

9. Chemical and biological weapon developments and arms control

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I. Introduction

Progress on the implementation of the 1993 Chemical Weapons Convention (CWC)¹ continued in 1999. Three of the four declared possessors of chemical weapons (CW) continued or began destruction operations and some previously outstanding issues were resolved. Nevertheless, problems relating to the timely execution of certain treaty obligations by some states continue to generate tension between parties to the CWC.

The negotiation on a protocol to the 1972 Biological and Toxin Weapon Convention (BTWC)² made progress on several technical issues. The industrialized and developing countries took initiatives to bridge their differences on non-proliferation and technical cooperation. The issue of monitoring compliance with the future regime remained the main stumbling block.

Despite progress in implementing the CWC and strengthening the BTWC proliferation remained a cause for concern. In 1999 more information became available about past chemical and biological weapon (CBW) programmes in Russia, Serbia and South Africa, and the use of or inadvertent exposure to CBW in a regional war, such as the one in Kosovo, appeared to have become a more realistic threat.

Section II of the chapter deals with the implementation of the CWC, CW destruction in the USA, the reasons why CW destruction has not yet begun in Russia and abandoned CW in China. The negotiations to strengthen the BTWC are discussed in section III and CBW proliferation concerns in section IV. Section V presents the conclusions. Appendix 9A investigates the likelihood of a terrorist organization setting up its own CBW production capability and assesses the potential consequences of terrorists using chemical and biological warfare agents against population centres on the basis of computer simulations. Appendix 9B describes the future prospects of CBW disarmament in Iraq against the background of the experiences of the United Nations Special Commission on Iraq (UNSCOM).

¹ A brief summary of the convention and a list of parties are given in annexe A in this volume. The full text is available on the SIPRI CBW Project Internet site, URL <<http://projects.sipri.se/cbw/cbw-mainpage.html>>.

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II. Chemical weapon disarmament

Implementing the CWC

The CWC entered into force on 29 April 1997. By 31 December 1999, 129 states had ratified or acceded to the convention and an additional 41 states had signed it.³ Twenty-two UN members have neither signed nor ratified the CWC.⁴ None of the countries of greatest concern in Asia and the Middle East—Egypt, Israel, North Korea, Libya and Syria—joined the convention in 1999. Although Nigeria and Sudan became parties to the CWC in 1999, Africa remains the most under-represented continent.⁵ As of 6 December 1999, inspectors from the Organisation for the Prohibition of Chemical Weapons (OPCW) had completed 620 inspections at 312 sites in 35 countries since the entry into force of the CWC.⁶ The Fourth Conference of States Parties (CSP) was held in The Hague on 28 June–3 July 1999.⁷

As of 17 November, 32 of the 129 parties had not yet submitted their initial industry declarations to the OPCW, and several others had only submitted partial declarations. Such submissions are required within 30 days after the CWC enters into force for the party and are essential to establish the verification requirements for the party. By 20 November the Technical Secretariat (TS) had received 96 per cent of the total assessed contributions of 108.1 million guilders (*c.* \$47 million) for 1999. Just over one-half of the number of parties at that time (64 of 126) had paid their assessment in full, and a further 13 parties had made a partial payment or received a credit on the basis of their 1997 cash surplus.⁸ Many of the parties that had not paid are small states with low assessed contributions.

Complaints were made by some parties about the unequal distribution of industry inspections. The majority of these inspections have been carried out

³ Estonia, the Holy See, Liechtenstein, Micronesia, Nicaragua, Nigeria, San Marino and Sudan became parties in 1999.

⁴ Those states are Angola, Andorra, Antigua and Barbuda, Barbados, Belize, Egypt, Eritrea, Iraq, Kiribati, Korea (North), Lebanon, Libya, Mozambique, Palau, Sao Tome and Principe, the Federal Republic of Yugoslavia (FRY), Solomon Islands, Somalia, Syria, Tonga, Tuvalu and Vanuatu.

⁵ Sudan joined the CWC in reaction to the US bombing in Aug. 1998 of a pharmaceutical plant allegedly producing CW. Zanders, J. P., French, E. M. and Pauwels, N., 'Chemical and biological weapon developments and arms control', *SIPRI Yearbook 1999: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1999), pp. 581–82.

⁶ These comprise 14 inspections of abandoned CW sites, 138 inspections of CW destruction facilities, 150 inspections of CW production facilities, 91 inspections of CW storage facilities, 25 inspections of old CW facilities, 54 inspections of Schedule 1 facilities, 110 inspections of Schedule 2 facilities, and 37 inspections of Schedule 3 facilities and 1 other facility. Feakes, D., 'Developments in the Organisation for the Prohibition of Chemical Weapons', *CBW Conventions Bulletin*, no. 46 (Dec. 1999), p. 17.

⁷ Report of the Fourth Session of the Conference of States Parties, OPCW document C-IV/6, 2 July 1999.

⁸ OPCW, *Secretariat Brief*, no. 20 (9 Dec. 1999). Concern was also expressed that some parties still had to meet their financial obligations for previous financial years. E.g., 34 of the then 121 parties had not paid their 1998 assessment. According to Article VIII, para. 8 of the CWC, a party which is in arrears to an amount equal to or in excess of the amount owed for the previous 2 full years will lose its vote in the OPCW. Some parties to the CWC are also slow to reimburse the verification costs under Article IV and Article V: out of a total of 12.51 million guilders (*c.* \$5.5 million) just over 2.3 million guilders (*c.* \$1 million) had been reimbursed by 20 Nov. 1999.

at Schedule 2 facilities,⁹ which only relatively few states possess. (Of the 126 inspectable Schedule 2 plant sites that had been declared in 1999, 90 were located in five states that are parties to the CWC.) In 1998, 79 per cent of the industry inspections took place in eight states; no such inspections were carried out in 101 of the then 121 parties. In 1999 a larger number of Schedule 3 inspections were conducted than in 1998, and 27 states parties received at least one industry inspection.¹⁰ In September 1999 a new selection methodology to achieve a more equitable geographic distribution of inspections of Schedule 3 plant sites was adopted by the Executive Council of the OPCW.¹¹

The continuing delays with respect to the US initial industry declarations also affected the OPCW inspections and the budget planning for 2000. The US Government was unable to collect the industry declarations required by the CWC because the necessary national regulations had not been issued. This put the USA in technical non-compliance with the CWC and caused certain other industrialized parties to express irritation with the USA. German Ambassador Klaus Neubert, for instance, addressing the Fourth CSP on behalf of the European Union (EU), stated that the situation had 'led in 1998 to 64 per cent of Schedule 2 inspections and 54 per cent of Schedule 3 inspections being carried out in Member States of the European Union'.¹² Several parties, including some EU members, attempted through the budget planning procedure to limit the burden of inspections on their industries, arguing that their US competitors were not similarly affected. Following difficult discussions, the Fourth CSP adopted the budget for 2000; it proposes 252 inspections (120 inspections of CW and CW-related facilities and 132 chemical industry inspections). A quota of industry inspections is reserved for the USA, but they contain complex adjustment mechanisms to take into account the date of submission of the US initial industry declarations. On 30 December the Bureau of Export Administration of the Department of Commerce and the Bureau of Arms Control of the Department of State published an 'interim rule' and request for comments (by 31 January 2000); the US initial industry declarations are expected to be

⁹ According to the CWC Verification Annex, part VII, para. 16, each Schedule 2 facility 'shall receive an initial inspection as soon as possible but preferably not later than three years after entry into force of this Convention'.

¹⁰ Mathews, R. J., 'Verifying chemical disarmament: advent and performance of the OPCW', *Verification 2000* (Verification Research, Training & Information Centre (VERTIC): London, 2000).

¹¹ Australia and the Republic of Korea, Methodology for selecting Schedule 3 and discrete organic chemical (DOC) plant sites for inspection, Executive Council document EC-XVI/NAT.5, 16 Sep. 1999.

¹² Neubert, K., Statement made on behalf of the European Union to the Fourth Conference of States Parties to the Organisation for the Prohibition of Chemical Weapons, The Hague, 28 June 1999. The nature of an industrial facility's obligations depends on the types and quantities of chemicals it produces, processes, transfers and consumes. The CWC categorizes chemical compounds of particular concern in schedules depending on their importance for the production of chemical warfare agents or for legitimate civilian manufacturing processes. Each list has different reporting requirements. Schedule 1 contains compounds that can be used as CW and that have few uses for permitted purposes. They are subject to the most stringent controls. Schedule 2 includes chemicals that are key precursors to CW but which generally have greater commercial application. Schedule 3 chemicals can be used to produce CW but are also used in large quantities for non-prohibited purposes. The CWC also places reporting requirements on firms which produce DOC that are not on any of the schedules and contains special requirements for firms that produce 'unscheduled' DOC with phosphorus, sulphur or fluorine.

submitted in the first half of 2000.¹³ CW inspections of US storage facilities, destruction sites, and so on are proceeding without procedural problems.

A revised notification procedure for the transfer of saxitoxin, a Schedule 1 chemical, was adopted.¹⁴ On 31 October 1999, a new paragraph reflecting this change was added to Part VI of the Verification Annex of the CWC using the simplified amendment procedure for administrative or technical purposes.¹⁵ However, the problem of retransfer of saxitoxin has not been solved. Canada and the United Kingdom withdrew their joint proposal to allow the retransfer of saxitoxin under certain conditions following both an evaluation by the TS that the proposal is not a simple administrative or technical change but rather an amendment to the CWC under Article XV, and the failure of the 14th session of the Executive Council (on 2–5 February 1999) to reach consensus on the issue of retransfer.¹⁶

As part of the implementation of Article X on assistance and protection against CW the OPCW established a CW protection network (comprised of experts from states parties) so that parties to the CWC seeking advice or assistance can have rapid access to experts and expertise.¹⁷ Other measures, including internal training courses for inspectors, were approved to increase the readiness of the OPCW to coordinate assistance and to investigate chemical warfare allegations. In October the OPCW conducted a successful full-scale ‘investigation of alleged use’ exercise in the Czech Republic in which chemical warfare agent simulants were used.¹⁸ The OPCW still needs experts in specific technical areas and certain types of equipment for investigations of alleged use.¹⁹ During a visit by OPCW Director-General José Bustani to Iran in January 1999, Iran offered to establish an international centre for the treatment of chemical warfare casualties and for training medical personnel in the treatment of such casualties.²⁰

Since the entry into force of the CWC no party has called for a challenge inspection—the most intrusive verification mechanism available in the event of a serious compliance concern. Any location on the territory of a party, whether declared to the OPCW or not, can be the subject of a short-notice challenge inspection. In order to test the complex procedures outlined in the CWC for such an inspection and to evaluate the possible political ramifica-

¹³ *Federal Register*, vol. 64, no. 250 (30 Dec. 1999), pp. 73744–811.

¹⁴ Saxitoxin is a powerful neurotoxin used in small quantities for medical and diagnostic purposes. As a Schedule 1 chemical it was impossible to transfer it to non-parties or to retransfer it between parties for such purposes. The issue is discussed in Zanders, French and Pauwels (note 5), pp. 567–68.

¹⁵ The amended Part VI of the Verification Annex is available at the SIPRI CBW Project Internet site, URL <<http://projects.sipri.se/cbw/docs/cw-cwc-verannex5bis.html>>.

¹⁶ Feakes, D., ‘Developments in the Organisation for the Prohibition of Chemical Weapons’, *CBW Conventions Bulletin*, no. 43 (Mar. 1999), p. 5.

¹⁷ Bustani, J., Statement to the First Committee of the United Nations General Assembly, 19 Oct. 1999, URL <<http://www.opcw.nl>>.

¹⁸ Pelly, G., ‘The investigation of alleged use exercise in the Czech Republic’, *OPCW Synthesis*, no. 5 (Nov./Dec. 1999), pp. 2–3.

¹⁹ OPCW, *Secretariat Brief*, no. 20 (9 Dec. 1999). At the 15th session of the Executive Council, Bustani had identified the areas for which expertise was needed: biomedicine, explosives, forensic science and autopsy. OPCW, *Secretariat Brief*, no. 15 (5 May 1999).

²⁰ OPCW, *Secretariat Brief*, no. 14 (18 Feb. 1999).

tions, the OPCW organized a full-scale mock challenge inspection in a Brazilian chemical plant in October 1999. The inspection was carried out in a manner that took account of politically sensitive issues. This apparently did not compromise its effectiveness, and an initial evaluation indicated that the TS will be able to improve its procedures and that valuable experience was obtained in the mock inspection.

The issue of determining the usability of CW produced between 1925 and 1946 was not resolved in 1999. Consequently, the TS is unable to close the files of 24 inspections involving such chemical weapons.²¹ Another major unresolved question relates to determining thresholds for the declaration of mixtures containing low concentrations of either Schedule 2 or Schedule 3 chemicals. This question is important for determining the cut-off point for providing notification of transfers. As of 29 April 2000, three years after the entry into force of the CWC, Schedule 2 chemicals may no longer be exported from parties to the CWC to non-parties. The matter of low concentrations of Schedule 2 chemicals in mixtures therefore requires urgent resolution.²²

Destruction of chemical weapons and related facilities

By the end of January 2000 the destruction of approximately 4000 tonnes of chemical agents and more than 1 million munitions had been monitored by OPCW inspectors. All of the 60 declared CW production facilities throughout the world had been inspected and sealed. The OPCW has certified the destruction of 20 of them and approved the conversion of an additional 5 facilities.²³ In 1999 three of the four states parties that have declared CW stockpiles to the OPCW—India, South Korea and the USA—began destroying these weapons. Russia has not begun the destruction of its CW stockpiles largely owing to a lack of sufficient funding. The details of the Indian and South Korean CW stockpiles and the plans for their destruction have not been made public.

The United States

The US CW destruction programme consists of two major components: assembled CW and non-stockpiled chemical *matériel*. Incineration is the US Army's baseline destruction technology,²⁴ but for each of the two components Congress has directed the US Department of Defense (DOD) to explore alternative destruction technologies in response to strong public and political opposition to incineration. With respect to stockpiled items,²⁵ the US Army

²¹ Bustani, J., Opening statement to the 17th session of the Executive Council, 30 Nov. 1999, URL <<http://www.opcw.nl>>. If CW produced between 1925 and 1946 are deemed usable they must be destroyed under OPCW supervision in the same manner as CW produced after 1946.

²² Bustani (note 21).

²³ OPCW, 'The OPCW completes its first 1000 days', Press Release no. 2/2000, 25 Jan. 2000.

²⁴ In this disposal method the stockpiled items are disassembled into agents, metal parts and the 'energetic' (e.g., explosives and/or propellants) and each component is subsequently incinerated separately.

²⁵ The stockpile is stored at 9 locations: Edgewood Chemical Activity, Aberdeen Proving Ground, Md.; Anniston Chemical Activity, Anniston, Ala.; Blue Grass Chemical Activity, Richmond, Ky.; Newport Chemical Depot, Newport, Ind.; Pine Bluff Chemical Activity, Pine Bluff, Ark.; Pueblo Chemical

has launched two projects. The Alternative Technologies and Approaches Program (ATAP) investigates ways to neutralize the chemical warfare agents stored in 'ton containers' at Aberdeen Proving Ground and Newport. Both are low-volume stockpile sites.²⁶ The Assembled Chemical Weapons Assessment (ACWA) programme, which explores CW disposal options for the Blue Grass and Pueblo storage sites, is discussed below.

Non-stockpiled chemical *matériel* might be recovered from as many as 100 locations.²⁷ Existing technologies are being used to destroy the unfilled components of the binary CW and former production facilities. The other elements of the non-stockpiled chemical *matériel* pose a variety of technological challenges as a consequence of the different physical configurations and conditions, agent fill types (of buried CW and in chemical agent identification sets), quantities and locations. Current technologies are being used to meet transfer, storage, handling and transport requirements. New processes are being developed for munition identification and characterization and the destruction of the agent and the energetic through neutralization.²⁸

The current estimate of the cost for the elimination of the US CW stockpile has risen sharply largely because the DOD must explore, develop and test alternative technologies while still meeting the CWC-imposed deadlines. The current cost estimate for the destruction of stockpiled items (\$15.6 billion) is just under \$500 000 per ton. (For comparison, a common benchmark for hazardous waste treatment cost is \$300 per ton.) According to a 1998 independent audit, the budget could rise by another 8.6 per cent or \$1.3 billion.²⁹

Destruction of the CW stockpile proceeded according to plan in 1999. As of 13 February 2000, a total of 5686 agent tons had been destroyed at the two currently operational facilities, the Johnston Atoll Chemical Agent Disposal System (JACADS) and the Tooele Chemical Agent Disposal Facility (TOCDF). Of the 31 496 agent tons originally declared to the OPCW, 25 810 tons still await destruction.

All munitions containing mustard agent at JACADS were destroyed in 1999. In 1998 the stockpile of the nerve agent sarin was eliminated, and the nerve agent VX is the only compound awaiting complete destruction.³⁰ As of 13 February 2000, 1754 agent tons or 86.3 per cent of the original tonnage

Depot, Pueblo, Colo.; Deseret Chemical Depot, Tooele, Utah; Umatilla Chemical Depot, Hermiston, Ore.; and Johnston Atoll Chemical Activity, Johnston Atoll (south-west of Hawaii).

²⁶An overview of the alternative destruction technologies is provided in Zanders, French and Pauwels (note 5), p. 572. One US ton is equal to 0.907 metric tonne.

²⁷The Non-Stockpile Chemical Materiel Project deals with 5 categories of chemical warfare *matériel*: (a) binary CW; (b) miscellaneous chemical warfare items, including unfilled munitions, support equipment and devices to be employed in conjunction with the use of CW; (c) recovered CW; (d) former production facilities; and (e) buried chemical warfare *matériel*. All categories of non-stockpiled chemical *matériel*, except buried items, must be destroyed according to the CWC-mandated time lines.

²⁸US Army Project Manager for Non-Stockpile Chemical Materiel, Program Manager for Chemical Demilitarization, 'Overarching research plan: non-stockpile chemical materiel program', 9 June 1999, pp. 8-9, URL <<http://pmcdtech.stoneweb.com/ORP.htm>>.

²⁹Wright, A. G., 'Chemical independence', *Engineering News-Record*, 15 Feb. 1999, URL <<http://www.enr.com/new/c0215.asp>>. The 1984 budget estimate for the total CW destruction programme was \$1.7 billion.

³⁰*Reach*, vol. 1, no. 3 (1999), p. 2.

(2031 tons) had been destroyed, as well as 88.9 per cent of the original amount of munitions.³¹ Commencement of the closure proceedings for JACADS is planned for 2000.³²

At the TOCDF, 3932 tons or 28.8 per cent of the original tonnage (13 616 tons) were destroyed as of 13 February 2000, as well as 33.2 per cent of the original amount of munitions. All of the munitions destroyed thus far were filled with sarin.³³ The programme is currently running slightly behind schedule, but it is believed that the delay can be overcome. Completion of the destruction activities and closure of the facility are still anticipated for the end of fiscal year (FY) 2003.³⁴

Construction work on the facilities in Anniston and Umatilla is about half completed. Both plants are slated to commence destruction operations in 2002. Work on construction of the facility in Pine Bluff started in 1999, and it should become operational in 2003. Construction at Aberdeen began in June 1999, and the facility should become operational in 2004. Construction of the Newport, Pueblo and Blue Grass facilities has not yet started. In the latter two cases, work is on hold pending the completion and submission of a report to Congress on the relative effectiveness of three different technologies other than incineration and the final selection of the destruction technology.³⁵

On 30 September the US Department of the Army submitted to Congress its ACWA report on technologies other than incineration. One of the three alternatives (plasma waste convertor) was considered immature and rejected. The second alternative—neutralization of mustard agent followed by treatment in an immobilized cell bioreactor—was considered suitable for assembled mustard munitions, and the third alternative—neutralization plus supercritical-water-oxidation—was deemed applicable for all assembled chemical weapons.³⁶ All technologies are able to destroy agents with at least 99.9999 per cent effectiveness.

In accordance with Public Law 104-201, the US National Academy of Sciences performed an independent technical review and evaluation of the seven technology packages that had passed the initial screening by the DOD as part of the ACWA programme. The report criticized the alternative destruction methods as being less mature for the elimination of the parts of the munitions other than the warfare agent. In addition, the primary chemical decomposition process in all the technology packages produces environmentally unacceptable

³¹ 'Processing status as of 13 February 2000 for the Johnston Atoll Chemical Agent Disposal System (JACADS)', URL <http://www-pmcd.apgea.army.mil/print/aag_jacads.html>.

³² US Army Program Manager for Chemical Demilitarization, 'JACADS public information and involvement closure strategy', Working draft, Feb. 1999, p. 1, URL <<http://www-pmcd.apgea.army.mil>>.

³³ 'Processing status as of 13 February 2000 . . .' (note 31).

³⁴ Office of the Under Secretary of Defense (Comptroller), 'Chemical Demilitarization program: program funding execution assessment', Washington, DC, 26 July 1999, p. 3, URL <<http://www-pmcd.apgea.army.mil>>; and 'Incinerator faltering in race to destroy chemical weapons', *Environment News Service*, 1 Dec. 1999, URL <<http://ens.lycos.com/corpus/ens/dec99/19991%2D12%2D01%2D06.html>>.

³⁵ Office of the Under Secretary of Defense (note 34), pp. 3–5; and Military Construction Appropriations Act, 2000, Public Law 106-52, section 131.

³⁶ '30 September', *CBW Conventions Bulletin*, no. 46 (Dec. 1999), p. 32. The ACWA programme was initiated in accordance with Public Laws 104-201 and 104-208 (1996).

reaction products. The report therefore recommended substantial additional testing, operational verification and integration prior to full-scale implementation. It also noted that none of the ACWA technology packages can meet the CWC-imposed deadlines unless there is 'an extraordinary commitment of resources' in 'a concerted national effort'.³⁷ Such a concerted national effort was not forthcoming in 1999. The Military Construction Appropriations Act, 2000 (Public Law 106-52) provided \$93 million less than the amount requested by the Clinton Administration for the CW demilitarization programme, although Congress appropriated \$301 million for projects not related to CW that the DOD did not consider as priorities.³⁸

The Russian Federation

In 1999 Russia was unable to begin the destruction of its large CW stockpile (totalling 40 000 agent tonnes at seven storage sites³⁹) as a consequence of its internal political, social and budgetary difficulties. The Russian Government has reaffirmed that it is politically and legally committed to destroy its CW stockpile and to destroy or convert its former production facilities and other CW-related sites. By presidential decree the functions of the abolished Russian Federation President's Committee for the Convention Problems of Chemical and Biological Weapons were transferred to the Russian Agency for Munitions in May 1999.⁴⁰

Opposition to CW disarmament continues in some quarters. In June the State Duma passed a resolution on the unsatisfactory implementation of the CWC which noted among other things that Russia could not destroy its CW in a safe manner.⁴¹ CW disarmament is opposed by two groups: ecologists, whose chief concern is the lack of environmentally safe CW destruction technologies, and extreme nationalists. The ecologists hold the view that, at present, destruction is more dangerous than continued stockpiling, and the extreme

³⁷ US National Research Council, Committee on Review and Evaluation of Alternative Technologies for Demilitarization of Assembled Chemical Weapons, *Review and Evaluation of Alternative Technologies for Demilitarization of Assembled Chemical Weapons* (National Academy Press: Washington, DC, 1999), Executive Summary, pp. 1–8, URL <<http://books.nap.edu/books/0309066395/html/>>.

³⁸ *Statement by the President* (White House, Office of the Press Secretary: Washington, DC, 17 Aug. 1999), URL <<http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1999/8/18/8.text.1>>.

³⁹ Russian CW are stored at Kambarka, Udmurt Republic; Gorny, Saratov *oblast*; Kizner, Udmurt Republic; Maradikovskiy, Kirov *oblast*; Pohep, Bryansk *oblast*; Leonidovka, Penza *oblast*; and Shchuchye, Kurgan *oblast*. In July 1999 a Norwegian newspaper, reportedly on the basis of information from the Norwegian ecological organization Bellona, alleged that CW components were also stored near Severomorsk on the Kola Peninsula, but the Russian authorities and Bellona denied this. Stormark, K., 'Tikkende bombe' [Ticking bomb], *Verdens Gang* (Internet edn, Oslo), 15 July 1999, URL <<http://www.vg.no/pub/skrivervennlig.hbs?artid=2812917>>; Interfax (Moscow), 19 July 1999, in 'Russian general: no chemical weapons in Kola Peninsula', Foreign Broadcast Information Service, *Daily Report—Central Eurasia (FBIS-SOV)*, FBIS-SOV-1999-0719, 20 July 1999; and Interfax (Moscow), 20 July 1999, in 'Environmentalists not aware of CW parts at Severomorsk', FBIS-SOV-1999-0720, 20 July 1999.

⁴⁰ Russian Federation Presidential Edict no. 651, signed by President Boris Yeltsin, dated 25 May 1999, 'On the structure of federal executive organs', in 'Edict lists new Russian federal organs', FBIS-SOV-1999-0601, 29 May 1999.

⁴¹ ITAR-TASS (Moscow), 11 June 1999, in 'Russia urges compliance with chemical arms convention', FBIS-SOV-1999-0612, 14 June 1999; and Scorobogatk, T., 'Arsenic for dessert?', *Moscow News*, no. 29 (4 Aug. 1999).

nationalists argue that the elimination of its chemical weapons will reduce Russia's military stature. The latter group claims that CW are needed to counter the proliferation of non-conventional weapons along the southern border. (Some advocates of CW disarmament reject this argument by pointing to the availability of tactical nuclear weapons.⁴²)

According to its own assessment, the Russian CW destruction programme is between three and five years behind schedule.⁴³ Some US estimates are more pessimistic. In the autumn of 1999 Russia submitted a request to the Executive Council of the OPCW for a delay in the implementation of the first intermediate destruction deadline for Category 1 CW, citing lack of financial resources as the principal reason.⁴⁴ If CW destruction is carried out as planned,⁴⁵ it is estimated that the Russian CW destruction programme will cost approximately \$5.7 billion. The figure must be viewed in the light of Russia's budget deficit and debt burden: the projected repayments on Russia's international debts for 1999 are approximately \$17.5 billion.⁴⁶ Consequently, CW destruction is low on Russia's list of priorities. In recent years, funding of the federal destruction programme has been cut to about 1–2 per cent of the annual amount needed.⁴⁷ By the end of 1998 the debt to organizations involved in the CW destruction programme exceeded 100 million roubles (\$4 million at early 1999 exchange rates). In the 1999 budget only 5.4 per cent of the necessary expenditure was allocated.⁴⁸ Nevertheless, there is a need for urgency.⁴⁹ Around some storage and former production sites the concentration

⁴² In the spring of 1999 Russia reportedly cancelled several high-level negotiations with the USA to complete plans for a CW demilitarization plant because of the war in Kosovo (although several US officials and contractors denied the direct link between these events). Lifland, J., 'NATO's airstrikes chill Russia's plans to destroy chemical weapons', *Anniston Star* (Internet edn), 5 Apr. 1999, URL <http://www.annistonstar.com/news/news_19990405_6083.html>.

⁴³ ITAR-TASS (Moscow), 25 Jan. 1999, in 'Bad financing delays destruction of chemical weapons', FBIS-SOV-99-025, 26 Jan. 1999; and Nogov, M., 'Arsenal is a windfall for a spy', *Rossiyskaya Gazeta*, 26 Mar. 1999, p. 13, in 'Gorny CW destruction plant gets go-ahead', FBIS-SOV-1999-0331, 1 Apr. 1999.

⁴⁴ A state party must have destroyed 1% of its Category 1 CW (CW based on Schedule 1 chemicals) by the third year after entry into force of the CWC. It can make a request for postponement under Part IV(A), para. 22 of the Verification Annex to the CWC. Pending a request for further written information, the OPCW Executive Council's 17th session (30 Nov.–3 Dec.) deferred the matter to its 18th session before making a recommendation to the 5th CSP (May 2000). OPCW, *Secretariat Brief*, no. 20 (9 Dec. 1999).

⁴⁵ The plans for destruction of the Russian CW stockpile are 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), pp. 463–66; and Hart, J. and Miller, C. (eds), *Chemical Weapon Destruction in Russia: Political, Legal and Technical Aspects*, SIPRI Chemical & Biological Warfare Studies no. 17 (Oxford University Press: Oxford, 1998).

⁴⁶ Perera, J., 'Russia finally faces up to its CW legacy', *Jane's Intelligence Review*, vol. 11, no. 4 (Apr. 1999), p. 23.

⁴⁷ Babakin, A., 'Dual-purpose troops; they protect Russians from man-made accidents and are prepared to eliminate chemical weapons stocks and even to destroy locusts', *Rossiyskaya Gazeta*, 4 Mar. 1999, p. 13, in 'CW destruction methods viewed', FBIS-SOV-1999-0304, 5 Mar. 1999; and Livotkin, D., 'Stanislav Petrov: "We'll fulfill our commitments to the international community"' (Interview with Col.-Gen. Stanislav Petrov, Head of the Radiological, Chemical and Biological Defence Forces), *Yaderny Kontrol*, no. 9 (winter 1998/99), pp. 29–30.

⁴⁸ Scorobogatko (note 41).

⁴⁹ E.g., the walls of the large steel tanks in which most of the mustard and lewisite agent is stored are being consumed at an annual rate of 0.1–0.12 millimetres (mm). After 50 years of storage, their original thickness of 11 mm has been reduced by 5–6 mm, posing serious risks of structural weakness and leak-

of toxic pollutants is extremely high (in many cases several thousand times the permitted level), which has serious health implications.⁵⁰

In order to meet the health and social needs of the local population, a part of the budget is slated for the development of regional infrastructure near the stockpile sites. On 22 September Prime Minister Vladimir Putin issued a government resolution establishing polyclinical consultative–diagnostic centres which will examine the health of citizens who live and work near CW storage and destruction sites. The financing of the project is to start in 2000, and its cost must be covered by the programme for the elimination of CW.⁵¹

In March the plan for the first CW destruction plant, to be located in Gorny, was approved by the State Commission of Environmental Experts, which appears to signal the possibility of compromise between the military and environmentalists.⁵² Shchuchye and Kambarka were identified as the next two sites for plant construction.⁵³ In an effort to speed up the destruction process it was proposed that a mobile complex (the complex for the destruction of faulty chemical munitions, KUASI), operated by the Radiation, Chemical and Biological Defence Troops, be used for the destruction of malfunctioning special munitions.⁵⁴

Russia has declared to the OPCW 24 former production facilities located in five regions: Berezniki, Perm region (1 facility); Chapayevsk (3 facilities); Dzerzhinsk, Nizhegorodskaya region (7 facilities); Novocheboksarsk, Chuvash Republic (5 facilities); and Volgograd (8 facilities).⁵⁵ The OPCW issued destruction certificates for 3 facilities: the pilot production plant for sarin, soman and VX and the corresponding filling facilities in Volgograd; a mustard production facility in Dzerzhinsk; and a lewisite plant in Chapayevsk. Destruction certificates for other installations are pending. Russia currently

age. (Artillery shells and tactical missile warheads, in contrast, are reportedly thick-walled and therefore better suited for long-term storage.) Belous, V. S. (Maj. Gen.) and Podberezkin, A. I., 'There is no alternative to chemical disarmament', *Nezavisimoye Voyennoye Obozreniye* (Moscow), 4–10 June 1999, p. 4, in 'Chemical weapons disarmament viewed', FBIS-SOV-1999-0626, 30 June 1999; and Perera (note 46), p. 24.

⁵⁰ Scorobogatko (note 41); Blackwood, Jr., M. E., 'Arsenic and old weapons: chemical weapons disposal in Russia', *Nonproliferation Review*, vol. 6, no. 3 (spring/summer 1999), p. 90; and Perera (note 46), pp. 24–27.

⁵¹ Resolution of the Government of the Russian Federation, no. 1082, 22 Sep. 1999, *Rossiyskaya Gazeta*, 5 Oct. 1999, in 'New clinics for CW destruction, storage sites', FBIS-SOV-1999-1012, 19 Oct. 1999. Construction of housing, high-voltage power lines, water pipelines, purification systems and water pumping facilities (where not previously present) began in 1998 and continued in 1999. Livotkin (note 47), p. 30.

⁵² Nogov (note 43).

⁵³ ITAR-TASS (Moscow), 25 Jan. 1999, in 'Bad financing delays destruction of chemical weapons', FBIS-SOV-99-025, 26 Jan. 1999. Gorny and Kambarka are the sites with the largest bulk holdings of mustard and lewisite agents, and there is growing fear of leakage of these agents.

⁵⁴ Babakin (note 47). The KUASI has already destroyed c. 400 tonnes of nerve agent from damaged munitions. It was demonstrated to international experts visiting Shikhany in 1987 and is described as an environmentally safe, closed technological cycle. It appears, however, that the proposal is part of a lobbying effort by the Russian NBC (nuclear, biological and chemical) Protection Troops to enhance its own role and to have the CW destruction plant in Chapayevsk (designed to utilize this technology) reopened. The facility was closed in 1989 before it was operational because of strong local opposition but was maintained and later used by OPCW inspector trainees.

⁵⁵ Utkina, S., Gorbovsky, A. and Zhuchkov, A., 'Russian views on conversion of former chemical weapons production facilities', *OPCW Synthesis*, no. 5 (Nov./Dec. 1999), pp. 1, 13–14.

uses 18 facilities for purposes not prohibited under the CWC and hopes to obtain permission from the OPCW to convert other facilities for such use, arguing that destruction would be economically and socially disadvantageous.

Russia has sought massive foreign aid in order to meet its CW destruction obligations. A growing list of Western countries provide such assistance, although the funding levels fall far short of the amount Russia requires.⁵⁶ Following discussions between German and Russian officials in Gorny in August 1999, it was announced that Germany will provide 44 million Deutschmarks (\$23 million) for the destruction of CW at Gorny—in addition to the 21 million Deutschmarks (\$11 million) contributed earlier to the project.⁵⁷ On 21 January 2000 it was announced that Italy would provide \$8.3 million towards construction of the necessary infrastructure to destroy CW in the Udmurt Republic in 2000–2002.⁵⁸

The USA, in the framework of the Cooperative Threat Reduction (CTR) programme,⁵⁹ has thus far been the major contributor. Destruction assistance, however, received a major setback in 1999: as of FY 2000 no CTR funds may be obligated or expended for planning, design or construction of a CW destruction facility in Russia. A maximum of \$20 million may be obligated for security enhancements at CW storage sites. No CTR funds may be used for housing, environmental restoration or retraining.⁶⁰ This drastic reduction in funds—the Clinton Administration had requested \$130.4 million, an increase of \$44 million over the FY 1999 appropriation⁶¹—is largely because of a critical report by the US General Accounting Office (GAO) questioning Russia's ability to meet the CW destruction targets in Shchuchye. The GAO noted, among other things, that the project has fallen approximately 18 months behind schedule and will not begin operation until 2006. At the planned annual destruction rate of 500 tonnes, the goal of eliminating 95 per cent of the depot's 5600 tonnes of nerve agent would not be achieved before 2017. (The formal destruction deadline in the CWC is 2007 and can be extended until 2012 in special circumstances.) The GAO report also expressed doubt that, in the light of its economic difficulties, Russia will be able or willing to

⁵⁶ Zanders, French and Pauwels (note 5), pp. 573–75. Russia has sought foreign financial assistance for infrastructure improvements to better the lives of the people living near the CW destruction sites. Such measures would include hospitals, roads, water and sewage systems, retraining, etc. The view is that improvements would help overcome local resistance to CW destruction by providing benefits resulting from disarmament and new jobs to replace those lost by the closing of the CW facility. However, foreign donors have been reluctant to invest in programmes that are not directly related to destruction.

⁵⁷ Agence France Presse (AFP), (Moscow) via Lexis Nexis, 'Germany to finance Russian plant to destroy chemical weapons', 28 Aug. 1999.

⁵⁸ Federal News Service, 'Joint press briefing by Russian Foreign Minister Igor Ivanov and Italian Foreign Minister Lamberto Dini', Official Kremlin International News Broadcast, 21 Jan. 2000.

⁵⁹ The CTR programme is discussed in chapter 8 in this volume.

⁶⁰ National Defense Authorization Act for Fiscal Year 2000, Public Law 106-65, 5 Oct. 1999, Title XIII, Cooperative Threat Reduction with States of the Former Soviet Union, sections 1302, 1303 and 1305.

⁶¹ National Defense Authorization Act for Fiscal Year 2000, Report of the Committee on Armed Services, House of Representatives on H.R. 1401, House of Representatives, 106th Congress, 1st Session, Report 106-162, 24 May 1999, p. 415.

invest the funds needed to destroy the CW at the other storage sites.⁶² Other motivations for the reductions offered by members of the US Congress included the opinion that the Russian CW pose more of a local environmental hazard than a security threat to the USA; the conviction that the enhancement of security at the existing CW depots will contribute more to US security and non-proliferation goals than continued investment in destruction processes; and, most fundamentally, the belief that the assistance cannot meet the original CTR goals (i.e., assisting Russia to meet the CWC deadlines, encouraging other countries to provide assistance and advancing US non-proliferation goals).⁶³ The cut in US assistance led to publication of information on former Soviet CW production facilities and an appeal for international help in the OPCW publication *OPCW Synthesis*.⁶⁴

Abandoned chemical weapons in China

According to the Japanese Ministry of Foreign Affairs, Japanese Army troops abandoned approximately 700 000 chemical munitions in China during their retreat at the end of World War II.⁶⁵ In July 1999 Japan and China signed a Memorandum of Understanding (MOU) on the destruction of abandoned chemical weapons in China. Both governments agreed to jointly select a mature destruction technology that is reliable in terms of destruction efficiency, safety and the environment. The location of the various destruction facilities has not been decided, but it is anticipated that destruction will be completed in accordance with the CWC time lines.⁶⁶ In order to meet its obligations under the CWC, Japan established the Office for Abandoned Chemical Weapons in the Prime Minister's Office on 1 April 1999. Its duties include study of the destruction technology and development of a destruction plan. Following the creation of this body the Japanese Government appropriated 809 million yen (c. \$8 million) in the supplementary budget for FY 1999 and included 2.826 billion yen (c. \$27 million) in the draft FY 2000 budget.⁶⁷

III. Biological weapon disarmament

The Ad Hoc Group (AHG) of states parties to the BTWC continued to discuss a protocol with verification mechanisms and other legally binding measures to strengthen the convention. The AHG was established by the BTWC Special

⁶² US General Accounting Office, *Weapons of Mass Destruction: Effort to Reduce Russian Arsenals May Cost More, Achieve Less Than Planned*, GAO/NSIAD-99-76, Apr. 1999, pp. 11–16.

⁶³ National Defense Authorization Act for Fiscal Year 2000 (note 61), pp. 415–17.

⁶⁴ Utkina, Gorbovsky and Zhuchkov (note 55).

⁶⁵ Ministry of Foreign Affairs of Japan, 'Budget for the destruction of abandoned chemical weapons in China', 24 Dec. 1999, URL <<http://www.mofa.go.jp/announce/announce/1999/12/1224.html>>. China maintains that the actual figure is almost 3 times as high. Zanders, French and Pauwels (note 5), p. 576.

⁶⁶ Ministry of Foreign Affairs of Japan, 'Signing of the Memorandum of Understanding between Japan and China on the Destruction of Abandoned Chemical Weapons in China', 30 July 1999, URL <<http://www.mofa.go.jp/announce/announce/1999/7/730.html>>.

⁶⁷ Ministry of Foreign Affairs of Japan (note 65).

Conference in 1994 and began its work in January 1995. It met five times in 1999.⁶⁸ The negotiations were assisted by the Friends of the Chair (FoC), who facilitate the discussions on specific issues.⁶⁹ Although the discussions moved towards establishing a final framework for the protocol and key elements of it were negotiated in detail, there was a growing sense of stagnation at the end of 1999.

The delegations have expressed their positions and preferences on the various outstanding issues (these are enclosed in brackets in the rolling text of the draft protocol). Without true negotiations that will lead to compromises and so-called 'package deals' progress appears impossible. Some states—most of which belong to the non-aligned movement (NAM)⁷⁰—seek acceptance of their positions before they are willing to enter endgame negotiations. So far this has only led to reiteration of previously stated positions. In contrast, the EU adopted a position in May that endorsed strong and effective compliance measures.⁷¹ However, the USA's non-committal stance on the future protocol, evidenced by its reservations regarding verification of the biotechnology industry, created a deepening division in the Western Group (the regional group which has the largest share of relevant industries and research institutes). The members of the North Atlantic Treaty Organization (NATO) formally endorsed the negotiations at NATO's 50th anniversary summit meeting in Washington in April and called for completion of the negotiations before the Fifth Review Conference of the BTWC to be held in 2001.⁷²

The draft protocol envisages the creation of an international body: the Organization for the Prohibition of Bacteriological (Biological) and Toxin Weapons (OPBTW).⁷³ It is modelled on the OPCW and the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO). The OPBTW would consist of a Conference of States Parties, an Executive Council and a Technical Secre-

⁶⁸ The 13th session was held on 4–22 Jan., the 14th on 29 Mar.–9 Apr., the 15th on 28 June–23 July, the 16th on 13 Sep.–8 Oct., and the 17th on 22 Nov.–10 Dec.

⁶⁹ Following the 15th session FoC papers with proposals for further consideration (which have been included as Part II of the Procedural Report since Oct. 1998) were for the first time structured according to the draft protocol, with strike-through text indicating deletions and bold text denoting additions. Pearson, G. S., 'Strengthening the Biological and Toxin Weapons Convention', *CBW Conventions Bulletin*, no. 46 (Dec. 1999), p. 5.

⁷⁰ A list of the NAM members is given in the glossary in this volume.

⁷¹ European Union, Common Position of 17 May 1999 adopted by the Council on the basis of Article 15 of the Treaty on European Union, relating to progress towards a legally binding Protocol to strengthen compliance with the Biological and Toxin Weapons Convention (BTWC), and with a view to the successful completion of substantive work in the Ad Hoc Group by the end of 1999, *Official Journal*, L 133 (28 May 1999), pp. 3–4. The document was also endorsed by an additional 13 states, including the states associated to the EU and other states. Pearson, G. S., 'Strengthening the Biological and Toxin Weapons Convention', *CBW Conventions Bulletin*, no. 45 (Sep. 1999), p. 14. Despite the joint declaration some EU members which have a large biotechnology industry (e.g., Germany) hold positions similar to that of the USA with respect to a strong compliance regime.

⁷² NATO, Washington Summit Communiqué, 'An alliance for the 21st century', Press Release NAC-S(99)64, 24 Apr. 1999, para. 35; and NATO Press Release M-NAC2(99)166, 15 Dec. 1999, para. 43. Excerpts from the Washington Summit Communiqué are reproduced in appendix 4A in this volume.

⁷³ 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/47 (Part I), 15 Oct. 1999, Article IX.

tariat. The Netherlands and Switzerland have made formal offers to host the organization.

As in 1998 Article II of the draft protocol, dealing with definitions and criteria, Article III on compliance measures (which will establish the future verification regime) and Article VII on scientific and technological exchanges continued to be politically contentious. At the end of 1999 the title of Article II of the draft protocol remained in brackets because there is considerable disagreement regarding its content. Most AHG participants are concerned that explicit definition of biological and toxin weapons is tantamount to amendment of Article I of the BTWC and not in accordance with the procedures of Article XI of the convention, which specifies the amendment procedure. They also fear that defining the terms too exactly may restrict the scope of the protocol too much. Other participants claim that defining the terms is essential for unambiguous implementation of the protocol and would not have the effect of amending the BTWC.⁷⁴

Compliance mechanisms

The draft Article III envisages three compliance mechanisms: declarations, visits and investigations. The declarations to be submitted by the parties to the OPBTW would contain information on past offensive and defensive biological weapon (BW) programmes, current activities and relevant facilities. The on-site visits are intended to ensure the completeness and correctness of the submitted declarations and to generate confidence in the compliance of other states parties. In contrast, investigations would address cases of suspected non-compliance. Following the 13th AHG session, in January 1999, visits and investigations were treated separately; this is important as the former activities are non-confrontational and intended to generate transparency and build confidence, whereas the latter are accusatory.⁷⁵ Like similar provisions of the CWC, draft Article III also contains language that encourages or compels parties to submit timely declarations.⁷⁶

The discussions on the declaration formats have made steady progress. The formats are designed so that parties will not have to reveal commercial secrets or national security information.⁷⁷ However, there are divisions of opinion with respect to the 'declaration triggers' (i.e., the minimum level of production or consumption of certain treaty-relevant commodities that requires declaration) as these are directly linked to the definition of facilities that have legit-

⁷⁴ Procedural Report . . . (note 73), Article II, fn 4.

⁷⁵ 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/44 (Part I), 29 Jan. 1999, Article III, D, Part II and Article III, G.

⁷⁶ 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/46 (Part I), 30 July 1999, Article III, D, III.

⁷⁷ Pearson, G. S., 'The BTWC protocol enters the endgame', *Disarmament Diplomacy*, no. 39 (July/Aug. 1999), p. 8.

imate purposes under the BTWC. It is often difficult to distinguish between permitted and prohibited purposes on the basis of the technologies (goods, equipment, tools, skills, knowledge, and so on) used in a particular facility because most have a dual-use potential. However, there is broad agreement on the inclusion of certain categories such as facilities operating at the highest biosafety level,⁷⁸ facilities involved in biological defence programmes or activities, vaccine production facilities, and facilities working with biological agents and toxins that are listed in an annexe to the protocol. The exact definitions of the categories are still under discussion; agreement has not been achieved on the category 'other production facilities'.⁷⁹

Visits to provide confidence that declarations are accurate are arguably one of the most controversial aspects of the draft protocol. Not only are there differences of opinion between the regional groups in the AHG, but the Western Group has also been unable to present a unified position. The latest draft protocol outlines three types of visit: (a) visits to clarify declarations; (b) mandatory visits, with annual quota ceilings, to randomly selected facilities in order to follow up on declarations; and (c) voluntary visits to assist in compiling individual facility or national declarations, to resolve ambiguities in declarations, to encourage further assistance and cooperation or to resolve a particular concern.⁸⁰

The protocol would benefit greatly from a strong compliance regime. This implies a central role for the randomly selected visits, which must be intrusive to be effective. Differences about the degree of intrusiveness have split the Western Group; the three countries with the highest number of relevant facilities—Germany, Japan and the USA—oppose strong measures.⁸¹ The USA (which faces strong opposition to the proposed verification mechanisms from its pharmaceutical industry, but which also has extensive BW defence programmes) is the least willing to accept randomly selected visits, even to the point of opposing a British alternative proposal of 'transparency visits' which was put forward in the Western Group during preparation for the 16th session of the AHG.⁸² When the USA signalled that it might accept the proposal if

⁷⁸ Biosafety levels (BL1–BL4) classify health and safety controls for work with different types of biological material. BL4 is the highest containment level and BL1 the lowest. They have been adopted by the World Health Organization (WHO). WHO, *Laboratory Biosafety Manual* (WHO: Geneva, 1983), pp. 3–5.

⁷⁹ Wilson, H., 'Strengthening the BWC: issues for the Ad Hoc Group', *Disarmament Diplomacy*, no. 42 (Dec. 1999), p. 31.

⁸⁰ Procedural Report . . . (note 73), Article III, D, II. No new rolling text was produced after the 17th session and the discussion papers were produced separately. 'Ad Hoc Group 17th session', Biological and Toxin Weapons Convention (BTWC) Database, Department of Peace Studies, University of Bradford, URL <<http://www.brad.ac.uk/acad/sbtwc/ahg49/ahg49.htm>>. In the Ad Hoc Group document BWC/AD HOC GROUP/44 (Part I), 29 Jan. 1999, and in subsequent documents, 'randomly-selected' visits replaces the previously used term 'random' visits.

⁸¹ Germany, however, also subscribed to the EU common position with respect to randomly selected visits. European Union (note 71).

⁸² In a letter dated 24 May 1999, US Secretary of Commerce William Daley wrote to Secretary of State Madeleine Albright: 'I still believe that we should continue to oppose random and routine visits, including "transparency visits" . . . Our best experts, including the intelligence community and many of those who participated in the Iraq inspections, continue to tell us that, regardless of how intrusive we make an inspection regime, there is virtually no chance of discovering biological weapons activities.'

there were unanimous approval for it in the group, there was strong pressure to adopt it as a common Western Group proposal.⁸³ However, several members of the group remained dissatisfied with the compromise.

When the NAM Group submitted a working paper on visits, which included stronger measures than the British transparency visits,⁸⁴ some Western states (e.g., Australia, the Netherlands, New Zealand and Norway) publicly welcomed the document as providing a helpful contribution to stimulating negotiations on this issue. (Other Western countries objected to this public display of internal division in the Western Group.) Some other elements of the NAM proposal were unacceptable to the entire Western Group.⁸⁵ However, the greatest relevance of the NAM working paper may be that it prepared the way for the possibility of compromise in the final stage of the negotiations between compliance measures, which are important to the West, and technical cooperation, in which developing countries have strong interest. The NAM working document also showed that under South Africa's coordination a degree of unanimity in the negotiation group on the issue of compliance had been achieved, although some members, including China, have reportedly not accepted every aspect of the proposal.

The draft protocol distinguishes between two types of investigation. Facility investigations can be initiated in the case of suspicion of illicit activities inside an installation. Field investigations can be launched if BW use is suspected. At the end of 1999 two major issues remained unresolved. First, agreement was not reached on whether the Executive Council of the OPBTW would decide on launching an investigation using the 'red light' or the 'green light' procedure.⁸⁶ The opposing views reflect the concern that the procedure may be abused. Second, there is concern that under the currently proposed mechanisms a field investigation might turn into a facility investigation if, during the field investigation, an unnatural outbreak of disease were to occur that might

They are simply too easy to move, conceal, or even sanitize within hours—without leaving a trace. . . . I seriously question a negotiating strategy of attempting to mollify the most hard-line members of the Western Group. . . . We have repeatedly assured US industry that we oppose random and routine on-site activities.' Quoted in Hatch Rosenberg, B., 'Bioterrorism or prevention?', *ASA Newsletter*, no. 74 (27 Aug. 1999), p. 12. This letter was written shortly after the EU Common Position was announced. European Union (note 71).

⁸³ Wilson (note 79), p. 33.

⁸⁴ Proposed text for visits, Working paper submitted by the NAM and other states, Ad Hoc Group document BWC/AD HOC GROUP/WP.402, 22 Sep. 1999.

⁸⁵ E.g., the NAM proposed that all types of visit, including voluntary visits and invitations for voluntary assistance, be included in an annual quota of visits. If the quota is exceeded, then the Director-General of the OPBTW 'shall reduce the provision for randomly-selected visits in order to accommodate the extra voluntary assistance and/or voluntary clarification visits correspondingly'. This proposal would weaken the whole compliance regime as the provisions for voluntary visits are weaker than those for clarification visits. Proposed text for visits (note 84), paras 5, 7; and Wilson (note 79), p. 33.

⁸⁶ The CWC contains the so-called red-light and the Comprehensive Nuclear Test-Ban Treaty (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.

plausibly be linked to the facility.⁸⁷ In particular, there is concern that a field investigation might facilitate access that would have been harder to obtain if the request had been for a facility investigation.

Technical cooperation and development

The question of the right to technical cooperation and development as part of arms control or disarmament treaties has been a politically sensitive issue since the entry into force of the 1968 Treaty on the Non-Proliferation of Nuclear Weapons (Non-Proliferation Treaty, NPT). Article X of the BTWC deals with opportunities for technology transfers and technical cooperation for peaceful purposes among parties and requests them to implement the convention in a manner so as not to hamper the economic development of other parties. Article VII of the draft protocol attempts to implement the commitment. However, the discussions remain closely tied to the debate on the role of export controls, and of the Australia Group (AG) in particular, under the future BTWC regime.⁸⁸ The experience of implementation of the CWC has somewhat reinforced the convictions of the opposing sides in the debate: certain developing countries argue that the AG participants have not changed their export control regulations since the entry into force of the CWC despite a treaty obligation to review them,⁸⁹ while many industrialized states note that numerous parties have not yet enacted national legislation to implement the CWC, so that it is impossible to track transactions in accordance with the transfer mechanisms in the CWC.

In 1999 considerably more attention was paid to Article VII of the draft protocol than in the past. The argument that transparency with respect to technology transactions enhances confidence in the compliance of states parties gained wider currency. As a result, some progress was made. The idea of a Cooperation Committee as a subsidiary body of the OPBTW to oversee the implementation of Article X of the BTWC and Article VII of the draft protocol was introduced by the NAM at the 13th session⁹⁰ and subsequently endorsed by the Netherlands and New Zealand at the 14th session.⁹¹ By the

⁸⁷ An example is a case similar to the accidental release of anthrax from Sverdlovsk (now Yekaterinburg) in the former Soviet Union in 1979, when more than 60 people downwind of a military installation died.

⁸⁸ This debate originates with the tension between the generic non-proliferation obligation in Article III and the cooperation commitments in Article X of the BTWC. Some 30 states coordinate their national export control regulations within the AG, an informal consultative arrangement set up in 1985 in the wake of the confirmation of Iraq's use of CW in the 1980–88 Iraq–Iran War. In the late 1980s the commonly agreed export control lists were gradually expanded to include biological warfare agents and dual-use technologies of relevance to the manufacture of BW. These issues are discussed in Anthony, I. and Zanders, J. P., 'Multilateral security-related export controls', *SIPRI Yearbook 1998* (note 45), pp. 386–94.

⁸⁹ Several AG participants have, in fact, reviewed their national export control regulations and concluded that they conform to their CWC obligations.

⁹⁰ Establishment of a Cooperation Committee, Working paper submitted by the NAM and other states, Ad Hoc Group document BWC/AD HOC GROUP/WP.349, Jan. 1999.

⁹¹ BWC Article X/Protocol Article VII, Working paper submitted by the Netherlands and New Zealand, Ad Hoc Group document BWC/AD HOC GROUP/WP.362, 6 Apr. 1999, para. I.

end of the 17th session the AHG (with the exception of the USA) had accepted the idea, but agreement was not reached on the committee's structure and mandate. Australia, France, Germany, Sweden, Switzerland and the UK circulated a 'non-paper' outlining the position of a Cooperation Committee within the OPBTW and its powers with respect to making recommendations.⁹² The NAM members preferred a stronger mandate for the new body than the one suggested in the non-paper, but they nevertheless welcomed the document as a useful first step in the concrete implementation of Article X of the BTWC.⁹³

The increasingly cooperative atmosphere on the issue of non-proliferation and technical cooperation was further encouraged at the end of the 16th session of the AHG, when the NAM submitted a working paper on measures to strengthen Article III of the BTWC (which contains the generic non-proliferation obligation).⁹⁴ This explicit recognition of the relevance of Article III and the attempt to strike a balance between the non-proliferation obligations and the avoidance of 'measures that hamper the peaceful economic and technological development of States Parties'⁹⁵ were welcomed by the Western Group. Although the document was a NAM paper distributed as a contribution to assist further negotiation, it reportedly does not reflect the national positions of all the NAM members.⁹⁶ Nevertheless, as with the working paper on visits, it may prove to be an important building block once the endgame negotiations begin.

IV. Proliferation concerns

In 1999 several statements were made with respect to CBW proliferation. According to the Russian Federation's Foreign Intelligence Service (Sluzhba Vneshney Razvedki, SVR) 25 countries, many of which are located close to Russia's borders, have or are developing various types of non-conventional weaponry.⁹⁷ The US Central Intelligence Agency (CIA) and Arms Control and Disarmament Agency (ACDA) claim that at least 16 states currently have active CW programmes and as many as 12 countries are claimed to be pursuing offensive BW programmes.⁹⁸ The following states are alleged to have an offensive BW capability or to be in the process of seeking such a capability: China, Egypt, Iran, Iraq, Libya, Russia and Syria. North Korea may

⁹² A non-paper is a note circulated to delegations that has not been formally introduced as a working document or country position.

⁹³ Wilson (note 79), p. 30.

⁹⁴ Measures to strengthen the implementation of Article III of the Convention, Working paper submitted by the NAM and other States, Ad Hoc Group document BWC/AD HOC GROUP/WP.407, 8 Oct. 1999.

⁹⁵ Measures to strengthen the implementation of Article III of the Convention (note 94).

⁹⁶ Wilson (note 79), p. 30.

⁹⁷ Belous and Podberezkin (note 49).

⁹⁸ Lauder, J. A., Special Assistant to the Director of Central Intelligence for Nonproliferation, 'Unclassified statement for the record on the worldwide WMD threat to the Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction', 29 Apr. 1999, URL <http://www.odci.gov/cia/public_affairs/speeches/archives/1999/lauder_speech_042999.html>.

be able to wage biological warfare. Sudan may be interested in acquiring BW, and there is insufficient evidence to determine whether Taiwan is conducting activities prohibited under the BTWC. Iran, Iraq, North Korea, Libya, Sudan and Syria are also alleged to be acquiring chemical weapons.⁹⁹ This section highlights the CBW proliferation debate.¹⁰⁰

The NATO Weapons of Mass Destruction Initiative

NATO views the proliferation of non-conventional weapons as a major security concern. At the Washington summit meeting celebrating its 50th anniversary, the alliance launched its Weapons of Mass Destruction (WMD) Initiative to respond to the security threats posed by nuclear, biological and chemical weapons (NBC) and their means of delivery. The WMD Initiative will integrate the political and military aspects of the NATO response to proliferation. It will also create a WMD Centre within the International Staff at NATO Headquarters in Brussels to coordinate activities related to non-conventional weapons, including political consultations and efforts to improve defence preparedness. The centre is expected to be established in early 2000, but its tasks had not yet been fully defined at the end of 1999. The creation of an intelligence and information database on non-conventional weapons in order to improve the quality and increase the quantity of intelligence and information-sharing among NATO members was also considered.¹⁰¹ The WMD Initiative is the concretization of the NATO ministerial guidance and force goals adopted in 1996 and 1997.¹⁰²

The Washington summit meeting statement stressed that ‘the principal non-proliferation goal of the alliance and its members is to prevent proliferation from occurring, or, should it occur, to reverse it through diplomatic means’.¹⁰³ The position does not preclude military preparedness: NATO’s new Strategic Concept calls for a balanced mix of forces, response capabilities and strengthened defences ‘to address appropriately and effectively’ the proliferation risks.¹⁰⁴ The Strategic Concept explicitly excludes a biological or chemical warfare capability for NATO, but stresses that ‘defensive precautions will

⁹⁹ US Arms Control and Disarmament Agency, ‘Adherence to and compliance with arms control agreements’, 1998 report submitted to the Congress, Washington, DC, 1999, URL <<http://state.gov/www/global/arms/reports/annual/comp98.html>>; and US Central Intelligence Agency, Nonproliferation Center, ‘Unclassified report to Congress on the acquisition of technology relating to weapons of mass destruction and advanced conventional munitions, 1 January through 30 June 1999’, Washington, DC, Feb. 2000, URL <http://www.odci.gov/cia/publications/bian/bian_feb_2000.html>.

¹⁰⁰ CBW terrorism and the future of the disarmament of Iraq are discussed in appendices 9A and 9B.

¹⁰¹ NATO, Washington Summit Communiqué (note 72), para. 31; and NATO, ‘Final Communiqué of the Meeting of the North Atlantic Council in Defence Ministers Session held in Brussels’, Press Release, M-NAC-D(99)156 (2 Dec. 1999), para. 20.

¹⁰² Zanders, J. P. and Hart, J., ‘Chemical and biological weapon developments and arms control’, *SIPRI Yearbook 1998* (note 45), pp. 476–77.

¹⁰³ NATO, Washington Summit Communiqué (note 72), para. 30.

¹⁰⁴ NATO, ‘The Alliance’s Strategic Concept’, Press Release NAC-S(99)65, 24 Apr. 1999, para. 53, h.

remain essential' even if further progress with respect to banning CBW can be achieved.¹⁰⁵

BW concerns regarding Russia

Doubts about the termination of Russia's BW programme, as decreed by then President Boris Yeltsin in April 1992, persisted in 1999. An analysis based on multiple political and economic parameters published by the Swedish Defence Research Establishment (FOA) in December concluded that the retention of a biological warfare capability appears to be the current policy choice. Factors that may contribute to a continuation of the offensive BW programme include the enduring social and economic crisis, a further deterioration of relations with the West and with Russia's neighbours, a continuing focus on the re-establishment of Russia's status as a superpower, and the prospect of an inefficient protocol to the BTWC.¹⁰⁶ A former high-ranking official of the Soviet BW programme, Dr Ken Alibek, who now lives in the USA, has claimed that the military stockpiles of biological warfare agents have been destroyed but that research into (genetically modified) pathogens for offensive military use continues.¹⁰⁷ He has revealed many details of the Soviet BW programme and its underlying motives.¹⁰⁸

Of particular concern is the dominance of former military personnel in key positions in microbiological research and development (R&D) establishments and the biopharmaceutical industry. Despite the transfer of the State Concern Biopreparat to the Ministry of Health in 1992 and later to the Ministry of the Economy (previously the Ministry of Industry), the organization apparently retained its Soviet-era director and most of its military personnel.¹⁰⁹ Biopreparat personnel also occupy a prominent position in the civilian biopharmaceutical sector.¹¹⁰ The conversion of the organization—which employs some 40 000 personnel, including 9000 scientists and engineers—to legitimate civilian purposes appears problematic and, according to the FOA report, thus far to have been essentially cosmetic.¹¹¹

¹⁰⁵ NATO (note 104), para. 57.

¹⁰⁶ Lilja, P., Roffey, R. and Westerdahl, K. S., *Disarmament or Retention: Is the Soviet Biological Weapons Programme Continuing in Russia?* (Swedish Defence Research Establishment (FOA): Umeå, Dec. 1999), p. 10; and Tucker, J. B., 'Biological weapons in the former Soviet Union: an interview with Dr Kenneth Alibek', *Nonproliferation Review*, vol. 6, no. 3 (spring/summer 1999), p. 9.

¹⁰⁷ Tucker (note 106), pp. 6, 8.

¹⁰⁸ Alibek, K., *Biohazard* (Hutchinson: London, 1999).

¹⁰⁹ The Biopreparat organization was established in 1973—1 year after the opening for signature of the BTWC—by the Communist Party Central Committee. It was funded by the Ministry of Defence but placed under the civilian Main Administration of the Microbiological Industry (Glavmikrobioprom). Tucker, J. B., 'Biological weapons proliferation from Russia: how great a threat?', Remarks to the 7th Carnegie International Non-Proliferation Conference, 11–12 Jan. 1999, Carnegie Endowment for International Peace, Washington, DC, URL <<http://www.ceip.org/programs/npp/tucker.htm>>. The entire Soviet BW programme reportedly involved 60 000–70 000 people. Tucker (note 106), p. 5.

¹¹⁰ Rimmington, A., 'Fragmentation and proliferation? The fate of the Soviet Union's offensive biological weapons programme', *Contemporary Security Policy*, vol. 20, no. 1 (Apr. 1999), p. 93. Rosmedprom, which represents over 70 pharmaceutical companies and acts as interlocutor with government agencies, apparently shares the same headquarters.

¹¹¹ Lilja, Roffey and Westerdahl (note 106), p. 44.

The dire social and professional conditions in which the former BW specialists currently live significantly increase the risk of a 'brain drain' to countries that may be interested in acquiring BW. Since Yeltsin's 1992 decree the BW-related establishments have laid off large numbers of personnel, while the remaining staff work under Spartan conditions and often go without pay for long periods.¹¹² The feared mass exodus of BW scientists and technicians does not appear to have materialized, although some BW specialists are known to have sought contracts abroad.¹¹³ Furthermore, because the former Soviet BW-relevant research installations continue to be largely controlled by the military, they may still be engaged in the development of an offensive capability in violation of the BTWC.

International assistance for BW conversion in Russia

In order to employ these experts in R&D programmes permitted under the BTWC, a number of programmes were launched in the 1990s. Several countries (the EU states, Japan, South Korea, Norway and the USA) provide money to support such programmes through the International Science and Technology Centre (ISTC) in Moscow.¹¹⁴ In a separate initiative, the US National Academy of Sciences runs a cooperative research programme on dangerous pathogens, which is funded through the CTR programme, in order to identify further opportunities for the conversion of BW-related facilities and equipment and to create opportunities for the US biotechnology industry to invest in Russia.¹¹⁵ The US Department of Energy (DOE) also manages the Initiatives for Proliferation Prevention (IPP) programme, which involves collaborative activities among the DOE national laboratories, US industry partners and institutes in the former Soviet Union.¹¹⁶

However, investment in these initiatives remains modest, especially as they seek to address clear violations of a major disarmament treaty. The four US-sponsored programmes spent a total of \$310.3 million on 1733 collaborative research projects between 1994 and 1998. Of that sum only \$26 million went to biotechnology (178 projects) and \$11.3 million to chemistry grants (69 projects). The remaining funds are targeted at experts who previously developed nuclear and missile technology.¹¹⁷ By the end of 1998 only 9.8 per cent of the total funds of the ISTC programme (\$18.5 million) had been approved for projects related to biotechnology.¹¹⁸ Thirty per cent of the IPP programme funds (\$22.5 million for FY 1999) are earmarked for chemical and

¹¹² Smithson, A. E., *Toxic Archipelago: Preventing Proliferation from the Former Soviet Chemical and Biological Weapons Complexes*, Report no. 32 (Henry L. Stimson Center: Washington, DC, Dec. 1999), p. 16.

¹¹³ Tucker (note 106), p. 6.

¹¹⁴ The initiative dates from Nov. 1992, but the State Duma did not consider the agreement until late 1993 so the Board of Governors first met in Mar. 1994. Smithson (note 112), p. 22, fn. 68.

¹¹⁵ Lilja, Roffey and Westerdahl (note 106), p. 38.

¹¹⁶ US General Accounting Office, *Nuclear Nonproliferation: Concerns with DOE's Efforts to Reduce the Risks Posed by Russia's Unemployed Weapons Scientists*, Report GAO/RCED-99-54, Feb. 1999, pp. 15, 19, 34. See also chapter 8 in this volume.

¹¹⁷ Smithson (note 112), p. x.

¹¹⁸ Lilja, Roffey and Westerdahl (note 106), p. 37.

biological projects.¹¹⁹ From the perspective of the Russian institutes the funds appear minimal. For example, although the Vektor Centre for Virology and Biotechnology accounts for a high proportion of the ISTC funds allocated, the amount is only 1 per cent of the centre's total income.¹²⁰ Several analysts have therefore called for significant increases in support for research projects that would engage the skills of BW specialists for purposes permitted under the BTWC as a highly cost-effective way to prevent BW proliferation.¹²¹

Despite the modest sums involved, the programmes have been criticized. In 1998 funding for US cooperative initiatives on BW-related projects was halved to \$7 million because of doubts about Russian compliance with the BTWC and in response to Russian nuclear and missile technology sales to Iran.¹²² Funding levels may be expected to decrease significantly in 2000. In a critical note on the IPP programme, the US GAO noted that the programme 'has not achieved its broader nonproliferation goal of long-term employment [for Russian scientists] through the commercialization of projects' and that some scientists currently working on Russia's non-conventional weapons are receiving IPP funds.¹²³ The FOA report also noted that none of the six facilities under the Russian Ministry of Defence that are known to the West has applied for international conversion funds and that thus far no Western experts have been allowed to visit them.¹²⁴

The past South African CBW programme

The trial of Dr Wouter Basson, the principal figure in South Africa's CBW programme, Project Coast, began on 4 October 1999.¹²⁵ In response to the CBW threats believed to have been posed by the war in Angola in the late 1980s Basson was tasked with collecting information on foreign CBW programmes. His initial investigation revealed that the existing international norms against these weapons were totally inadequate, had not kept abreast of scientific developments and lacked effective control measures.¹²⁶ Basson faces multiple charges of fraud, murder and conspiracy to murder, and possession of drugs (ecstasy, mandrax and cocaine). With respect to Project Coast, Basson is

¹¹⁹ US General Accounting Office (note 116).

¹²⁰ Lilja, Roffey and Westerdahl (note 106), p. 38. Vektor used to be 90% financed by the Ministry of Defence but now generates 80% of its income through commercial contracts, which involve pre-packing and quality control of drugs. However, the institute has serious problems in funding basic research.

¹²¹ Lilja, Roffey and Westerdahl (note 106), pp. 36–40; Rimmington (note 110), p. 100; and Smithson (note 112).

¹²² Miller, J. and Broad, W. J., 'Germ weapons: in Soviet past or in the new Russia's future?', *New York Times* (Internet edn), 28 Dec. 1998, URL <<http://www.nytimes.com/library/world/europe/122898/germ-warfare.html>>.

¹²³ US General Accounting Office (note 116), pp. 5–6.

¹²⁴ Lilja, Roffey and Westerdahl (note 106), p. 39. The institutes are: Institute of Microbiology, Kirov; Institute of Military Medicine, St Petersburg; Institute of Technical Military Problems, Yekaterinburg (formerly Sverdlovsk); Strizhi, Kirov *oblast*; Virology Institute, Sergiyev Posad (formerly Zagorsk); and Vozrazhdenie Island, Aralsk, Kazakhstan.

¹²⁵ For more details about Project Coast see Zanders, French and Pauwels (note 5), pp. 583–85.

¹²⁶ The then existing international norms against CBW were the 1925 Geneva Protocol, which prohibits the (first) use of chemical and biological warfare agents in war among the contracting parties, and the BTWC, which currently has no verification mechanisms.

accused of having posed as a prosperous businessman as part of a scheme to enrich himself rather than having acted in the interest of the South African National Defence Forces (SANDF).¹²⁷ In November the court heard testimony by former Surgeon General and manager of Project Coast General Niel Knobel on the origins of South Africa's CBW programme. The court also heard testimony that, on 7 January 1993, a ministerial decision was taken to transfer all of the technology and research to CD-ROM and to destroy all paper documents. However, in January 1997, following Basson's arrest, it emerged that he had kept highly classified technological and scientific documents related to Project Coast in two steel trunks.¹²⁸ More details about the organization of the CBW programme are expected to be learned with the continuation of the trial in 2000.

CBW proliferation concerns in North Korea

In 1999 the uncertainties about North Korea's security policies deepened and increased the concern about its non-conventional weapon capabilities, including CBW. A November 1999 US congressional report on North Korea criticized the Clinton Administration's programmes for aid to North Korea and highlighted the North Korean armament programmes; it noted with respect to CW that 'it is not the types of agents or stockpile levels that have attracted the most attention, but rather the assumed efforts to develop CW warheads for its Nodong and Taepo Dong ballistic missiles'.¹²⁹ The report assessed the evolving BW threat in similar terms: the new generation of long-range missiles is able to reach Japan and US military installations in the western Pacific and is alleged to be able to reach the US mainland in the near future.¹³⁰

North Korea is believed to have stockpiled a broad range of chemical and biological warfare agents and to have many types of delivery systems, including artillery shells, multiple rocket launchers, rockets (Free Rocket Over Ground, FROG) and ballistic missiles (Scud and Rodong I), aerial bombs and spray tanks. Although the report noted that there is no public evidence that North Korea has undertaken the development of genetically engineered biological warfare agents, it stated that it is 'reasonable to assume that [it] will explore this avenue to the extent possible', because the US DOD 'was openly discussing interest in such agents 30 years ago'.¹³¹

According to a 1999 White Paper by the South Korean Ministry of National Defense, North Korea maintains eight CW production factories, four research and six storage facilities for CW, as well as 'many facilities' for producing BW. It also alleged that North Korea will attempt to maintain its CBW pro-

¹²⁷ Basson trial, week 3 report, 29 Oct. 1999, prepared and distributed by Chandré Gould and Marlene Burger, Centre for Conflict Resolution, University of Cape Town.

¹²⁸ Basson trial, week 7 report, 25 Nov. 1999, prepared and distributed by Chandré Gould and Marlene Burger, Centre for Conflict Resolution, University of Cape Town.

¹²⁹ North Korea Advisory Group, 'Report to the Speaker US House of Representatives', Nov. 1999, chapter 1, B, URL <http://www.house.gov/international_relations/nkag/report.htm>.

¹³⁰ See also chapters 8 and 11 in this volume.

¹³¹ North Korea Advisory Group (note 129).

duction capabilities in spite of the serious economic difficulties and the strengthening global norms against such weapons because of, among other reasons, their low production cost.¹³² The paper referred to the figure cited in the April 1997 CBW threat re-evaluation which indicated that the amount of chemical munitions has increased from 1000 tons to 2500–5000 tons and that North Korea possesses more than 10 types of BW, including anthrax.¹³³

Other proliferation concerns

Iraq remains a major source of concern.¹³⁴ The United States continues to view Iran as a major CBW proliferation threat. The CIA claims that Iran remains one of the most active countries seeking technologies for non-conventional weapons abroad. Iran allegedly began a BW programme during the 1980–88 Iraq–Iran War and may now have a limited capability for BW deployment. A 1999 CIA report noted that, although Iran is a party to the CWC, it has manufactured and stockpiled chemical weapons—including blister, blood and choking agents and the bombs and artillery shells for delivering them—and continues to seek the technology to create a more advanced and self-sufficient CW infrastructure.¹³⁵ In January 2000 the US House of Representatives passed the Iran Nonproliferation Act, which is aimed at deterring states, particularly Russia, from providing assistance to Iran's non-conventional weapon programmes.¹³⁶ According to a London newsletter, the Israeli intelligence organization Mossad has reportedly estimated that as many as 10 000 Russian scientists may be working on covert non-conventional weapon programmes in Iran following a dedicated recruitment effort.¹³⁷ The Iranian Government has denied all such allegations.

In Sudan, the Sudan People's Liberation Army (SPLA) accused the government of using CW to bomb Lanya and Kaya on 23 July. The UN sent a team of doctors to aid the victims of the attack, and the Norwegian People's Aid agency reportedly confirmed that an attack had occurred.¹³⁸ The government denied the allegation and refused to accept an international investigation of the charges unless the United States accepted an investigation into the 1998 US

¹³² South Korea, Ministry of National Defense, *Defense White Paper 1999* (Ministry of National Defense: Seoul, 1999), p. 57.

¹³³ South Korea (note 132), p. 84. The document does not indicate whether the CW weight estimates refer to the agent filling or the complete munition. Press reports, however, presented the estimates of the increase as a new development. E.g., 'Pulling out the stops: N. Korea beefs up its military', *Newsreview*, vol. 28, no. 42 (16 Oct. 1999), p. 8. The North Korea Advisory Group also quotes the 1997 South Korean CW estimate of 5000 tonnes. North Korea Advisory Group (note 129).

¹³⁴ The status of the dismantlement of its CBW programme under UN supervision is discussed in appendix 9B in this volume.

¹³⁵ US Central Intelligence Agency, Nonproliferation Center, 'Unclassified report to Congress on the acquisition of technology relating to weapons of mass destruction and advanced conventional munitions, 1 January through 30 June 1999', URL <http://www.odci.gov/cia/publications/bian/bian_feb_2000.html>.

¹³⁶ Iran Nonproliferation Act of 2000, H.R. 1883, 24 Jan. 2000. It is reproduced at URL <<http://thomas.loc.gov/cgi-bin/query/C?c106:./temp/~c106NHJK5t>>.

¹³⁷ The newsletter is cited in '21 January', *CBW Conventions Bulletin*, no. 43 (Mar. 1999), p. 43.

¹³⁸ Achieng, J., 'UN doctors sent to treat victims of "chemical-bombs" in Sudan', CNN, 17 Aug. 1999, URL <<http://www.cnn.com>>.

bombing of the Al Shifa pharmaceutical plant.¹³⁹ Investigators retained by the owner of the plant, Saleh Idris, found no evidence of CW compounds in soil samples and he sued the USA for damages. The US Administration defended its decision despite questions about whether or not chemical warfare agents had been present in the soil samples that were clandestinely obtained by the CIA and which prompted the attack.¹⁴⁰

According to Alibek, Cuba established a BW programme in the early 1980s. He alleged that Soviet assistance enabled Cuba to set up a sophisticated R&D base for biotechnology that was also used for the covert development of BW.¹⁴¹ US officials were sceptical of these claims and indicated that they had no evidence that such a programme existed.¹⁴²

The war in Kosovo led to concern in April 1999 that Serbia might use CW against NATO forces or to terrorize the Albanian population in Kosovo. US President Bill Clinton threatened a 'swift and overwhelming' response to any use of chemical warfare agents or any other non-conventional weapons.¹⁴³ Serbia presumably had taken over the Yugoslavian chemical warfare capability. Several facilities involved in the research, production and storage of CW were reported to be located on Serbian territory: Prva Iskra in Baric, Miloje Blagojevic in Lucani (near Casak), and Miloje Zakic and Merima in Krusevic. A facility at the Military Technical Institute of the former Yugoslavia in Potoci (near Mostar, Bosnia and Herzegovina) was disassembled by Serbian troops in February 1992 and moved to Lucani. All of the facilities were part of the Yugoslavian chemical warfare programme, which reportedly began in the late 1960s and became overtly offensive in the late 1970s. The programme produced the following CW agents: the neurotoxicants sarin, soman, tabun and VX; the vesicant sulphur mustard; and the incapacitants BZ and CS. A wide range of delivery systems were also produced, including rockets, bombs, landmines and artillery shells of various calibres.¹⁴⁴

Chechen President Aslan Maskhadov accused Russia of using CW during the shelling of the Chechen capital Grozny on 5–6 December 1999, in which 31 people were killed. It was claimed that an additional 200 people suffered burns. Maskhadov appealed to the OPCW to investigate. The Russian military leadership categorically denied the allegation and claimed that Chechnya was misinformed. Deputy Chief of the Russian General Staff Valeriy Manilov and

¹³⁹ AFP (Paris), 7 Aug. 1999, in 'Sudan not to accept UN inquiry on chemical weapons', Foreign Broadcast Information Service, *Daily Report–Sub-Saharan Africa* (FBIS-AFR), FBIS-AFR-1999-0807, 9 Aug. 1999; and '12 October', *CBW Conventions Bulletin*, no. 46 (Dec. 1999), p. 37.

¹⁴⁰ Risen, J. and Johnston, D., 'Experts find no arms chemicals at bombed Sudan plant', *New York Times* (Internet edn), 9 Feb. 1999, URL <www.nytimes.com/library/world/africa/020999sudan-plant.html>.

¹⁴¹ Alibek (note 108), pp. 273–75.

¹⁴² Tamayo, J. O., 'US skeptical of report on Cuban biological weapons', *Miami Herald* (Internet edn), 23 June 1999, URL <<http://www.herald.com/content/today/news/americas/carib/cuba/digdocs/038648.htm>>.

¹⁴³ Miller, J., 'US officials suspect deadly chemical weapons in Yugoslav army arsenal', *New York Times* (Internet edn), 16 Apr. 1999. URL <<http://www.nytimes.com/library/world/europe/041699kosovo-chemwar.html>>.

¹⁴⁴ Federation of American Scientists, 'Chemical agents in the former Yugoslavia', 8 Apr. 1999, URL <<http://www.fas.org/nuke/guide/serbia/index.html>>.

Colonel-General Stanislav Petrov, commander of the Russian NBC Protection Troops, in turn accused Chechnyan rebels of planting chemicals (chlorine, ammonia and combustibles such as liquid nitrogen) in containers and railway tanks, which could be exploded by remote control, along routes likely to be used by Russian troops.¹⁴⁵ Reciprocal accusations of chemical warfare continued to be made in early 2000.

In June, during fighting in Kashmir, Pakistan investigated claims by Kashmiri politicians and militant groups that India was using chemical shells.¹⁴⁶ This was the first time that a party to the CWC had accused another party to the convention of waging chemical warfare. India denied the charges, and Pakistan did not request an investigation of alleged use by the OPCW or emergency assistance under Article X of the CWC.

On 10 November 1999, former Prime Minister of Kazakhstan Akezhan Kazhegeldin told the Western media that his country may begin producing CBW. Two days later a speaker for the Kazakh National Security Committee, Kenzhebulat Beknazarov, refuted the claim.¹⁴⁷

After years of intense debate, the World Health Organization (WHO) decided to delay destruction of the last samples of variola (smallpox) virus. Since the disease was eradicated in 1980 samples of the virus have been kept in two laboratories in Atlanta and Moscow, respectively. In 1993 the WHO recommended the simultaneous destruction of both samples. However, the decision to do so was postponed several times for scientific reasons and also because of growing concern that some states may have retained undisclosed stocks. In 1999 the dominant arguments opposed destruction. A study published in January by the Washington-based Institute of Medicine concluded that 'the most compelling need for long-term retention of live variola virus is for the development of antiviral agents or novel vaccines to protect against a reemergence of smallpox due to accidental or intentional release of variola virus'. It stressed that 'continuing investigation of variola virus could lead to new and important discoveries with real potential for improving human health'.¹⁴⁸ In April it became clear that the USA would retain its sample of smallpox virus. Russia has also opposed destruction of the sample it possesses. The WHO subsequently decided to delay destruction of the smallpox samples until at least 2002 because of doubts about whether all stocks have been

¹⁴⁵ AFP (Paris), 7 Dec. 1999, in 'Chechens charge Russians with using chemical weapons', FBIS-SOV-1999-1207, 8 Dec. 1999; ITAR-TASS, 9 Dec. 1999, in 'Russia denies using chemical weapons in Chechnya', FBIS-SOV-1999-1209, 9 Dec. 1999; Interfax, 10 Dec. 1999, in 'Russia denies using chemical warfare in Chechnya', FBIS-SOV-1999-1210, 10 Dec. 1999; and ITAR-TASS, 10 Dec. 1999, in 'General: chemical blasts targeted against civilians', FBIS-SOV-1999-1210, 10 Dec. 1999.

¹⁴⁶ AFP (Hong Kong), 14 June 1999, in 'Kashmiri groups condemn alleged use of chemical weapons', Foreign Broadcast Information Service, *Daily Report—Near East and South Asia* (FBIS-NES), FBIS-NES-1999-0614, 15 June 1999; AFP via Lexis Nexis, 'Pakistan investigates India's reported use of chemical weapons', 14 June 1999; and *Rawalpindi Jang*, 15 June 1999, p. 10, in 'Daily urges probe into use of chemical weapons by India', FBIS-NES-1999-0617, 18 June 1999.

¹⁴⁷ Interfax (Moscow), 12 Nov. 1999, in 'Kazakhstan: no plans to develop CBW weaponry', FBIS-SOV-1999-1112, 20 Nov. 1999.

¹⁴⁸ Institute of Medicine, *Assessment of Future Scientific Needs for Live Variola Virus* (National Academy Press: Washington, DC, 1999), p. 85.

destroyed. A US intelligence report suggested that Iraq, North Korea and Russia are all probably concealing stocks for future military use.¹⁴⁹

V. Conclusions

Political will appears to be the key to both the successful implementation of the CWC and the achievement of a meaningful protocol to the BTWC. In 1999 agreement on a range of technical matters ensured the steady advancement of the CWC treaty-building process and the negotiation of the BTWC protocol in the Ad Hoc Group. However, the obstructionist policies or the apparent lack of political commitment to CBW disarmament of some key players caused tension in the OPCW and the AHG.

Russia's internal political, social and economic problems raised questions about its ability to meet its treaty obligations. In 1999 Russia was the only declared possessor which had not started the destruction of its CW stockpile, and there is serious international concern that it still has illegal BW programmes. In some quarters the USA is perceived as not fully committed to multilateral disarmament. Its technical non-compliance with the CWC regarding initial industry declarations and its opposition to strong compliance mechanisms for the future BTWC protocol are widely attributed to lack of guidance from the Clinton Administration and some serious doubts in certain quarters about the verifiability of the future BTWC regime. The US Congress is furthermore reducing appropriations for assistance programmes to eliminate or prevent the proliferation of CBW in Russia or to engage scientists and specialists in activities permitted under the BTWC and the CWC.

The negotiation of the protocol to the BTWC reached a crucial point at the end of 1999 when the participants in the Ad Hoc Group outlined their national positions on various technical matters. Initiatives were undertaken by both the industrialized and the developing countries in an effort to narrow the gap between the diverging views on non-proliferation and technical cooperation, which may form the basis of package deals in the final stage of the negotiations. However, measures for monitoring compliance with the future protocol continued to hamper progress. Other important differences remained between the Western Group and the NAM, and there were diverging views within both groups. There was a deep internal division regarding verification measures in the Western Group (whose industry would be most affected by the future BW disarmament regime), which prevented it from taking the lead in this crucial

¹⁴⁹ Altman, L. K., 'Killer smallpox gets a new lease on life', *New York Times* (Internet edn), 25 May 1999, URL <<http://www.nytimes.com/library/national/science/052599hth-doctors.html>>; Broad, W. J., 'Government report says 3 nations hide stocks of smallpox', *New York Times* (Internet edn), 13 June 1999, URL <<http://www.nytimes.com/library/world/global/061399intel-report.html>>; and Altman, L. K., Broad, W. J. and Miller, J., 'Smallpox: the once and future scourge?', *New York Times* (Internet edn), 15 June 1999, URL <<http://www.nytimes.com/library/national/science/061599sci-smallpox.html>>; Miller, J. and Broad, W. J., 'Clinton to announce that US will keep sample of lethal smallpox virus, aides say', *New York Times* (Internet edn), 22 Mar. 1999, URL <<http://www.nytimes.com/library/national/science/042299sci-smallpox.html>>; and Miller, J. and Altman, L. K., 'Health panel recommends a reprieve for smallpox', *New York Times* (Internet edn), 22 May 1999, URL <<http://www.nytimes.com/library/world/global/052299smallpox.html>>.

area. There is a significant risk that the USA may become isolated (and consequently will not join a strong protocol) or that a weak protocol will be achieved, which will affect its long-term viability. In addition, several developing countries have sought concessions from the West with respect to technical cooperation before they are willing to enter the endgame negotiations; a continuation of the AHG discussions in 2000 and beyond is therefore another possible outcome.

Proliferation of CBW remained a major concern in 1999. Some states remain unwilling to join the CWC regime despite the effect on their national economies in terms of reduced access to certain key commodities. This may indicate a determination to maintain major CBW armament programmes in the face of strengthening international norms.