Bulletin* (note 26), p. 54.

²²⁶ The CWC covers toxins, including ricin and saxitoxin. The parties to the CWC are required to extend the prohibitions against CW to all individuals and groups under their jurisdiction and control.

²²⁷ In cases involving homicide, there is no statute of limitations until (or unless) the convicted felon has been executed. As Olsen disputed the prosecution's claim that ricin had been found, any decision to appeal the conviction might have an improved chance for success if the ricin were destroyed.

²²⁸ Konopka, unlike Olsen, did not challenge the prosecution's charges and pled guilty as part of a plea agreement. The US Department of Justice distinguishes between a person who pleads a case and one who is tried and convicted.

²²⁹ Previous cases brought under the statute were either dropped or the charges were modified to include other statute(s). 'News chronology', *CBW Conventions Bulletin*, no. 60 (note 52), p. 37. Konopka was convicted on 2 counts, not one as has been reported elsewhere.

²³⁰ 'News chronology' (note 229); and Jones, M. and Garza, J., "'Anarchist" charged over cache of cyanide: chemicals were hidden in Chicago's transit system', *Milwaukee Journal Sentinel*, 12 Mar. 2002, URL <<http://www.jsonline.com/news/state/mar02/26684.asp>>.

be pursued within the framework of the BTWC. Some parties and experts continue to express interest in the establishment of an implementing authority, such as a permanent secretariat, to assist with the implementation of the BTWC,²³¹ and this issue could be revisited in future. The level of interest in and the nature of such efforts should become clearer when the Sixth Review Conference convenes in 2006.

The parties to the CWC should remain actively involved in political and financial matters, in part, to ensure that the institutional memory and expertise of the OPCW is maintained as its tenure policy is implemented. The parties should also monitor relevant scientific and technological developments and ensure that OPCW procedures take them into account. For example, if the OPCW does not formally consider the applicability of the CWC provisions regarding non-lethal weapons or incapacitants and agree relevant policy decisions, there is a risk that this issue will be decided on the basis of implementation practice. This, in turn, could result in unintended or unforeseen consequences, particularly as regards the effective implementation of the general purpose criterion. Inspection procedures should also be implemented in a rigorous and appropriate manner. This can be achieved, in part, by ensuring that inspection equipment is up-to-date and properly maintained. Discrepancies in the collection of data on the transfer of chemicals and on reporting by the parties can and should be streamlined through the harmonization of guidelines and procedures. Continued interest in the CWC by many parties will also depend, to a great extent, on maintaining and developing international cooperation and assistance programmes. Finally, concern about the acquisition of chemical and biological weapons by non-state actors has become a major motivation for increasing both the total membership of the BTWC and the CWC and the quality of their implementation.

The decision by Libya to verifiably demonstrate to the international community that it no longer possesses chemical, biological and other weapons suggests that, in at least some cases, it is less tenable in the current international security environment for a country to maintain a policy of ambiguity as to whether it possesses NBC weapon programmes. The decision also suggests that ad hoc coalitions of like-minded states, acting on specific issues to meet perceived CBW threats, can be effective under certain circumstances. (A final assessment cannot be made until further information regarding the case of Libya becomes available.) Conversely, the manner in which some intelligence information was characterized and used by the UK and the USA regarding Iraq has raised doubt as to whether ad hoc coalitions can be sufficiently certain of the accuracy of their information. The actions of such coalitions should be seen to be justified by the existence of reliable, correct information and not unduly influenced or driven by political considerations. If not, the credibility of their actions may be fundamentally undermined or weakened.

Multilateral arms control and disarmament regimes offer a framework for states to agree politically sensitive matters that might not otherwise be

²³¹ Sims (note 8).

resolved. The implementation of routine verification measures also offers a degree of transparency and confidence that ad hoc coalitions cannot provide. Most countries do not have the resources or capability to follow international developments related to the possible misuse of chemical and biological substances. The BTWC and the CWC offer a framework for states to inform themselves of these developments. Given sustained political interest, support and effective national implementation by all states parties, these treaty regimes will continue to play a necessary and useful role in the current and future international security environment.

Pursuant to the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991 (the CBW Act), the United States has decided to impose a second round of sanctions on the Russian Federation over its use of a "novichok" nerve agent in the attack against Sergei Skripal and his daughter Yulia Skripal in the United Kingdom on March 4, 2018. EXPORT RESTRICTIONS: The additional export restrictions will only apply to items controlled by the Department of Commerce for chemical and biological weapons (CB) proliferation reasons. Licenses of exports of CB items to state-owned or state-funded entities in Russia will be subject to a "presumption of denial" policy.

17. Chemical and Biological Terrorism: Research and Development to Improve Civilian Medical Response by National Research Council.
18. Chemical and Biological Warfare: A Comprehensive Survey for the Concerned Citizen by Eric Croddy, Clarisa Perez-Armendariz, John Hart.
19. Chemical and Biological Weapons in Our Times (Single Title: Social Studies: Current Events) by Herbert M. Levine.
20. Chemical and Biological Warfare (Reference Shelf, Vol 71, No 3) by Brian Solomon (Editor).

16. Controlling chemical and biological weapons proliferation by Richard Latter.
17. Control of Dual-Threat Agents : The Vaccines for Peace Programme (Sipri Chemical & Biological Warfare Studies, No 15) by Erhard Geissler, John P. Woodall (Editor). In 2002 the USA and, to varying degrees, a number of other countries continued to shift their policies away from reliance on traditional multilateral arms control and disarmament regimes towards a greater emphasis on bilateral and regional efforts to ensure that national measures to criminalize the possession, development and use of chemical and biological weapons are undertaken. Attention was also focused on international activities such as the harmonization and strengthening of export control regulations, improving national and international disease surveillance, preparing for emergencies and...

John Hart (United States) has been a Researcher on the SIPRI Chemical and Biological Warfare (CBW) Project since 2001.