

13. Chemical and biological weapon developments and arms control

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I. Introduction

The 1993 Chemical Weapons Convention (CWC) seems well on track to becoming a strong, near-universal disarmament treaty. States parties must overcome many technical problems and on some issues face a steep learning curve. Nevertheless, provided the political will is present and the willingness to cooperate remains, the CWC will achieve its most important disarmament goals. Destruction of chemical weapons (CW) and former CW-related facilities is under way. However, Russia's persistent economic, social and political difficulties continue to raise questions about its ability to destroy the world's largest declared CW stockpile.

The experience of the first 20 months after entry into force of the CWC should generate confidence that a protocol to strengthen the 1972 Biological and Toxin Weapons Convention (BTWC) regime is feasible. Although political momentum to support the protocol is building, a workable and credible consensus between security and economic matters remains to be achieved between the governments of the parties to the BTWC and their biotechnological industries. Progress in the negotiations was therefore modest and the conclusion of such a document is not expected before 2000.¹

Despite progress in efforts to implement the CWC and strengthen the BTWC regime, the proliferation of chemical and biological weapons (CBW) continued to be a cause of concern. Major policy programmes to prevent or reverse CBW proliferation as well as measures to counter terrorist use of CBW are being implemented. In a year of rapidly escalating crises Iraq suspended the activities of the inspectors of the United Nations Special Commission on Iraq (UNSCOM). By the end of 1998 the continued existence of UNSCOM in its current form was in doubt in view of the deep divisions within the United Nations Security Council.

Section II of this chapter deals with the implementation of the CWC, the efforts to destroy CW in Russia and the United States, and the programmes of several parties to the CWC to dispose of old and abandoned chemical weapons. The negotiations to strengthen the BTWC disarmament regime are discussed in section III. Sections IV and V deal with CBW proliferation concerns and UNSCOM's activities in Iraq, respectively. Section VI deals with

¹ A brief summary of both conventions and lists of parties are given in annexe A in this volume. Full texts are available at the SIPRI CBW Project web site, URL <<http://www.sipri.se/cbw>>.

the issue of chemical and biological terrorism. Section VII presents the conclusions. Appendix 13A discusses the benefits and threats of developments in biotechnology and genetic engineering.

II. Chemical weapon disarmament

Implementing the CWC

The CWC entered into force on 29 April 1997. By 31 December 1998, 121 states had become parties and an additional 48 states had signed the convention.² Twenty-three members of the United Nations have neither signed nor ratified the CWC.³ None of the countries of greatest concern in Asia or the Middle East moved to join the treaty.⁴ Africa remains the most under-represented continent. As of January 1999, 90 parties had submitted their initial declarations and 85 parties had also informed the Organisation for the Prohibition of Chemical Weapons (OPCW) in The Hague of their National Authority.⁵ OPCW inspectors have completed 384 inspections in 28 countries since entry into force of the CWC.⁶ In November 1998 the Third Conference of States Parties (CSP) was held in The Hague.

In 1998 several representatives of non-governmental organizations criticized the slow pace at which the CWC provisions are being implemented.⁷ Several parties failed to meet one or more of the many deadlines in the CWC, especially those for the submission of initial declarations and other required notifications. Other parties provided the OPCW with partial or incomplete information.⁸ However, the delays can often be accounted for by the complexity of the convention, the relatively short time-frames of many provisions, the unfamiliarity of some parties with its provisions and difficulty in obtaining the required information from the industry and other relevant bodies of a party. The Technical Secretariat (TS) of the OPCW has implemented a programme

² Botswana, Burundi, Cyprus, Gambia, Indonesia, Lithuania, Malawi, Mauritania, Panama, Senegal, Tanzania, Ukraine and Viet Nam became parties in 1998.

³ Andorra, Angola, Antigua and Barbuda, Barbados, Belize, Egypt, Eritrea, Iraq, Kiribati, Korea (North), Lebanon, Libya, Mozambique, Palau, Sao Tome and Principe, Solomon Islands, Somalia, Sudan, Syria, Tonga, Tuvalu, Vanuatu, and Yugoslavia (Serbia and Montenegro).

⁴ The reasons certain Middle Eastern countries are reluctant to sign or ratify the CWC are discussed in Zanders, J. P. and French, E. M., 'Article XI of the Chemical Weapons Convention: between irrelevance and indispensability', *Contemporary Security Policy*, vol. 20, no. 1 (Apr. 1999), pp. 72–74.

⁵ 'News in Brief', *OPCW Synthesis*, no. 1 (1999), p. 10.

⁶ As of 11 Jan. 1999, these comprise 9 inspections of abandoned CW sites, 82 inspections of CW destruction facilities, 95 inspections of CW production facilities, 57 inspections of CW storage facilities, 19 inspections of old CW sites, 37 inspections of Schedule 1 facilities, 72 inspections of Schedule 2 facilities and 13 inspections of Schedule 3 facilities. 'An inspection team at work', *OPCW Synthesis* (note 5), p. 9.

⁷ Kelle, A., 'Assessing the first year of the Chemical Weapons Convention', *Nonproliferation Review*, vol. 5, no. 3 (spring/summer 1998), pp. 27–35; Leklem, E. J., 'At one year, CWC progress tempered by limited transparency', *Arms Control Today*, vol. 28, no. 3 (Apr. 1998), pp. 27–28; Smithson, A. E., *Rudderless: The Chemical Weapons Convention at 1 1/2*, report no. 25 (Henry L. Stimson Center: Washington, DC, Sep. 1998); and Kelle, A., 'Business as usual in implementing the CWC? Not quite yet!', *Disarmament Diplomacy*, no. 32 (Nov. 1998), pp. 8–12.

⁸ Note by the Director-General: status of initial declarations and notifications, OPCW Conference of the States Parties document C-III/DG.11, 13 Nov. 1998.

to help parties prepare their submissions and, in many cases, views the missing of these deadlines as a technical problem that can be resolved in the near future.⁹

Also of concern is the non-payment or partial payment of the assessed contributions to the OPCW,¹⁰ which can seriously hamper the inspections and other activities of the TS, and the difficulties in reaching agreement on certain practical issues of implementation. One example is the request by some parties for access to the notebooks and other data recorded by inspectors. This may seriously affect the unbiased and independent nature of the inspection records since during the subsequent debriefing session the inspectors may come under intense pressure to delete some information. The CWC is ambiguous on the matter of whether the inspected state may have access to the inspectors' data. It states that the papers, correspondence and records of inspection teams enjoy diplomatic immunity,¹¹ but it also permits a party to receive copies, at its request, of the information and data gathered about its facilities and requires the inspection team to provide the inspected party with a preliminary report of its findings.¹² Although custom in international law would dictate that the issue be resolved in the spirit of the CWC—upholding the inviolability of the notebooks—the Executive Council (EC) of the OPCW requested the Director-General to instruct inspection team leaders to provide copies of the content of the notebooks at the end of an inspection if requested by the inspected state.¹³

The question of the transfer of saxitoxin, a powerful neurotoxin produced by certain dinoflagellates, was also the subject of complex discussions. Saxitoxin is listed in Schedule 1 of the CWC, which means that it can only be produced in limited quantities for certain specified uses, including medical and pharmaceutical purposes.¹⁴ It causes paralytic shellfish poisoning in humans. It is used in extremely small quantities (5 micrograms) in kits for medical and diagnostic tests and for research purposes. Only Canada and the USA are known to produce saxitoxin (less than a total of 10 grams per year), although milligram quantities are transferred from Canada to the United Kingdom for tritiation and then re-exported for physiological research.¹⁵ The CWC's notification requirements for the transfer of Schedule 1 chemicals cause delays in the delivery of the medical kits to a state party (or restocking them) at short

⁹ Gee, J. (Deputy Director-General, OPCW), 'Implementing the CWC: the first year', *The Arena*, no. 8 (Chemical and Biological Arms Control Institute: Alexandria, Va., July 1998), pp. 3, 6.

¹⁰ As of 6 Nov., 50 of the then 119 parties had paid their contributions in full; an additional 21 parties had paid partially; and the remaining 48 parties had not paid. Report by the Director-General: status of assessed contributions as of 6 November 1998, OPCW Conference of the States Parties document C-III/DG.10, 13 Nov. 1998.

¹¹ CWC, Verification Annex Part II, para. 11 (a).

¹² CWC, Verification Annex Part II, paras 50, 60.

¹³ Feakes, D., 'Developments in the Organisation for the Prohibition of Chemical Weapons', *CBW Conventions Bulletin*, no. 39 (Mar. 98), p. 15; and Smithson (note 7), pp. 30–32.

¹⁴ CWC, Verification Annex Part VI, para. 2. The production, withdrawal from CW stocks or transfer of Schedule 1 chemicals is limited to an annual aggregate amount of 1 tonne.

¹⁵ Sutherland, R., 'Saxitoxin and the Chemical Weapons Convention', Paper presented to the OPCW Seminar on Saxitoxin, The Hague, 23–24 Sep. 1998, p. 3.

notice; non-parties are not allowed to purchase the kits.¹⁶ Moreover, Schedule 1 chemicals cannot be retransferred to a third state party, which poses problems for the export of tritiated saxitoxin from the UK.¹⁷ A seminar on saxitoxin was organized in The Hague on 23–24 September 1998, and the issue was also raised at the first meeting of the Scientific Advisory Board of the OPCW. Based on these reports, on 9 October the EC took an interim decision of limited duration (270 days) on the transfer (but not retransfer) of saxitoxin.¹⁸ A definitive solution, however, requires amendment of the CWC, and Canada has submitted proposals to that effect.¹⁹

Although other problems exist, notable progress was made on the model facility agreements for Schedule 1 and Schedule 2 facilities, which will facilitate a more standardized inspection of these installations.²⁰ In addition, end-user certificates for transfer of Schedule 2 and 3 chemicals to non-parties must be issued by the competent government authority of the non-party rather than by the recipient trader or trading house.²¹ Implementation of the CWC may prove to be politically more arduous and technically more challenging than the negotiators anticipated, but a relatively strong disarmament regime is nonetheless emerging.

In the USA domestic legislation for implementing the CWC was not signed into law until 28 October 1998.²² Consequently, the US Government was unable to collect the required industry declarations for submission to the OPCW. This, in turn, prevented OPCW inspections of US industry facilities. Furthermore, the USA could not declare its National Authority; at the end of 1998 implementation policies were still causing practical problems for the US chemical industry.²³ The delays led to severe criticism by OPCW Director-General José M. Bustani and by several European states that have undergone a

¹⁶ Both parties involved in the transfer of a Schedule 1 chemical must notify the TS 30 days prior to the transaction and each party must make detailed annual declarations regarding transfers during the previous year. CWC, Verification Annex part VI, paras 5 and 6. Canada noted that an additional delay of at least 10 days must be taken into account to obtain an export licence from the National Authority. Sutherland (note 15), p. 2.

¹⁷ CWC, Verification Annex, part VI, para. 4.

¹⁸ 'Saxitoxin: the notification dimension of access', note accompanying Proposal for a change pursuant to paragraphs 4 and 5 of Article XV of the Convention, to address Part VI of the Annex on Implementation and Verification, Section B, paragraph 5, submitted by Canada, 13 Nov. 1998, para. 6, document distributed at the Seminar on Saxitoxin, The Hague, 23–24 Sep. 1998.

¹⁹ Proposal for a change . . . (note 18); and Proposal for a change pursuant to paragraphs 4 and 5 of Article XV of the Convention, to address Part VI of the Annex on Implementation and Verification, Section B, paragraph 4, submitted by Canada jointly with the United Kingdom of Great Britain and Northern Ireland, 13 Nov. 1998, document distributed at the Seminar on Saxitoxin, The Hague, 23–24 Sep. 1998.

²⁰ Decision: model facility agreement for Schedule 1 facilities, OPCW Executive Council document EC-XII/DEC.1, 9 Oct. 1998; and Decision: model facility agreement for Schedule 2 plant sites, OPCW Executive Council document EC-XI/DEC.4, 4 Sep. 1998. The decisions were approved at the 3rd CSP.

²¹ Decision: paragraph 32 of part VII and paragraph 26 of Part VIII of the Verification Annex of the Convention, OPCW Executive Council document EC-IX/DEC.11, 24 Apr. 1998. The decision was approved at the 3rd CSP.

²² Earle, R., 'United States implementation legislation', *OPCW Synthesis*, no. 1/99, p. 3. The legislation is S. 610 incorporated as Division I of the FY 1999 Omnibus Appropriations Act (H.R. 4328, P.L. 105-277).

²³ Ember, L., 'Getting to regulations', *Chemical and Engineering News*, vol. 77, no. 3 (18 Jan. 1999), p. 41.

disproportionate number of industry inspections, which is claimed to place their companies at a competitive disadvantage.²⁴ As a consequence, some European states parties to the CWC have been involved in 'interminable arguments over the minutiae of the draft programme and budget' for 1999, which has affected the work of the EC and the TS.²⁵ The US Senate ratified the CWC in April 1997 and attached 28 conditions, many of which are reflected in the domestic legislation. The president was authorized to refuse a challenge inspection on grounds of national security interests, and the removal of samples collected at US facilities on US territory for analysis was prohibited.²⁶ These conditions may set dangerous precedents for other nations, and serious concern about their impact on the strength of the disarmament regime was expressed by US supporters of the CWC, the OPCW and several states parties.²⁷

Despite Russia's continuing economic and political difficulties and the significant devaluation of the rouble on 17 August,²⁸ the country remained formally committed to the CWC and the destruction of its CW arsenal. Russia supplied the OPCW with its initial declarations on 3 January 1998.²⁹ The initial inspections of all 24 declared CW production and 7 storage facilities were completed by August.³⁰ The internal problems nevertheless caused certain groups to question Russia's membership in the CWC. The Chairman of the Ecology Committee of the Duma, Tamara Zlotnikova, declared that it would be cheaper for Russia to preserve its CW stockpiles than to destroy them. She stated that ratification of the CWC was a mistake and noted that the Ecology Committee intended to make a motion for Russia's withdrawal from the CWC at the next plenary meeting of the Duma.³¹ The Federal Government, however, adopted a resolution to accept proposals for changes in the implementation plan of the federal laws concerning ratification of the CWC and the destruction of chemical weapons.³² Responsibility for CW issues and their destruction has been the task of the Committee on Conventional Problems of Chemical and Biological Weapons under President Boris Yeltsin. However, the resignation

²⁴ Statement by the Director-General to the Conference of the States Parties at its Third Session, OPCW Conference of the States Parties document C-III/DG.12, 16 Nov. 1998, p. 4; and Statement by Ambassador Alexander Christiani (Austria) on behalf of the European Union to the Third Conference of the States Parties, document distributed at the 3rd CSP, 16 Nov. 1998.

²⁵ Statement by the Director-General . . . (note 24);

²⁶ Earle (note 22).

²⁷ Statement by the Director-General . . . (note 24), pp. 2–3.

²⁸ See chapter 4 in this volume.

²⁹ Statement of the Delegation of the Russian Federation to the Third Conference of the States Parties, document distributed at the 3rd CSP.

³⁰ Statement of José M. Bustani, Director-General of the OPCW to the United Nations First Committee (Disarmament and International Security), 19 Oct. 1998, document distributed at the 3rd CSP.

³¹ Kaliadin, A., 'Voprosi sobliudeniya Rossiei Konventsii o zapreshchenii khimicheskogo oruzhiya v usloviyax nedofinansirovaniya' [Issues of Russian compliance with the Chemical Weapons Convention without sufficient funding], Presentation to SIPRI Research Staff Collegium, 3 Dec. 1998; Ermolin, V., 'Khimicheskkiye arsenali Rossii ostayutsiya netronutimi' [Russia's chemical arsenals remain untouched], *Izvestiya*, 22 Oct. 1998, p. 2; and Felgengauer, P., 'Chemical weapons will have to be liquidated already by another president', OPCW in the press: Nov. 1997–Nov. 1998, cited in *Segodnya*, 30 Oct. 1998.

³² Resolution of the Government of the Russian Federation no. 673, 20 June 1998, *Rossiyskaya Gazeta*, 9 July 1998, p. 3; and '30 June', *CBW Conventions Bulletin*, no. 41 (Sep. 1998), p. 33.

on 29 December of its chairman, Pavel Syutkin, caused uncertainty about the future direction of the committee.³³

In 1998 there continued to be calls in certain quarters in India and Pakistan for withdrawal from the CWC, in part because of fear that inspections might reveal secret information about the respective nuclear programmes. The military in India expressed concern over their lack of involvement in the way India declared its CW stockpile and vowed that in future they would play a greater role in the development of national security policy.³⁴ The Pakistani Parliament was bypassed when Pakistan ratified the CWC, which contributed to its constitutional crisis. Some alarmist reports claimed that India was not a party to the convention, that Pakistan's nuclear installations would be inspected by scores of OPCW inspectors or that India has a large contingent on the OPCW inspectorate.³⁵

In the Middle East, arguably the region of greatest concern regarding CBW proliferation, no new states joined the CWC. Partly as a consequence of the faltering peace process and the internal instability of the government of Israeli Prime Minister Benjamin Netanyahu, the CWC (which Israel signed in 1993) was not ratified by Israel. The security questions involved in ratifying the CWC started an internal debate on the role of CW in Israel's deterrence posture. The CWC will prohibit the import by Israel of some key chemical compounds for its chemical industry from states parties as of April 2000. Opponents of ratification argued that the impact of this is overestimated and that trade restrictions are unlikely to be imposed.³⁶ At the Third Conference of the States Parties Iran submitted its declarations to the Technical Secretariat and admitted to an offensive CW production programme for deterrence purposes during the final years of the 1980–88 Iraq–Iran War. It claimed that after the end of the war the decision to acquire CW was reversed and the programme terminated.³⁷ The statement suggests that Iran did not use CW during the Iraq–Iran War. It is also understood that the Iranian declarations only include facilities and sites, not CW munitions.³⁸

³³ ITAR-TASS World Service (Moscow), 29 Dec. 1998, in 'Russia: President Yeltsin relieves chief of CBW committee', Foreign Broadcast Information Service, *Daily Report–Arms Control (FBIS-TAC)*, FBIS-TAC-98-363, 30 Dec. 1998. No public statements were made concerning Syutkin's resignation; however, some political analysts believe the reason to be internal difficulties within the CW disarmament programme and the inability of the Russian Government to adequately fund CW demilitarization.

³⁴ Bedi, R., 'Eyes on Asia', *Jane's Defence Weekly*, vol. 29, no. 22 (3 June 1998), p. 43.

³⁵ '4 January', *CBW Conventions Bulletin*, no. 39 (Mar. 1998), p. 33; and Shahid, R., 'US attacks on Iraq and disclosure of Pakistan's signatures on CWC', *Pakistan* (Islamabad), 24 Dec. 1998, p. 10, in 'Pakistan: Paper slams Pakistan's signing of CWC', FBIS-TAC-98-361, 30 Dec. 1998.

³⁶ Steinberg, G., *The Chemical Weapons Convention in the Middle East: Israeli Ratification Dilemmas and Options*, MIT Security Studies Program seminar report (Center for International Studies, Massachusetts Institute of Technology: Cambridge, Mass., 9 Feb. 1998).

³⁷ Statement by Ambassador Mohammad R. Alborzi to the Third Conference of the States Parties, 16–20 Nov. 1998, document distributed at the 3rd CSP.

³⁸ According to information provided by a representative of Iran to the OPCW at the Third CSP, Iran destroyed its CW before the conclusion of the CWC negotiations in 1992.

Destruction of chemical weapons and related facilities

The United States

The United States possesses the world's second largest declared CW stockpile.³⁹ In 1998 CW destruction continued at the two operational disposal facilities, the Johnston Atoll Chemical Agent Disposal System (JACADS) and the Tooele Chemical Agent Disposal Facility (TOCDF). At JACADS a milestone was reached with the destruction of all sarin (1514 agent tons) at the site. It is to be closed in 2000.⁴⁰ As of January 1999, 2270 tonnes of chemical agent had been destroyed through incineration at the TOCDF.⁴¹ Closure of the facility is scheduled for 2004.⁴²

Construction work continued at the Umatilla Chemical Depot and completion is scheduled by April 2000.⁴³ Construction also progressed at the Anniston Chemical Agent Disposal Facility, and operations are slated to begin in 2001.⁴⁴ Construction of the Pine Bluff Chemical Disposal Facility was delayed pending approval from the Arkansas Department of Pollution Control and Ecology.⁴⁵

The US CW destruction methods are high-temperature incineration and chemical neutralization. In addition to JACADS and TOCDF, incineration is also planned to be used at five other CW stockpile locations: Anniston, Blue Grass, Pine Bluff, Pueblo and Umatilla. Neutralization facilities are planned

³⁹ The CW stockpile, which originally totalled 31 495 agent tons, is stored at 9 locations: Anniston, Alabama; Blue Grass, Kentucky; Edgewood, Maryland; Newport, Indiana; Pine Bluff, Arkansas; Pueblo, Colorado; Tooele, Utah; Umatilla, Oregon, and Johnston Island in the Pacific Ocean.

Overall responsibility for the disposal of CW lies with the Program Manager for Chemical Demilitarization (PMCD). In Nov. 1998 the newly created US Army Soldier and Biological Chemical Command (SBCCOM) was assigned the main responsibility for the safe and secure storage of CW at the 8 US stockpile sites in the continental USA. Additional responsibilities include the remediation (soil detoxification) of the Rocky Mountain Arsenal and the management of a DOD programme for Assembled Chemical Weapons Assessment, which attempts to find alternative solutions for destroying CW. SBCCOM was formed through the merger of 2 Materiel Commands, the US Army Chemical and Biological Defense Command (CBDCOM) and the US Army Soldier Systems Command (SSCOM). SBCCOM, 'About us fact sheet', URL <http://www.cbdcom.apgea.army.mil/sbccom/au_fs.html> and Tischbin, M., PMCD Outreach and Information Office, Aberdeen Proving Ground, Md., Private communication with E. M. French, 12 Mar. 1999.

⁴⁰ Chemical Stockpile Disposal Project, 'Chemical stockpile disposal milestone: the end of GB at JACADS', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/FS/EndGB/index.html>>.

⁴¹ Chemical Stockpile Disposal Project, 'Tooele Chemical Agent Disposal Facility', 21 Jan. 1999, URL <<http://www-pmcd.apgea.army.mil/text/CSDP/SL/DCD/index.html>>; and *CBW Conventions Bulletin*, no. 42 (Dec. 1998), p. 30.

⁴² Chemical Stockpile Disposal Project, 'Tooele Chemical Agent Disposal Facility' (note 41); and 'Five million pounds of GB nerve agent destroyed', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/PR/1999/199901/19990/OSA/index.html>>.

⁴³ Chemical Stockpile Disposal Project, 'Chemical weapons at Umatilla', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/FS/CWUmatilla/index.html>>.

⁴⁴ Anniston stores sarin and VX in rockets, projectiles, land mines and bulk containers and distilled mustard in projectiles, mortars and bulk containers. Chemical Stockpile Disposal Project, 'Anniston Chemical Agent Disposal Facility', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/SL/ANCA/disposal.html>>.

⁴⁵ Chemical Stockpile Disposal Project, 'Pine Bluff Chemical Agent Disposal Facility', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/SL/PBCA/index.html>>.

for the stockpiles at Edgewood, and Newport.⁴⁶ At the Edgewood facility, distilled mustard will be mixed with hot water; at the Newport Chemical Depot, VX will be neutralized with sodium hydroxide.⁴⁷

The army began the Alternative Technologies and Approaches Project to investigate technologies other than incineration for the destruction of bulk chemical warfare agents in 1994.⁴⁸ At the start of 1997, the Department of Defense (DOD) authorized the Program Manager for Chemical Demilitarization (PMCD) to pilot test the neutralization process at the Newport and Edgewood facilities. In late September 1998, the US Army announced a Record of Decision to pilot test neutralization followed by bio-treatment as the method of destruction for the mustard stockpile at Edgewood.⁴⁹ In addition, the Assembled Chemical Weapon Assessment Program examines technologies for the destruction of chemical munitions with assembled explosive components stored at the Blue Grass Chemical Activity and the Pueblo Chemical Depot.⁵⁰ In general, the evaluation of alternative technologies will extend the length of the original CW destruction schedule by an estimated five to seven years, but it will not affect the 2007 deadline set by the CWC. It will certainly have an impact on the cost of destruction, but a precise estimate is not possible at this time.⁵¹

Progress has also been achieved in the Non-Stockpile Materiel Program. As of November 1998, over 142 000 of the 201 728 M687 155-mm binary chemical shells at Umatilla and Tooele had been recycled. Demilitarization of other binary chemical munitions at Pine Bluff has not yet commenced.⁵²

⁴⁶ Chemical Stockpile Disposal Project, 'A brief history of the Chemical Stockpile Disposal Program' URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/FS/History/index.html>>

⁴⁷ Chemical Stockpile Disposal Project, 'How will chemical weapons be destroyed?', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/FS/CWdestruction/index.html>>.

⁴⁸ Citizen concern over the incineration process prompted the army to implement the Alternative Technologies and Approaches Project (ATAP) in 1994. Citizen involvement has continued to be an integral part of the destruction process in the USA. Citizens' Advisory Commissions were established at the stockpile locations in order to channel communication and information among local communities, state agencies and the army. Williams, C., 'US citizen stakeholders demand an end to chemical incineration; fund safe alternatives to destroy stockpile', 1998 International Chemical Weapons Demilitarisation Conference, Bournemouth, UK, 23–25 June 1998.

⁴⁹ ATAP Information Products, *Press Release*, no. 98-09, 29 Sep. 1998, URL <<http://www-pmcd.apgea.army.mil/text/ATAP/IP/PR/1998/199809/19980929/index.html>>. On 2 Oct. 1998 the US Army awarded the contract for the Aberdeen Chemical Agent Disposal Facility (ABCDF), which will destroy the mustard agent stockpile stored at the Edgewood site, to Bechtel National, Inc. The \$306 million contract is for the design completion; construction; equipment procurement and installation, systemization; operation; and closure of the facility. ATAP Information Products Press Release, 'Army awards Aberdeen Chemical Agent Disposal Facility contract', URL <<http://www-pmcd.apgea.army.mil/text/ATAP/IP/PR/1998/199810/19981002/index/html>>.

⁵⁰ CSDP Information Products, 'Disposal program overview', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/FS/overview/index.html>>.

⁵¹ CSDP Information Products, 'Factors impacting schedule and cost of the Chemical and Stockpile Disposal Program', URL <<http://www-pmcd.apgea.army.mil/text/CSDP/IP/FS/Schedule&Cost/index.html>>.

⁵² '2 November', *CBW Conventions Bulletin*, no. 42 (Dec. 1998), p. 41.

The Russian Federation

Preparations and planning for the Russian CW destruction facilities continued in 1998 despite economic, social and political problems. The cost of destruction of the Russian CW stockpile, which contains approximately 40 000 agent tonnes, is estimated at \$5.7 billion, or 34354.3 million roubles.⁵³ In 1998 only 5 per cent of the budgeted amount for CW destruction was actually provided. Timely destruction of the CW stockpile will be difficult, even with additional outside assistance.⁵⁴

According to the CWC time lines, Russia should have destroyed 110 tonnes of CW agents in 1998, and 310 tonnes were forecast for 1999.⁵⁵ However, by the end of 1998, destruction of the agents had not yet begun. General Stanislav Petrov, commander of the Radiation, Chemical and Biological Defence Forces, expressed concern about the destruction time-frames. He stated that Russia lacks the necessary financial base to destroy its CW stockpile within the 10-year limit set in the CWC and suggested that it will need an additional 5 years. However, Lieutenant General Valery Kapashin, the director of the Russian chemical demilitarization programme, estimated that Russia may be able to accomplish its goals within an additional 2 years.⁵⁶

In January the Russian Ministry of Defence placed an order worth 45 million roubles (approximately \$7.26 million) with the Volga Machine and Building Works in order to construct a CW demilitarization plant at Gorny in Saratov oblast.⁵⁷ Acting on a proposal from the Ministry of Defence, the Federal Government issued a decree outlining the creation of a training centre for specialists involved in CW destruction. The facility is to be located at Chapayevsk, the site of the first Russian destruction installation, which did not become operational because of local opposition. Residents continue to suspect that the facility may be used for destruction purposes.⁵⁸ The foundation stone for the proposed CW destruction facility at Shchuchye was laid on 25 September. Assistance from the US Cooperative Threat Reduction (CTR) programme has been essential to the progress achieved in Shchuchye. It is now estimated that

⁵³ 'Problemi Rossii v realizatsii Konventsii po zapreshchenii khimicheskogo oruzhiya' [Russian problems in implementation of the Chemical Weapons Convention], Obshchestvennii Forum, Rossiiskii Zeleni Krest (Green Cross Russia Public Forum), 4 Nov. 1998; Kaliadin (note 31). In May 1998 the cost of destruction of CW in Russia was estimated at \$3.64 billion. '18 May', *CBW Conventions Bulletin*, no. 40 (June 1998), p. 37.

⁵⁴ SIPRI seminar with Duma member Alexei Arbatov, Stockholm, Sweden, 26 Nov. 1998.

⁵⁵ *Parlamentskaya Gazeta*, 26 Aug. 1998; and *Trud*, 1 Sep. 1998, cited in '30 June' (note 32).

⁵⁶ 'Russia needs aid to destroy chemical weapons', Radio Free Europe/Radio Liberty, *RFE/RL Newsline*, vol. 2 (19 May 1998); and Interfax (Moscow), 23 June 1998, in 'Russia: general warns of delay in destroying chemical weapons', Foreign Broadcast Information Service, *Daily Report—Central Eurasia (FBIS-SOV)*, FBIS-SOV-98-174, 25 June 1998. The 10-year period is to be counted from the entry into force of the CWC on 29 April 1997, not from the date the CWC enters into force for a particular country. In exceptional circumstances an extension of up to 5 years may be granted.

⁵⁷ Radio Rossii Network (Moscow), 19 Jan. 1998, in 'Russia: Volga gets contract for rigs to destroy chemical weapons', FBIS-TAC-98-019, 21 Jan. 1998.

⁵⁸ Decree of the Government of the Russian Federation, no. 171, 10 Feb. 1998, Moscow, *Rossiyskaya Gazeta*, 3 Mar. 1998; '10 February', *CBW Conventions Bulletin*, no. 40 (June 1998), p. 20; and Mikhailova, O., 'Chapayevsk: farewell to arms', *Trud*, 1 Sep. 1998, p. 2.

the entire CW demilitarization process at this site, from pre-design requirements to complete destruction of the weapons, will take 10 years.⁵⁹

Destruction of two CW production facilities began in 1998 with US assistance. The Russian Government accepted \$2.2 million in assistance to dismantle certain equipment and parts of buildings at the former CW production plant in Volgograd. Conversion of former CW production facilities remains a contentious issue. Russia successfully converted one former production facility for V agents, Khimprom Cheboksary in Chuvashia. The plant currently manufactures some 300 different chemical products for civilian consumers.⁶⁰ OPCW inspectors began their second stage of inspections at the facility in July 1998.⁶¹

Foreign assistance in 1998 for CW destruction was received from Germany, the Netherlands, Sweden and the USA and may in future also be provided by France, Italy, Norway and the UK.⁶² Of the total amount of \$464 million for fiscal year (FY) 1999, \$88.4 million is designated for the Russian chemical demilitarization programme. In December 1998 the Netherlands and Russia signed a cooperation agreement. The Netherlands Government earmarked 10 million guilders (c. \$5 million) to develop and deliver technology and equipment to build and operate a CW destruction facility near Kambarka. A maximum of 15 million guilders (c. \$7.5 million) can be appropriated for future follow-on projects.⁶³ German assistance amounted to approximately DM 25.5 million worth (\$14.25 million) of equipment.⁶⁴ Italy is reportedly planning to give \$8 million for the creation of a social infrastructure (gas and water pipelines) and renovation of the regional hospital in Kizner, Udmurt Republic, one of the CW stockpile locations.⁶⁵ However, Russia has experienced difficulty in managing the assistance money offered, which may affect the willingness of donor states to contribute to the CW demilitarization programmes in future.⁶⁶

Another former Soviet CW production facility, in Nukus, Uzbekistan, was also slated to be destroyed. The dismantling process was intended to be carried

⁵⁹ 'Rehabilitation of the territory first, the CWD facility thereafter', *Novy Mir Kurgan*, 12 Aug. 1998. The USA appropriated \$382 million in CTR funds for FY 1998 and \$464 million for FY1999.

⁶⁰ 'Khimprom Cheboksary: a turnaround story', *Capital Markets Report*, 4 Sep. 1998.

⁶¹ 'News in brief', *Rossiyskaya Gazeta*, 23 July 1998, p. 2.

⁶² On 25–27 Feb. a delegation from the Russian Defence Ministry met with the British Ministry of Defence to discuss CW destruction cooperation between the 2 countries. Bazhenov, S., ITAR-TASS World Service (Moscow), 25 Feb. 1998, in 'Russia: biological protection chief commences visit to UK', Foreign Broadcast Information Service, *Daily Report—Central Eurasia: Military Affairs (FBIS-UMA)*, FBIS-UMA-98-056, 3 Mar. 1998.

⁶³ 'Hulp Nederland bij opruimen wapens Rusland' [Help Netherlands with disposal weapons Russia], *De Limburger*, 21 Dec. 1998; and 'Foreign Ministry Press Briefing December 24, 1998', Federal Information Systems Corporation, Official Kremlin International News Broadcast, 24 Dec. 1998.

⁶⁴ '16 May', *CBW Conventions Bulletin*, no. 4 (June 1998), p. 37. EU Technical Assistance for the Commonwealth of Independent States (Tacis) funding for 2 Russian chemical demilitarization projects totals 5 million ECU.

⁶⁵ Bronshtein, B., 'Zelenii Krest: ozobochen khimicheskim oruzhuyem' [Green Cross: concerned about chemical weapons], *Izvestiya*, 30 May 1998, p. 2.

⁶⁶ Statement by Ambassador Alexander Christiani (note 24).

out by private corporations and is to be supported by US CTR funds for FY1999.⁶⁷

Japan

Japan declared the facility where the religious sect Aum Shinrikyo manufactured the sarin used in its March 1995 attack in the Tokyo underground as a CW production plant. On 4 September 1998 the Executive Council of the OPCW approved combined destruction and verification plans, and Japan immediately began destruction operations. In December OPCW inspectors ensured that the factory had been completely destroyed and that no risks remain for the population.⁶⁸

Old chemical weapons

According to figures from the French Ministry of Defence, France annually recovers 30–50 tonnes of old chemical weapons (OCW) along the World War I front line. The amount represents 10 per cent of all unearthed munitions. An additional 3–5 per cent comprises smoke, flare and incendiary devices. The current stockpile of chemical munitions consists of 146 tonnes or about 14 800 pieces of ammunition, located at three sites: Arras (112 tonnes), Laon (23 tonnes) and Metz (11 tonnes).⁶⁹ From these figures it is clear that France must have recently disposed of its entire stockpile of World War I chemical munitions. Until 1990 France destroyed such munitions near Le Crotoy in the Somme estuary.⁷⁰

In 1997 France initiated the SECOIA programme⁷¹ under the responsibility of the department for armaments, Délégation générale pour l'armement (DGA), of the Ministry of Defence. By November 1997, three competitors for

⁶⁷ Russian Federation Directive, no. 1817, 27 Dec. 1997, *Rossiyskaya Gazeta* (Moscow), 18 Feb. 1998, p. 6, in 'Russia: US aid to destroy Volgograd CW facility accepted', FBIS-TAC-98-049, 21 Feb. 1998; 'Sole source chemdemil tender withdrawn by US defense agency', *Post-Soviet Nuclear & Defense Monitor*, vol. 5 no. 1 (16 Jan. 1998), pp. 1–2; '18 October', *CBW Conventions Bulletin*, no. 42 (Dec. 1998), p. 38; 'Review of US assistance programs to Russia, Ukraine and the new independent states', Hearing before the Committee on International Relations House of Representatives, 105th Congress, 2nd session, 26 Mar. 1998 (US Government Printing Office: Washington, DC, 1998), pp. 125–29, 155–58; and National Defense Authorization Act for FY 1999, Public Law 105-261, H.R. 3616, reproduced in Thomas, US Congress on the Internet, 'Bill summary & status for the 105th Congress', URL <<http://thomas.loc.gov/cgi-bin/bdquery/z?d105:h.r.03616>>.

⁶⁸ OPCW, 'OPCW team to verify destruction of religious sect "nerve gas factory" in Japan', OPCW *Press Release*, no. 034/98 (9 Dec. 1998); and *Kyodo* (Tokyo), 10 Dec. 1998, in 'Japan: international chemical weapons inspectors visit Aum site', FBIS-TAC-98-344, 14 Dec. 1998.

⁶⁹ d'Espagne, B., 'Status and treatment of old chemical weapons in France', 1998 International Chemical Weapons Demilitarisation Conference (note 48).

⁷⁰ The chemical munitions were placed in a large pit together with some explosives and covered with sand. At high tide the conventional charges were detonated. Under the combined weight of the covering sand and water an uncontrolled, high-temperature incineration process occurred, which destroyed the munitions. Vander Mast, A. (Sr Cpt), Private communication with J. P. Zanders, Bournemouth, 23 June 1998. France is also reported to have destroyed its CW shortly before signing the CWC in Jan. 1993. 'The desperate efforts to block the road to doomsday', *The Economist*, 6 June 1998, p. 22.

⁷¹ Site d'élimination de chargement d'objets identifiés anciens; officially translated as: Site for elimination of oldest identified loaded objects.

the destruction project had been short-listed. In June 1998 they were informed of the contract specifications on the basis of which they must submit their final proposals. According to the timetable, one remaining competitor would begin the final conceptualization in September 1999. Construction of the facility will start in December 2000. Testing is envisaged for April 2002, and the facility should be fully operational by October 2002. Its processing capacity is specified to be 100 tonnes of CW per year (50–60 pieces of ammunition per day), so that the existing stockpile can be eliminated in 4–5 years.⁷² The total cost is estimated at 300 million French francs.⁷³

Belgium, like France, recovers large amounts of toxic munitions from World War I each year. A dismantling installation at Poelkapelle was completed in 1996. The re-identification of 'problem' munitions started in April 1998,⁷⁴ and the first dismantling tests with live munitions began in May. The installation is expected to be fully operational in 1999. The stockpile as of 31 December 1998 is 324.7 tonnes (26 722 projectiles). Each year an average of 17 tonnes (c. 1500 items) is added to the stockpile. The dismantling facility can theoretically process 3600 items per year, so the stockpile is expected to decrease annually by approximately 2100 projectiles. After 13 years, the stockpile (current OCW plus subsequently recovered munitions) should be destroyed.⁷⁵

Abandoned chemical weapons

Under the CWC Japan has assumed full responsibility for the chemical munitions abandoned by it in China after World War II and will provide experts and all the financial, technical and other resources needed to destroy the abandoned chemical weapons (ACW). It will also construct the necessary destruction facilities. Based on data supplied by the Chinese authorities, 19 sites with an estimated total of 678 729 ACW have been identified.⁷⁶ The sites are scattered over a wide area in north-east China. They contain canisters, drums with bulk agent and shells of different calibres. The single largest location is in the Haerbaling area of Dunhua city, Jilin Province, with an estimated 674 000 pieces of ammunition in three burial sites.⁷⁷

⁷² d'Espagne (note 69).

⁷³ Isnard, J., 'La France va construire une usine de destruction d'armes chimiques' [France will construct a plant for the destruction of chemical weapons], *Le Monde*, 12 Feb. 1998.

⁷⁴ Problem munitions include all recovered World War I projectiles which cannot be positively identified as non-toxic on the basis of their external characteristics. During the re-identification process munitions are X-rayed to determine their content.

⁷⁵ Vander Mast, A. (Sr Cpt), 'The dismantling of chemical WW1 ammunition at Poelkapelle', 1998 International Chemical Weapons Demilitarisation Conference (note 48); and Vander Mast, A. (Sr Cpt), Letter to J. P. Zanders, 8 Jan. 1999.

⁷⁶ According to Seigi Hinata of the ACW Destruction Project in China, the Chinese authorities, who had previously estimated that nearly 2 million CW had been abandoned, now accept the figure of nearly 700 000 based on a 1996 joint Sino-Japanese survey. Hinata, S., Response in question and answer session, 1998 International Chemical Weapons Demilitarisation Conference (note 48). However, a 1998 briefing document for Chinese national representatives stated that 1.8 million ACW have been found at 20 locations in 11 provinces. Document supplied by Gong Chunsen, First Secretary, Chinese Delegation to the OPCW, the Hague, the Netherlands.

⁷⁷ Hinata, S., 'ACW destruction project in China', 1998 International Chemical Weapons Demilitarisation Conference (note 48).

The Japanese Government established a technology study group composed of Japanese experts to decide on the most appropriate destruction technology and to solicit technology proposals from companies worldwide. However, in November the Japanese authorities announced that the disposal plant would not be ready before 2003, thereby missing the original deadline of 2000 for commencing destruction operations by at least three years. In addition, it was said that Japan might fail to complete the destruction operation in China by 2007 and would have to make a request to the OPCW for an extension of the deadline.⁷⁸ The principal reason for the delays cited was bureaucratic inertia: by November 1998 the Japanese Government had not yet determined which ministry or agency should be in charge and thus request the budget.⁷⁹ Meanwhile, Japan continues to hold consultations with China regarding the plant's location, environmental standards, the technology to be used and the actual destruction operations.

The Ukrainian Government again asked Russia to disclose whether at any time during the history of the Soviet Union chemical weapons were buried or dumped on the territory of Ukraine.⁸⁰

III. Biological weapon disarmament

Developments in biotechnology and genetic engineering, Russia's admission that the USSR conducted illicit biological weapon (BW) activities and the discovery of a substantial offensive BW programme in Iraq have heightened BW threat perceptions and highlighted the lack of adequate verification procedures and compliance mechanisms in the BTWC.⁸¹ The CWC demonstrates that the international community can accept stringent verification and compliance measures. The 1994 BTWC Special Conference established the Ad Hoc Group (AHG) and mandated it to consider verification mechanisms and other measures to strengthen the BTWC.

The AHG is currently negotiating a draft protocol to the BTWC. It met four times in 1998.⁸² Having decided at the January session to refrain from reviewing the entire rolling text on every occasion, the focus of most meetings was on the most substantive issues: visits, facility investigations and field investigations, the configuration of a future BTWC organization and Article X of the convention (corresponding to Article VII of the draft protocol) on cooperation

⁷⁸ JJI Press Newswire (Tokyo) via Reuters, 'Business briefing: Japan may miss deadline for removing chemical arms in China', 6 Nov. 1998.

⁷⁹ Kyodo News Service, 'Japan immobile on chemical weapons disposal in China', 23 Nov. 1998.

⁸⁰ Since 1994 Ukraine has been formally requesting Russia to provide information regarding the dumping or burying of CW on its territory, but even after 3 bilateral consultations a substantive formal reply had not been received. Statement of the Ukrainian Deputy Foreign Minister Kostyantyn Gryshchenko at the Second Conference of States Parties, 2 Dec. 1997. Statement at 1998 International Chemical Weapons Demilitarisation Conference (note 48).

⁸¹ See appendix 13A in this volume.

⁸² The 9th, 10th, 11th and 12th sessions were held on 5–23 Jan., 9–13 Mar., 22 June–10 July and 14 Sep.–9 Oct., respectively.

and exchanges for peaceful purposes.⁸³ Three revised versions of the rolling text were presented in 1998; the most recent, the sixth version, is the lengthiest.⁸⁴ Entire sections remain enclosed in square brackets, reflecting the divergence of views and preferences of the delegations. As in previous years, Friends of the Chair (FoC) were appointed to assist the AHG chairman on particular issues.

Substantial problems related to the definition of fundamental terms in Article II of the draft protocol remain, not least because some parties fear that the introduction of definitions could lead to restrictions in the scope of the BTWC. Regarding verification procedures, four types of non-challenge visit (random, clarification, request and voluntary) are now listed. The category 'ambiguity-related visits' was removed from the rolling text. Reservations continued to be expressed about the utility of such visits, since the apparent ease of clandestine production of BW in a commercial biotechnology facility renders the potential for non-challenge visits to uncover illicit activities poor. The pharmaceutical and biotechnology industries strongly endorsed the view that such visits pose a risk to confidential information. The opposing view holds that such visits would encourage parties to provide accurate declarations and promote transparency while potentially deterring would-be violators.⁸⁵

Provisions for ensuring the confidentiality of information related to civil and military activities and facilities during visits and investigations also received consideration under Article IV, which establishes a regime for ensuring 'effective protection against unauthorized disclosure' (for which the Director-General of a future BTWC organization would have 'the primary responsibility'), and under Annex E, which describes the proposed regime in detail.⁸⁶ Confidentiality is important to all parties and their national industries. However, there are disagreements regarding the extent to which such provisions should be spelled out in the body of the protocol text and how much of the detailed procedures should be left for development during a Preparatory Committee (PrepCom) and by the future organization.⁸⁷

In all four sessions the AHG paid particular attention to Annex D on investigations,⁸⁸ but consensus was not reached on many issues (e.g., the circumstances in which an investigation would be initiated, or the procedures to be followed during an investigation). Three possible types of investigation remain in brackets: (a) field investigations, which would cover alleged use of BW; (b) facility investigations, intended to cover activities prohibited under Article I of the BTWC; and (c) investigations into illegal transfers, as defined

⁸³ 'Biological Weapons Convention chronology 1998, 5–23 January', Institute for Defense and Disarmament Studies, *Arms Control Reporter* (IDDS: Brookline, Mass.), sheets 701.B.185–86, Apr. 1998.

⁸⁴ Procedural Report of the Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, Ad Hoc Group document BWC/AD HOC GROUP/43, 15 Oct. 1998.

⁸⁵ Ad Hoc Group document BWC/AD HOC GROUP/43 (note 84), part I, annex I, p.46, fns 26, 27.

⁸⁶ Ad Hoc Group document BWC/AD HOC GROUP/43 (note 84), part I, annex I, pp. 83, 209–220.

⁸⁷ Ad Hoc Group document BWC/AD HOC GROUP/43 (note 84), part I, annex I, p.209, fn. 116.

⁸⁸ The investigations proposed in the draft protocol are similar in concept to challenge inspections under the CWC.

under Article III of the BTWC. On the issue of procedures for requesting an investigation, the FoC on Compliance Measures proposed 'to include the possibility of following the models of both the CWC and CTBT [Comprehensive Nuclear Test-Ban Treaty], requiring the submission of investigation requests simultaneously to the Executive Council and to the Director-General'.⁸⁹ Some concerns remain to be addressed. For instance, the issue of unnatural outbreaks of disease more directly affects states located in regions that are prone to such outbreaks, since they may be the targets of a disproportionate number of investigations.⁹⁰

The pharmaceutical and biotechnology industries continued to object to elements of the rolling text, notably visits. Several states in which industry representatives have played an active role in influencing governmental positions in the negotiations have indicated that they would seek to cooperate more closely with national industries on sensitive issues.

Many countries have expressed their political support for the future protocol and committed themselves to honour its provisions. On 9 March 1998 the European Union (EU) adopted a common position 'with a view to concluding the substantive negotiations by the end of 1998, so that the Protocol can be adopted by a Special Conference of States Parties early in 1999'.⁹¹ It called for the enhancement of contacts between EU member governments, the European Commission and industry 'with the aim of furthering understanding between representatives of European industry and those involved in the negotiations in the Ad Hoc Group'.⁹² This initiative was also endorsed by the countries of Central and Eastern Europe associated to the EU, Cyprus and the European Free Trade Association (EFTA) members of the European Economic Area, which in a separate declaration stated that they would 'ensure that their national policies conform to that Common Position'.⁹³ Joint statements were also issued by the USA and China (27 June), the USA and Russia (2 September), the Non-Aligned Movement (3 September) and the G8 (the G7 plus Russia) foreign ministers following their pre-summit meeting on 8–9 May,⁹⁴

⁸⁹ Working Paper submitted by the Friend of the Chair on Compliance Measures, Ad Hoc Group document BWC/AD HOC GROUP/WP.267, 26 Feb. 1998. p. 6. The CWC contains the so-called red-light and the CTBT the green-light procedure. Under the red-light procedure an inspection would go ahead unless a majority voted against it; under the green-light procedure initiation of a challenge inspection would require a majority vote. For further discussion, see Klotz, L. C. and Sims, M. C., 'The BWC: challenge investigation voting procedures', *CBW Conventions Bulletin*, no. 41 (Sep. 1998), pp. 1, 3.

⁹⁰ E.g., Group of NAM and Other Countries, Investigations: exclusion of all natural outbreaks of disease, Ad Hoc Group document BWC/AD HOC GROUP/4/WP.262.

⁹¹ Working paper submitted by the United Kingdom of Great Britain and Northern Ireland on behalf of the European Union, Ad Hoc Group document BWC/AD HOC GROUP/WP.272, 9 Mar. 1998, article 2, para. 1.

⁹² Ad Hoc Group document BWC/AD HOC GROUP/WP.272 (note 91), article 3, para. 4; and Williams, F., 'UK bid to speed germ war talks,' *Financial Times*, 10 Mar. 1998, p. 4.

⁹³ Declaration by the associated countries of Central and Eastern Europe, the associated country Cyprus and the EFTA countries members of the European Economic Area on progress towards a legally binding protocol to strengthen compliance with the Biological and Toxin Weapons Convention (BTWC) and the intensification of work in the Ad Hoc Group to that end, Brussels, 6 Mar. 1998.

⁹⁴ United States Information Service, 'US–China joint statement on biological weapons,' *Washington File*, URL <http://www.fas.org/nuke/control/bwc/news/98070201_epo.html>; and '8–9 May', *CBW Conventions Bulletin*, no. 41 (Sep. 1998), p. 21.

among others. A Ministerial Meeting (convened by Australia) held in New York resulted in a declaration, co-sponsored by 57 countries, restating their commitment to 'sustaining high level political support for the negotiations' and calling for the convening of another high-level meeting in 1999 in order to lend further support to the work of the AHG.⁹⁵ It appears that the protocol will not be finalized before 2000, since many key issues remain unresolved.

IV. Chemical and biological weapon proliferation concerns

Concerns about the proliferation of chemical and biological weapons are two-fold. On the one hand, more states in conflict zones are assessed (especially by the USA) to be acquiring CBW. On the other hand, states with existing CBW armament programmes are seen to be improving their capabilities in terms of the quality of the chemical and biological warfare agents and their means of delivery.

As a consequence of the grouping together of several categories of weapons, it is difficult to isolate the CBW threat assessment. In the only known statement in 1998 by a US Government official in which the figure did not encompass nuclear weapons, Deputy Secretary of Defense John J. Hamre noted that 'At least two dozen nations already possess chemical and biological weapons or have active development programs to build them'.⁹⁶ One US intelligence estimate in 1998 assessed that 'around 30 countries possess, once possessed but no longer maintain, or are possibly pursuing CW capabilities', approximately one-half of which are party to the CWC.⁹⁷ The statement, however, is of little use as it can encompass programmes as far back as World War I.

Concerns continue to be expressed about certain Chinese and Russian exports of dual-use technologies, which might be diverted for offensive CBW programmes, despite statements by officials that new export control regulations are being established or existing ones strengthened. As a consequence of the economic and social collapse of Russia, fear has increased that Russian scientists and technicians may seek employment abroad or that criminal organizations may start trafficking in critical dual-use technologies. Russian

⁹⁵ Working paper submitted by Argentina *et al.*, Ad Hoc Group document BWC/AD HOC GROUP/WP.296, 10 July 1998; Working paper submitted by Australia, Declaration of the informal ministerial meeting on the negotiation towards conclusion of the protocol to strengthen the Biological Weapons Convention, Ad Hoc Group document BWC/AD HOC GROUP/WP.324, 9 Oct. 1998; and Radio Australia (Melbourne), 24 Sep. 1998, 'Australia: Australia welcomes stronger Biological Weapons Convention', Foreign Broadcast Information Service, *Daily Report-East Asia (FBIS-EAS)*, FBIS-EAS-98-267, 28 Sep. 1998.

⁹⁶ The 22 June 1998 statement by Hamre at the NATO Workshop in Vienna is reproduced in US Department of Defense, 'Hamre: counterproliferation efforts must include defense against cyberattacks, WMD', *Defense Viewpoint*, vol. 13, no. 44, URL <<http://www.defenselink.mil/speeches/1998/s19980622-depsecdef.html>>.

⁹⁷ Written replies by the Central Intelligence Agency to questions by Richard C. Shelby, Chairman, Select Committee on Intelligence, US Senate, *Current and Projected National Security Threats to the United States*, Hearing before the Select Committee on Intelligence, US Senate, 105th Congress, 2nd session (US Government Printing Office: Washington, DC, 1998), p. 143.

organized crime does not yet appear to be involved in trafficking in CBW-related materials.⁹⁸

The strike against an alleged CW factory in Sudan

On 20 August 1998, as part of Operation Infinite Reach, 13 US Tomahawk cruise missiles demolished the al-Shifa Pharmaceutical Industries factory in Sudan in response to the bombings of the US embassies in Kenya and Tanzania on 7 August. US officials blamed the embassy bombings on a worldwide terrorist network, the Jihad Islamic Front Against Jews and Crusaders, led and funded by the Saudi millionaire Usama bin Ladin.⁹⁹ The plant, located in Khartoum North, was said to be part of the Sudanese military industrial complex to which bin Ladin had made financial contributions and to be making precursors for the nerve agent VX.¹⁰⁰ The US assessment that the terrorist organization was seeking to acquire CW was one of the four reasons cited by President Bill Clinton for ordering the attack.¹⁰¹

Part of the justification was the certainty that the al-Shifa plant was not producing any commercial products¹⁰² but rather a penultimate precursor to the manufacturing of VX, which was claimed to be not included in any of the three schedules in the CWC.¹⁰³ However, later it became clear that the precursor in question was O-ethyl methylphosphonothioic acid (EMPTA), a chemical on Schedule 2B of the CWC.¹⁰⁴

Soon after the attack the US assertions about the pharmaceutical plant and bin Ladin's connections to it proved inaccurate. British, Italian, Jordanian and US consultants or engineers involved in the construction or maintenance of the al-Shifa plant stated that they had never seen any signs of CW production.¹⁰⁵ By the end of August, US officials justified the strike on the grounds that Iraq was involved in the production of VX in Sudan. They claimed that Iraq had

⁹⁸ Written replies by the Federal Bureau of Investigation to questions by Richard C. Shelby, *Current and Projected National Security Threats to the United States* (note 97), p. 157.

⁹⁹ Other simultaneous strikes were directed against 6 training bases in Afghanistan used by bin Ladin's terrorist network.

¹⁰⁰ Department of Defense, 'Response by US Secretary of Defense William S. Cohen to questions by journalists', *News Briefing*, 20 Aug. 1998, URL <http://www.defenselink.mil/news/Aug1998/t08201998_t820brfg.html>; and Loeb, V. and Graham, B., 'US fleshes out the intelligence that led it to target Sudan plant', *International Herald Tribune*, 2 Sep. 1998, p. 2.

¹⁰¹ White House, 'Statement by the President', 20 Aug. 1998, URL <http://www.state.gov/www/regions/africa/strike_clinton980820.html>.

¹⁰² 'Background briefing', 20 Aug. 1998, URL <http://www.defenselink.mil/news/Aug1998/x08201998_x820bomb.html>. US officials at the UN, however, had approved the sale of medicine produced at al-Shifa in Jan. 1998. Barletta, M., 'Chemical weapons in the Sudan: allegations and evidence', *Nonproliferation Review*, vol. 6, no. 1 (fall 1998), p. 118.

¹⁰³ Response by National Security Advisor Sandy Berger, in White House, 'Press briefing, on US strikes in Sudan and Afghanistan', 20 Aug. 1998, URL <<http://secretary.state.gov/www/statements/1998/980820.html>>.

¹⁰⁴ EMPTA might be used in limited quantities for legitimate purposes (e.g., fungicides, pesticides and anti-microbial agents).

¹⁰⁵ Loeb, V., 'Justification for attack in Sudan still disputed', *International Herald Tribune*, 27 Aug. 1998, p. 6; and Barletta (note 102), p. 119.

used the EMPTA-based technique to develop its stockpiles in the 1980s.¹⁰⁶ However, the Iraqi connection did not feature systematically in official statements. The traces of the precursor chemical were said to have been found in a soil sample taken outside the factory months before the strike. A single soil sample without multiple control samples from the same area does not constitute proof that the compound had been produced at the al-Shifa plant; the traces could also have been the consequence of, for example, a spill or effluent deposits. Late in September the claim was made that US agents had penetrated the plant and taken the sample from a discharge pipe.¹⁰⁷

The US refusal to allow an independent UN investigation team to examine the al-Shifa plant undermined the credibility of the claim that the factory was involved in the production of chemical warfare agents.

Russian BW proliferation concerns

Russia continues to be accused of maintaining illicit domestic BW programmes and assisting similar programmes abroad.¹⁰⁸ A Russian press article alleged that the anthrax released in Sverdlovsk in 1979 had been altered in order to have the greatest possible effect on adult men.¹⁰⁹ Another source suggested that the Centre for Military and Technical Problems of Anti-Bacteriological Defence, the successor to Compound 19 at Sverdlovsk, has plans to resume the offensive production of anthrax.¹¹⁰

Dr Ken Alibek, former First Deputy Director of Biopreparat in the USSR and currently Program Manager for Battelle Memorial Institute in the USA, testified in May before the Joint Economic Committee of the US Congress that the Soviet programme had become the most sophisticated BW programme in the world and that it continued to expand even after the signing of the BTWC in 1972. Alibek alleged that the Soviet BW programme was effective in developing BW agents for which no prevention or cure exists, such as strains of plague. He echoed concerns that Russia has not opened up the Soviet military BW facilities to international inspection. In particular, military laboratories at Kirov, Sergeyevo Posad (formerly Zagorsk), Strizi and Yekaterinburg (formerly Sverdlovsk) are suspected of harbouring components of BW research.¹¹¹

¹⁰⁶ Crossette, B. *et al.*, 'Iraq tied to chemical plant in Sudan', *International Herald Tribune*, 26 Aug. 1998, p. 8.

¹⁰⁷ 'Making a case', *Newsweek*, no. 39 (25 Sep. 1998), p. 5.

¹⁰⁸ Arms Control and Disarmament Agency, 'Adherence to and compliance with arms control agreements', 1998, URL <<http://www.acda.gov/reports/annual/comp97.htm>>; 'The threatening shadow of Russian biological weapons', *World Reporter*, 4 Aug. 1998; and Fyodorov, L., 'Death from the test tube', *New Times*, Sep. 1998, pp. 22–36.

¹⁰⁹ Fyodorov (note 108); and Miller, J. and Broad, W. J., 'Germ weapons: in Soviet past or in the new Russia's future?', *New York Times*, 28 Dec. 1998, URL <<http://www.nytimes.com/library/world/europe/122898-germ-warfare.html>>.

¹¹⁰ Yevtushenko, A. and Avdeyev, S., 'Sverdlovsk was infected with anthrax: nineteen years ago the Soviet Army used a bacteriological weapon against its own people', *Komsomolskaya Pravda* (Moscow), 30 Apr. 1998, pp. 4–5, in 'Russia: further on 1979 Sverdlovsk anthrax release', FBIS-SOV-98-159, 9 June 1998.

¹¹¹ Biopreparat is alleged to have been the civilian branch of the Soviet BW programme. According to Alibek, Biopreparat comprised over 50% of the BW programme's personnel and facilities. He was

Through the CTR programme the United States attempts to defuse the BW threat from the former Soviet Union. The former Soviet BW facility in Stepnogorsk, Kazakhstan, is being dismantled with US assistance. It was used to produce weapons for an offensive biological warfare programme, including production of resistant strains of anthrax.¹¹² The dismantlement contract is between the US Defense Special Weapons Agency and JSC Biomedpreparat and the National Centre on Biotechnology of Kazakhstan. Work is expected to be completed by July 2000.¹¹³

There have been continuing allegations that Russia is involved in BW-relevant transfers to Iran and other Middle Eastern countries.¹¹⁴ In February 1998 the Russian Foreign Ministry and Russian Defence Minister Igor Sergeyev rejected reports of Russian Government approval of the sale of fermentation equipment to Iraq which could also be used to produce BW agents.¹¹⁵ Russia nevertheless tried to prevent proliferation with new legislation. In January then Prime Minister Viktor Chernomyrdin issued a directive which prohibits Russians from engaging in foreign economic activities concerning goods and services potentially applicable for nuclear, biological and chemical (NBC) weapons or missile delivery systems.¹¹⁶ In May the Russian Federal Currency and Export Control Service issued a procedural explanation of the functioning of the export control system created by the federal directive.

South Africa's CBW programmes

Following preliminary investigations in 1996 and 1997, the Truth and Reconciliation Commission (TRC) started its in-depth investigation of South Africa's CBW programme in February 1998. The TRC held public hearings in June and July 1998 and published its main findings in its Final Report to President Nelson Mandela in October.¹¹⁷ The focus of the research, however, had to be restricted considerably because of the breadth of the matter and serious time constraints. While the report noted the investigations into anthrax,

apparently responsible for 32 000 employees and 40 facilities. Statement by Dr Kenneth Alibek before the Joint Economic Committee, US Congress, 20 May 1998, URL <<http://www.house.gov/jec/hearings/intell/alibek.htm>>.

¹¹² '30 June' (note 32).

¹¹³ '30 June' (note 32).

¹¹⁴ Jahanbagloo, J. and Mendenhall, P., 'Russian denies Iranian germ link', MSNBC, 4 Jan. 1999, URL <<http://www.msnbc.com:80/news/228551.asp>>; and Miller, J. and Broad, W. J., 'Iranians, bio-weapons in mind, lure needy ex-Soviet scientists', *New York Times*, 8 Dec. 1998, URL <<http://search.nytimes.com/>>.

¹¹⁵ Rohde, D., 'A possible Russian link to Iraq arms buildup', *New York Times*, 12 Feb. 1998, URL <<http://search.nytimes.com/>>; Smith, R. J., 'Did Moscow try to skirt sanctions?', *Moscow Times*, 13 Feb. 1998, URL <<http://www.moscowtimes.ru/archive/issues/1998/Feb/13/story2.html>>; Smith, R. J., 'Russian firms discussed factory sale with Iraqis', *Moscow Times*, 19 Feb. 1998, URL <<http://www.moscowtimes.ru/archive/issues/1998/Feb/19/story4.html>>; and 'Russia denies allegations in "Washington Post"', *RFE/RL Newslines*, 12 Feb. 1998, URL <<http://search.rferl.org/newslines/1998/02/120298.html>>.

¹¹⁶ Russia: stricter export controls imposed on goods usable in arms production, Russian Federation Government Directive, no. 57, *Rossiyskaya Gazeta* (Moscow), 18 Feb. 1998, p. 1, in 'Russia: Chernomyrdin decree on dual-use goods export controls', FBIS-TAC-98-048, 21 Feb. 1998.

¹¹⁷ Truth and Reconciliation Commission, *Final Report*, presented to President Mandela on 29 Oct. 1998, vol. 2, ch. 6, URL <<http://www.truth.org.za/final/2chap6c.htm>>.

botulism, chemical poisoning, cholera and drugs for crowd control (which were later sold for profit), as well as the development of poisons and lethal micro-organisms for use against individuals,¹¹⁸ many details of Project Coast, the South African CBW programme, remain undisclosed.¹¹⁹ An important part of the section of the report on the CBW programme deals with its institutional and structural aspects.

Project Coast was overseen by a management committee, which included the chief of the South African Defence Force (SADF), the chief of staff finances, the head of counter-intelligence, the chief of staff intelligence, the surgeon general, who acted as project leader, and the project officer, Dr Wouter Basson. Once the front companies, which developed and manufactured the chemical and biological devices and then sold them to the SADF, had been established the management committee met once a year to approve the project's budget or in cases of emergency. Basson, the central figure in South Africa's CBW programme who also headed the army's 7th Medical Battalion,¹²⁰ apparently reported to the surgeon general and the head of Special Forces, and to various other authorities, including the Minister of Defence, the chief of the SADF and the Minister of Police, as needed. The TRC was unable to clarify the role of the surgeon general as project leader or to determine the exact responsibility of the members of the management committee.¹²¹

Officially, the CBW programme was claimed to be defensive and designed to acquire the necessary expertise to be able to react to external chemical or biological warfare threats and to have a retaliatory capability available. The TRC has uncovered many indications of research and development related to an offensive chemical and biological warfare capability. The programme included, among others, the development of weapons for covert assassinations by poisoning, the manipulation of fertility and animal experimentation on chimpanzees and baboons. A number of drugs, including dagga, ecstasy, LSD and Mandrax, were manufactured as part of the CBW programme. According to testimony, extracts of dagga, LSD and Mandrax were to be charged in grenades in an attempt to subdue rioters. Some of the substances were also reportedly used during interrogation of prisoners.¹²² In another scheme, Roodeplaat Research laboratories was said to have tried to develop a bacter-

¹¹⁸ These included anthrax in cigarettes, botulinum in milk and paraoxon in whiskey, many of which were developed at Roodeplaat Research Laboratories, a front company, whose head researcher was Dr André Immelman. Several of the items may have been used by operatives of the Civil Cooperation Bureau. Immelman's affidavit provided the TRC with insight into the development of these assassination tools. Truth and Reconciliation Commission (note 117), paras 18–19.

¹¹⁹ Officially, the government does not want to provide potential proliferators with details of the programmes. A key figure in the programme, Dr Wouter Basson, still faces criminal charges. The TRC was consequently unable to cross-examine him thoroughly and had limited access to documentary evidence so as not to prejudice his trial. Project Coast is discussed in 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), p. 478.

¹²⁰ The role of the 7th Medical Battalion is described in the 1992 Steyn Report. Zanders and Hart (note 119), p. 478.

¹²¹ Truth and Reconciliation Commission (note 117), paras 36–39.

¹²² SAPA, 'Use of drugs by former security forces quizzed by TRC', reports from SAPA, 11 June 1998, URL <<http://www.truth.org.za/sapa/9806/s980611a.htm>>.

ium, which acted selectively on the basis of pigmentation, that would render infertile only Black people in order to curb their birth rate. Although it was claimed that progress was made, no tests were made on humans.¹²³

Despite the international sanctions against the apartheid regime, countries shared information on CBW matters with the SADF. They included Germany, Israel, Taiwan and the USA; there was also a manifest link with Belgian nationals and companies. The TRC report does not state whether the foreign involvement concerned offensive or defensive aspects of CBW research. It concluded that, although the role of foreign governments in supporting the South African CBW programme is not entirely clear, the programme would not have been possible without some level of foreign assistance. The TRC hearings revealed little about CBW for military operations in war.¹²⁴

The 1992 El Al aircraft crash in Amsterdam

Israel has long been presumed to be engaged in offensive CBW programmes. However, little concrete information has been available about the extent of these programmes or whether they were offensive or defensive. It was revealed in September 1998 that the El Al Boeing 747-200F aircraft, which crashed into an apartment complex in Amsterdam on 4 October 1992, was carrying about 190 litres (c. 240 kg) of diethyl methylphosphonate (DMMP) in 10 plastic drums destined for the Israel Institute for Biological Research in Nes Ziona, south of Tel Aviv.¹²⁵ The chemical was described in the shipping documents as an inflammable liquid. The amount of the chemical suffices for the manufacture of a maximum of 270 kg of sarin. Two other ingredients for the production of sarin, hydrogen fluoride and isopropanol were also on board in smaller quantities.

Israeli authorities said that the chemical was intended for the testing of gas masks and filter systems for collective shelters. Nevertheless, the shipment represented a large quantity. Annual consumption of sarin for scientific research in European laboratories rarely exceeds several hundred grams, and one German research programme used only a few kilograms annually.¹²⁶ Although the Israel Institute for Biological Research (IIBR) had been sus-

¹²³ Lovell, J., 'Apartheid sought to sterilize blacks—witness', Reuters via Yahoo News, 11 June 1998, URL <<http://dailynews.yahoo.com>>.

¹²⁴ Truth and Reconciliation Commission (note 117), paras 31, 32, 34.

¹²⁵ van den Berg, H. and Knip, K., 'Grondstof gifgas in Boeing El Al' [Ingredient poison gas in Boeing El Al], *NRC Handelsblad* (Rotterdam), 30 Sep. 1998, pp. 1, 3; and Knip, K., 'El Al-zending genoeg voor 270 kilo Zenuwgas sarin' [El Al shipment enough for 270 kg of nerve agent sarin], *NRC Handelsblad* (Rotterdam), 30 Sep. 1998, p. 3. As early as the 1960s researchers working at the Israel Institute for Biological Research in Ness Ziona published papers on CBW-related topics, including one which ostensibly dealt with the synthesis of V-agents. SIPRI, *Chemical and Biological Warfare*, vol. 2, *CB Weapons Today* (Almqvist & Wiksell: Stockholm, 1973), p. 242. IIBR also conducts legitimate research in CBW defence and protection and commercializes some of its products. Information about IIBR is available at URL <<http://www.iibr.gov.il/>>.

¹²⁶ van den Berg and Knip (note 125), p. 1.

pected of being involved in the production of CW, this was the first indication that it was consuming precursor chemicals in considerable quantities.¹²⁷

In February 1999 the Netherlands Parliament began public hearings into the nature of the cargo of the aircraft and the involvement of the Netherlands in arms shipments to Israel.

The Cuban biological warfare allegation

On 30 June 1997 Cuba submitted a request to Russia, one of the three co-depositaries of the BTWC, to convene a formal consultative meeting to investigate an alleged US attack with the insect pest *thrips palmi* in October 1996. The parties to the BTWC were unable to resolve the issue in August 1997 and mandated British Ambassador Ian Soutar to investigate and report on the allegation before the end of 1997.¹²⁸ His report, delivered on 15 December 1997, concluded that 'due inter alia to the technical complexity of the subject and to passage of time, it has not proved possible to reach a definitive conclusion with regard to the concerns raised by the Government of Cuba'.¹²⁹ Comments from 12 parties to the BTWC are annexed to the report.¹³⁰ Some countries stated that upon further examination they could not establish a causal link between the outbreak of *thrips palmi* in Cuba in December 1996 and the overflight of a US aircraft two months earlier. Other countries stated that they were unable to draw any definitive conclusions in view of the technical complexity and lack of additional information. Further investigation of the Cuban allegation was suggested by China, North Korea and Viet Nam but the suggestion was not taken up. The investigation was conducted according to Article V of the BTWC and the consultative process established by the Third Review Conference. The report noted that there was general agreement that throughout the process these requirements had 'been fulfilled in an impartial and transparent manner'.

V. UNSCOM developments

UNSCOM was created by the UN Security Council to uncover the full extent of Iraq's CBW and missile programmes after the defeat of Iraq in the 1991 Persian Gulf War.¹³¹ UNSCOM is further mandated to ensure the destruction

¹²⁷ DMMP has legitimate commercial use as a flame retardant in building materials. It can also be used as a nerve-agent simulant for outdoor testing. In the 1980s the US Army ceased to use it in open-air tests because it had been determined to be a mild carcinogen and a potent renal toxin. Cole, L. C., *The Eleventh Plague* (W. H. Freeman and Co.: New York, 1997), pp. 61–64.

¹²⁸ The allegation and investigative procedure are described in Zanders and Hart (note 119), pp. 479–80.

¹²⁹ Letter from Ambassador S. I. Soutar, United Kingdom Permanent Representation to the Conference on Disarmament, to All States Parties to the Biological and Toxin Weapons Convention, Geneva, 15 Dec. 1997.

¹³⁰ The 12 were Australia, Canada, China, Cuba, Denmark, Germany, Hungary, Japan, Korea (North), the Netherlands, New Zealand and Viet Nam.

¹³¹ The International Atomic Energy Agency (IAEA) is responsible for uncovering and dismantling Iraq's nuclear weapon programme with the assistance and cooperation of UNSCOM. UNSCOM is also discussed in chapters 3 and 15 in this volume.

of Iraq's stockpiles, production facilities and other related installations, and to establish a long-term monitoring programme to prevent Iraq from acquiring new non-conventional weapon capabilities.

In 1997 there was a marked increase of incidents between UNSCOM inspectors and Iraqi officials. (The UNSCOM missions are listed in table 13.1.) In December a major crisis erupted when Iraq refused the inspectors access to several facilities, including the presidential sites.¹³²

The crisis over the presidential sites was defused by UN Secretary-General Kofi Annan's Memorandum of Understanding (MOU) with the Iraqi leadership on 23 February, whereby the UNSCOM inspectors were to have immediate, unconditional and unrestricted access in conformity with UN resolutions. UNSCOM pledged to respect the legitimate concerns of Iraq relating to national security, sovereignty and dignity. At the presidential sites the inspectors were to be accompanied by diplomats 'friendly' to Iraq and experts who would ensure that Iraq's national sovereignty and dignity were respected. The MOU stated that 'the United Nations and the government of Iraq agree to improve cooperation and efficiency, effectiveness and transparency of work, so as to enable UNSCOM to report to the Council expeditiously under paragraph 22 of Resolution 687 (1991)', which deals with the lifting of sanctions.¹³³ On 2 March the Security Council endorsed the document (Resolution 1154).¹³⁴ UN Under-Secretary-General for Disarmament Affairs Jayantha Dhanapala was appointed special commissioner as an interlocutor in the Iraq-UNSCOM dispute.

The MOU averted the use of military force, but the agreement was flawed. Iraq would have had ample time to remove whatever components of its illegal armament programmes it may have hidden in the presidential sites,¹³⁵ and the principle of unannounced and surprise inspections at these locations was lost as the arrival of senior diplomats would give Iraq an early warning. The MOU also accorded Iraq a number of rights which were not part of Resolution 687. The MOU ended the principle of the unconditional implementation of Resolution 687 and created room for compromise solutions. In the following months Iraq repeatedly invoked these rights to justify its refusal to cooperate

¹³² Zanders and Hart (note 119), pp. 481-85; and SIPRI, 'Iraq: the UNSCOM experience', *Fact Sheet*, Oct. 1998, available at URL <<http://www.sipri.se/pubs/Factsheet/unscom.html>>. On 12 Jan. 1998 Iraq blocked Concealment Investigation Mission UNSCOM 227 on grounds that its composition was unbalanced (the team comprised 1 Australian, 5 British, 1 Russian and 9 US nationals.) 'Iraq blasts composition of UN arms team', Reuters via Fox News, 11 Jan. 1998, URL <http://www.foxnews.com/news/wires2/0111/n_rt_0111_67.sml>; and Aita, J., 'UN Secretary-General Annan urges Iraq not to ban American', *Washington File* (United States Information Service, US Embassy: Stockholm, 12 Jan. 1998), URL <<http://www.usis.usemb.se/wireless/100/eur123.htm>>.

¹³³ Memorandum of Understanding between the United Nations and the Republic of Iraq, 23 Feb. 1998, URL <<http://www.un.org/NewLinks/uniraq.htm>>.

¹³⁴ UN Security Council Resolution 1154, 2 Mar. 1998.

¹³⁵ Following the visits to the presidential sites, Charles Duelfer, Deputy Executive Chairman of UNSCOM, reported that 'it was clearly apparent that all sites had undergone extensive evacuation'. Report of the Special Group established for entries into Iraqi presidential sites, appendix III, 'Initial entry to the presidential sites: summary report of the Head of Team', para. 11, UN document S/1998/326, 15 Apr. 1998.

Table 13.1. UNSCOM inspections, October 1997–December 1998

Type of inspection/date	Team
<i>Biological</i>	
14 Oct.–12 Nov. 1997	BG 11
6–15 Dec. 1997	BW 57/UNSCOM 212
22 Nov. 1997–5 Jan. 1998	BG 12
6 Jan.–2 Feb. 1998	BG 13
5–19 Jan. 1998	BW 60/UNSCOM 215
9–14 Jan. 1998	BW 58/UNSCOM 213
17–29 Jan. 1998.	BW 61/UNSCOM 222
1 Jan.–15 Feb. 1998	BW 62/UNSCOM 223
3 Feb.–3 Apr. 1998	BG 14
12–25 Mar. 1998	BW 64/UNSCOM 225
4 Apr.–30 June 1998	BG 15
19 Apr.–2 May 1998	BW 63/UNSCOM 224
11–25 May 1998	BW 65/UNSCOM 226
19 May–2 June 1998	BW 59/UNSCOM 214
28 May–11 June 1998	BW 66/UNSCOM 230
1 July–3 Oct. 1998	BG 16
1–6 July 1998	BW 67/UNSCOM 231
14–23 July 1998	BW 68/UNSCOM 244
17–24 July 1998	BW 69/UNSCOM 250
1–6 Dec. 1998	BW 70/UNSCOM 253
3–10 Dec. 1998	BW 74/UNSCOM 261
6–10 Dec. 1998	BW 73/UNSCOM 260
10–14 Dec. 1998	BW 72/UNSCOM 256
4 Oct.–15 Dec. 1998	BG 17
<i>Chemical</i>	
14 Oct. 1997–28 Jan. 1998	CG 12
18–23 Oct. 1997	CBW+M 1/UNSCOM 211
29 Jan.–14 Apr. 1998	CG 13
4–10 Feb. 1998	CW 44/UNSCOM 221
14–20 Mar. 1998	CW 45/UNSCOM 229
9–15 Apr. 1998	CW 46/UNSCOM 238
15 Apr.–4 July 1998	CG 14
26 Apr.–2 May 1998	CW 47/UNSCOM 239
29 May–11 June 1998	CW 48/UNSCOM 210
12–16 July 1998	CW 49/UNSCOM 246
15 July–25 Oct. 1998	CG 15
27–31 July 1998	CW 50/UNSCOM 248
26 Oct.–15 Dec. 1998	CG 16
24–31 Aug. 1998	CW 51/UNSCOM 251
22–30 Nov. 1998	CW 52/UNSCOM 257
<i>Ballistic missile</i>	
6–16 Oct. 1997	MG 14A
15 Oct. 1997–14 Jan. 1998	MG 15
10–19 Dec. 1997	BM 64/UNSCOM 220
11–21 Dec. 1997	MG 15A
27 Dec. 1997–1 Jan. 1998	MG 15B
15 Jan.–3 Apr. 1998	MG 16

Type of inspection/date	Team
14–22 Mar. 1998	BM 65/UNSCOM 228
9 Mar.–present (currently suspended)	BM 66/UNSCOM 240
22–30 Mar. 1998	BM 63/UNSCOM 241
4 Apr.–17 July 1998	MG 17
19–30 Apr. 1998	MG 17A
19–24 Apr. 1998	BM 66A/UNSCOM 240A
24–26 Apr. 1998	BM 66B/UNSCOM 240B
18 May–18 June 1998	BM 66C/UNSCOM 240C
18–24 June 1998	BM 66D/UNSCOM 240D
18 June–1 July 1998	BM 68/UNSCOM 247
16 July–21 Sep. 1998	MG 18
13–21 July 1998	BM 62/UNSCOM 232
22 July–4 Aug. 1998	BM 67/UNSCOM 242
27–31 July 1998	BM 69/UNSCOM 252
3–15 Dec. 1998	BM 70/UNSCOM 259
22 Sep.–15 Dec. 1998	MG 19
<i>Export/import</i>	
6 Oct. 1997–15 Jan. 1998	EG–8
16 Jan.–16 Mar. 1998	EG–9
17 Mar.–31 May 1998	EG–10
1 June–30 Aug. 1998	EG–11
13 July–3 Aug. 1998	EXIM 4/UNSCOM 249
31 Aug.–15 Dec. 1998	EG–12
<i>Concealment investigation missions</i>	
18–24 Dec. 1997	CIM 9/UNSCOM 218
11–17 Jan. 1998	CIM 10/UNSCOM 227
5–12 Mar. 1998	CIM 10B/UNSCOM 227B
20–23 May 1998	CIM 11/UNSCOM 233
28 Apr.–1 May 1998	CIM 12/UNSCOM 245
6–14 Dec. 1998	CIM 15/UNSCOM 258
<i>Special missions to Baghdad</i>	
12–16 Dec. 1997	Executive Chairman's visit
19–21 Jan. 1998	Executive Chairman's visit
22–26 Mar. 1998	Executive Chairman's visit
11–15 June 1998	Executive Chairman's visit
2–4 Aug. 1998	Executive Chairman's visit
<i>Technical evaluation meetings</i>	
1–6 Feb. 1998	Missile warhead TEM
2–6 Feb. 1998	VX TEM
20–27 Mar. 1998	BW TEM
<i>Presidential site missions</i>	
25 Mar.–4 Apr. 1998	PSV 1/UNSCOM 243

BG = Biological Monitoring Group, BM = ballistic missiles, BW = biological weapons, CBW = chemical and biological weapons, CIM = Concealment Investigation Mission, CG = Chemical Monitoring Group, CW = chemical weapons, EG = Export/Import Monitoring Group, EXIM = Export/import, M = Missile, MG = Missile Monitoring Group, PSV = Presidential Site Visit, TEM = Technical Evaluation Meetings.

Source: Information provided by UNSCOM spokesman.

with UNSCOM. The lifting of sanctions, in particular, became the focal point of Iraq's intransigence on inspections. Iraq viewed Annan as the guarantor of the agreement,¹³⁶ placing him in the awkward position of balancing the UNSCOM reports of non-compliance with the newly granted rights. Consequently, each time Iraq created a new crisis the search for a compromise further eroded UNSCOM's authority. In the shifting political environment the UNSCOM reports looked increasingly uncompromising.

Meanwhile the technical evaluation meetings, called for by Iraq to determine whether it had indeed destroyed its prohibited weapons and terminated the relevant armament programmes, concluded that many questions about the VX and missile programmes remained unanswered.¹³⁷ Another technical evaluation meeting on biological weapons determined that it had no confidence in the veracity of the full, final and complete disclosure. Between the summers of 1997 and 1998, groups of international experts outside UNSCOM found Iraq's declarations to be defective on four occasions.¹³⁸

A series of serious events soon brought UNSCOM's activities to a halt, despite work by UNSCOM Executive Chairman Richard Butler on a so-called road map—a list of priority tasks that need to be completed to give a final account of Iraq's proscribed weapon programmes and capabilities—to enable lifting the sanctions. In late June information was made public that Iraq had apparently loaded missile warheads with VX. In July Colonel Gabrielle Kraatz, a German and the new head of the UNSCOM BW group, obtained a document at the headquarters of the Iraqi Air Force which listed the chemical and biological missile warheads and munitions and detailed their consumption during the Persian Gulf War. On the basis of that document UNSCOM would have been able to determine how many chemical and biological munitions still remain unaccounted for. After a four-hour stand-off between Kraatz and members of the Iraqi military, UNSCOM and Iraq sealed the document and transferred it to the National Monitoring Centre, the Iraqi national authority for disarmament affairs. Iraq has since steadfastly refused to hand over the document, arguing that it pertained to the Iraq–Iran War and that the UN Security Council resolutions only refer to documents on the Persian Gulf War (which is incorrect).¹³⁹

¹³⁶ Omaar, R., 'Iraq's diplomatic gains', *Middle East International*, no. 569 (27 Feb. 1998), p. 4; and Hiro, D., 'Iraq and the US: Saddam wins the first round', *Middle East International*, no. 570 (13 Mar. 1998), p. 18.

¹³⁷ Report on the technical evaluation meeting on chemical warfare agent VX, 12 Feb. 1998; and Report of the Special Commission's team to the technical evaluation meeting on proscribed missile warheads (Baghdad, 1–6 Feb. 1998), UN document S/1998/176, 27 Feb. 1998.

¹³⁸ Report of the Executive Chairman on the activities of the Special Commission established by the Secretary-General pursuant to paragraph 9 (b) (i) of Resolution 687 (1991), UN document S/1998/332, 16 Apr. 1998, para. 65; and Report of the Executive Chairman on the activities of the Special Commission established by the Secretary-General pursuant to paragraph 9 (b) (i) of Resolution 687 (1991), UN document S/1998/920, 6 Oct. 1998, para. 31.

¹³⁹ Interview with Dutch UNSCOM inspector Koos Ooms, who participated in the 3 Aug. meeting in Baghdad. Stein, M., "'Iraakse leiders zijn boeven, tuig van de richel'" [Iraqi leaders are bandits, scum of the earth], *NRC Handelsblad* (Rotterdam), 18 Aug. 1998, p. 6. The continued refusal to hand over this document, despite a Security Council request to do so, was one of the main reasons why, in Dec. 1998,

Such incidents were presented by the Iraqi leadership as further evidence that the sanctions would never be lifted. On 3 August, during Butler's visit to Baghdad, Deputy Prime Minister Tariq Aziz demanded that UNSCOM certify that Iraq had revealed all details of its non-conventional weapon programmes and refused to provide any further answers to UNSCOM questions. The meeting was cut short. Two days later Iraq announced that UNSCOM inspectors could no longer carry out challenge inspections. Routine monitoring work, pursuant to UN Security Council Resolution 715, could continue, although the inspectors were permitted to monitor only those sites that Iraq allowed them to visit.¹⁴⁰ UNSCOM's position became extremely complicated. It was revealed that US Secretary of State Madeleine Albright had repeatedly pressured Butler to rescind planned challenge inspections.¹⁴¹ This apparent lack of willingness by the USA to uphold the UN Security Council resolutions on the disarmament of Iraq led to the resignation of Scott Ritter, an experienced UNSCOM inspector, on 26 August.¹⁴² The August crisis also demonstrated that in the absence of US-led initiatives the three critics of the British and US attitude towards Iraq (China, France and Russia) cannot or will not initiate measures to restore the authority of the Security Council in the face of gross violations of its resolutions.¹⁴³

Emboldened by the vacuum left by the Security Council, Iraq made new demands such as the restructuring of UNSCOM and the relocation of the UNSCOM headquarters to Geneva from New York. On 9 September the Security Council suspended its regular sanctions reviews.¹⁴⁴ Resolution 1194 also held out the prospect of a comprehensive review of Iraq's compliance after it had resumed full cooperation with UNSCOM and International Atomic Energy Agency (IAEA) inspectors. This 'carrot', however, raised the question of how much evidence UNSCOM should disclose to demonstrate Iraq's failure to fulfil its obligations. UNSCOM feared that with this knowledge Iraq might conceal or destroy further evidence of its prohibited programmes. A spokesperson for the UN Secretary-General indicated that such evidence would also have to be placed before the Security Council.¹⁴⁵ A proposal for a comprehensive review by Kofi Annan was rejected by Tariq Aziz during a meeting in New York on 28 September. Discussions continued, but on

Butler submitted a negative report to the Security Council. Letter from Richard Butler, Executive Chairman of UNSCOM to Kofi A. Annan, Secretary-General of the United Nations, 15 Dec. 1998.

¹⁴⁰ Diamond, H., 'Ambassador Richard Butler: keeping Iraq's disarmament on track', *Arms Control Today*, vol. 28, no. 6 (Aug./Sep. 1998), p. 3. As part of its mandate to inspect and oversee the destruction of Iraq's CBW and ballistic missiles UNSCOM can organize surprise visits to any location. UNSCOM's second priority is monitoring of previously inspected installations in order to ensure that Iraq does not rebuild its prohibited capabilities once UNSCOM has certified that they have been destroyed.

¹⁴¹ Gellman, B., 'US repeatedly blocked UN inspections in Iraq', *International Herald Tribune*, 28 Aug. 1998, p. 2.

¹⁴² Miller, J., 'Inspector quits, calling Iraq searches a "farce"', *International Herald Tribune*, 28 Aug. 1998, pp. 1, 4.

¹⁴³ Both France and Russia would benefit from an end to the sanctions as Iraq owes them \$5 billion and \$7 billion, respectively. In addition, both countries expect sizeable contracts to rebuild Iraq's civilian, industrial and military infrastructure. China is wary of US global hegemonic policies.

¹⁴⁴ UN Security Council Resolution 1194, 9 Sep. 1998.

¹⁴⁵ Williams, I., 'Iraq must comply', *Middle East International*, no. 585 (16 Oct. 1998), p. 12.

31 October, just after the Security Council had stated its terms for the comprehensive review, the Iraqi leadership announced the suspension of all UNSCOM activities, including those by the monitors who had been able to continue their work from 5 August to 31 October, although 'at a less than satisfactory level'.¹⁴⁶

In November the crisis over the expulsion of the UNSCOM inspectors and monitors escalated rapidly and both the UK and the USA were poised to launch air strikes at targets in Iraq. Despite formal assurances by Iraq on 14 November that full cooperation would be given to the Security Council, which averted the air strikes, the UNSCOM report covering the period 17 November–15 December detailed many obstructions and new forms of restrictions which the UNSCOM inspectors and monitors encountered upon their return.¹⁴⁷ This lack of cooperation led to the swift initiation of US and British air strikes. Iraq has since suspended all cooperation with UNSCOM. Butler was strongly criticized by China, France and Russia for submitting the negative report. Russia, however, has maintained a campaign of calling for his resignation or dismissal on grounds of being untrustworthy and biased on an almost daily basis. By the end of 1998 Russia had emerged as the leading supporter of the Iraqi cause to lift the sanctions.

UNSCOM needs to be maintained in order to disarm Iraq, but its role and function have become hostage to the increasingly personalized conflict between UNSCOM's two main supporters, the UK and the USA, and Iraqi President Saddam Hussein. The coupling between the sanctions and the UNSCOM inspection regime has also become problematic. On the one hand, the UNSCOM mandate is open-ended. As Iraq displays no willingness to cooperate in the disarmament regime established under Resolution 687 and the international community does not trust Iraq to comply with its provisions in the future, grounds for suspicion that Iraq has not completely abandoned its non-conventional weapon programmes will remain. UNSCOM can therefore never issue the 'clean bill of health' that Iraq seeks. On the other hand, Iraq's defiance of the UN Security Council will continue to grow because Iraq feels that the sanctions will remain in place no matter what measures of compliance it undertakes. In its view, the UK and the USA seek to overthrow the regime in Baghdad, and UNSCOM is a tool to maintain the sanctions and justify military intervention. Thus far all 15 of the members of the UN Security Council have agreed on the fundamental principle of disarming Iraq but have differed on the method to achieve that objective. If the removal of Saddam Hussein becomes a stated goal, the Security Council members can be expected to become sharply divided over the fundamental goal.

¹⁴⁶ UN document S/1998/920 (note 138), para. 67.

¹⁴⁷ Letter from Richard Butler (note 139).

VI. Countering CBW terrorism

Since the March 1995 attack with the nerve agent sarin in the Tokyo underground system by the religious sect Aum Shinrikyo the perception of the threat posed by terrorism with CBW has risen steeply. Consequently, counter-measures are being taken on the international and national levels.

International cooperative efforts against CBW terrorism

Several efforts towards international cooperation in combating terrorism have been launched. Following a US initiative within the G7 and the Russian Federation in July 1996 the UN General Assembly adopted the text of the International Convention for the Suppression of Terrorist Bombings on 9 January 1998.¹⁴⁸ Attacks fall within the scope of the convention if they are carried out with an 'explosive or other lethal device'.¹⁴⁹ These include not only conventional explosives or other incendiary devices, but also toxic chemicals, biological agents or toxins or similar substances, and radiation or radioactive material.¹⁵⁰ This is the first time that chemical and biological weapons are explicitly mentioned in an international counter-terrorism agreement. While the CWC and the BTWC require parties to criminalize certain conduct by their nationals or people and bodies on their territory, the Terrorist Bombing Convention provides for broad international law enforcement cooperation in specified circumstances.¹⁵¹

President Clinton's address to the UN General Assembly on 21 September 1998 was devoted entirely to the issue of terrorism as a world problem and the vulnerability of any nation to chemical, biological and other kinds of attacks.¹⁵² At the ministerial meeting of the North Atlantic Council (NAC) on 8 December, the United States proposed creating a new NATO Centre for Weapons of Mass Destruction. It would be a clearing house for increased intelligence sharing to produce more unified threat assessments about certain states and non-state actors, such as terrorist organizations. Some states have voiced reluctance, not least because the plan, in conjunction with proposals of alliance collaboration to deter and defend against proliferation, appears to move beyond NATO's traditional role of collective defence of the territory of member states.¹⁵³ The United States also reached an understanding with the

¹⁴⁸ *International Legal Materials*, vol. 37, no. 2 (Mar. 1998), pp. 249–260. As of 7 Jan. 1999, 1 country, Uzbekistan, had ratified the convention and 39 states had signed it: Algeria, Argentina, Austria, Belgium, Burundi, Canada, Comoros, Costa Rica, Côte d'Ivoire, Cyprus, Czech Republic, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Lithuania, Luxembourg, Macedonia (Former Yugoslav Republic of), Monaco, the Netherlands, Norway, Panama, Philippines, Romania, Russia, Slovakia, Slovenia, Spain, Sri Lanka, Sweden, Togo, the UK, the USA, Uruguay and Venezuela.

¹⁴⁹ International Convention for the Suppression of Terrorist Bombings, article 2, para. 1.

¹⁵⁰ International Convention for the Suppression of Terrorist Bombings, article 1, para. 3.

¹⁵¹ Witten, S. M., 'The International Convention for the Suppression of Terrorist Bombings', *American Journal of International Law*, vol. 92, no. 4 (Oct. 1998), p. 777, fn. 20.

¹⁵² White House, 'Remarks by the President to the opening session of the 53rd United Nations General Assembly', 21 Sep. 1998, URL <<http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1998/9/22/2.text.1>>.

¹⁵³ Erlanger, S., 'US urging allies to refocus NATO', *International Herald Tribune*, 7 Dec. 1998, p. 1.

EU on shared objectives, consultation and information exchanges, and the need for further cooperation to combat terrorism.¹⁵⁴

The US counter-terrorism programme

The United States, which has suffered a spate of bloody terrorist attacks domestically and against installations abroad, invests heavily in domestic preparedness programmes.¹⁵⁵ In recent years the number of investigations by the Federal Bureau of Investigation (FBI) into the use or threatened use of NBC-related materials has increased significantly.

The US policy on terrorism is based on four pillars: reduction of vulnerability to terrorism, deterrence of terrorist acts before they occur, response to terrorist acts if they occur and consequence management of such acts, and addressing the threat posed by NBC materials or weapons.¹⁵⁶ A distinction is made between domestic acts of terrorism and terrorist acts against US targets abroad. In the former case, the FBI has been designated as the lead agency for countering terrorism. In the latter case, the Department of State coordinates counter-terrorism policy and operations abroad.¹⁵⁷ In addition, the DOD spearheads activities to enhance domestic preparedness for responding to and managing the consequences of terrorist use of non-conventional weapons. The US Army Soldier and Biological Chemical Command (SBCCOM) leads the Domestic Preparedness Program.¹⁵⁸ The training programme is being implemented in the 120 largest US cities, which were selected on the sole criterion of city population. By 31 December 1998 one-third of these cities should have received the training, and the entire programme is expected to be completed by FY 2001.¹⁵⁹

¹⁵⁴ United States Information Service, 'US-EU declaration on counterterrorism', *Washington File*, 18 May 1998, URL <<http://www.usia.gov/current/news/topic/intrel/98051808.wpo.html?/products/washfile/newsitem.shtml>>.

¹⁵⁵ Presidential Decision Directive (PDD) 39 of 21 June 1995 laid out the first steps to address the threat posed by CW and BW terrorism. In the event of an incident of domestic terrorism, crisis management is to be led by the FBI and crisis management by the Federal Emergency Management Agency (FEMA). The Nunn-Lugar-Domenici Domestic Preparedness Program was established by the Defense Against Weapons of Mass Destruction Act, contained in the National Defense Authorization Act for FY 1997, Public Law P.L. 104-201, 23 Sep. 1996, Title XIV. The programme seeks to enhance the capability of the federal government to prevent and respond to terrorist incidents and provide support to improve the capabilities of state and local agencies to respond to such incidents.

¹⁵⁶ Prepared statement of Louis J. Freeh, Director, Federal Bureau of Investigation, *Counterterrorism*, Hearing before the Committee on Appropriations, United States Senate, 105th Congress, 1st session (US Government Printing Office: Washington, DC, 1998), p. 12.

¹⁵⁷ Prepared statement of Madeleine Albright, Secretary of State, *Counterterrorism* (note 156), p. 31.

¹⁵⁸ 'Fact sheet', US Army Soldier and Biological Chemical Command (SBCCOM), updated 3 Feb. 1999, URL <http://www.sbccom.apgea.army.mil/sbccom/au_fs.html>. Initially, the Chemical and Biological Defense Command was tasked by the Secretary of the Army to implement the Domestic Preparedness Program through the Army Director of Military Support. The Director of Military Support and CBDCOM designed a training programme to enhance the knowledge and capability of local fire, law enforcement and medical personnel and hazardous materials technicians. In November 1998 CBDCOM merged with another Army Materiel Command, SSCOM, into SBCCOM.

¹⁵⁹ General Accounting Office, *Combating Terrorism: Opportunities to Improve Domestic Preparedness Program Focus and Efficiency*, GAO/NSIAD-99-3 (US General Accounting Office: Washington, DC, Nov. 1998), p. 4. The document includes detailed descriptions of the programme and lists the cities involved.

Meanwhile efforts are under way to coordinate the policies and activities of federal agencies, bureaux and offices involved in combating terrorism, which numbered over 40 in 1997,¹⁶⁰ as well as those of the federal, state and local authorities. The Conference Committee Report accompanying the 1998 Appropriations Act for the departments of Commerce, Justice and State, the Judiciary and related agencies directs the attorney-general to develop a 5-year interdepartmental counter-terrorism and technology crime plan by 31 December 1998 to serve as a baseline strategy for coordination of national policy and operational capabilities to combat terrorism.¹⁶¹ Presidential Decision Directive 62 of 22 May 1998 updated the national policy to enhance capabilities to prevent and respond to terrorist events involving non-conventional weapons.¹⁶²

VII. Conclusions

Progress has been made in the development of strong CBW disarmament regimes. The treaty-building process of the CWC has advanced steadily. Outstanding issues are gradually being resolved, although some issues still require political solutions by the states parties. Of continuing concern, however, are the major delays in the inspections of the US industry facilities and the fact that Russia, the holder of the world's largest CW stockpile, still has not begun destroying its chemical weapons. Several issues remain to be resolved, but given sufficient political will they should not be insurmountable. Negotiations to add a protocol to the BTWC, which will include verification provisions, are proceeding at a slower pace than initially hoped for. Work still remains to be done to strike a balance between industry and security interests. Most observers nevertheless still anticipate the conclusion of the negotiations before the Fifth Review Conference of the BTWC in 2001.

Proliferation of CBW remains a major concern and many Western states are in the process of implementing policies to counter such a threat. Chemical or biological terrorism poses governments with risks that are difficult to gauge, because of the uncertainties regarding the types of agent to be used, and the timing and location of an eventual strike. The UNSCOM experience in Iraq further demonstrates the difficulties in reversing CBW proliferation in the face of determined efforts to maintain a major CBW armament programme.

¹⁶⁰ General Accounting Office, *Combating Terrorism: Federal Agencies' Efforts to Implement National Policy and Strategy*, GAO/NSIAD-97-254 (US General Accounting Office: Washington, DC, Sep. 1997), pp. 33–34.

¹⁶¹ Prepared statement of Attorney-General Janet Reno, *Counterterrorism: Evaluating the 5-Year Plan*, Hearing before a Subcommittee of the Committee on Appropriations, United States Senate, 105th Congress, 1st session (US Government Printing Office: Washington, DC, 1998), p. 9.

¹⁶² White House, 'Combating terrorism: Presidential Decision Directive 62', *Fact Sheet*, 22 May 1998, URL <<http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1998/5/22/7.text.1>>. PDD 62 is a classified document.