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WHERE TO FROM HERE?

THE FIRST CWC REVIEW CONFERENCE AND THE NEXT FIVE YEARS

Just less than six years after entry into force of the Chemical Weapons Convention, the First CWC Review Conference has now concluded, having adopted a Political Declaration and a report which incorporated the substantive review of the operation of the CWC required under the Convention. Despite provocative statements by the United States on the first morning of the Review Conference, alleging non-compliance by Iran and concerns about the Sudan, the Review Conference did not collapse into disarray. The CWC has not met the fate of the BWC, and the OPCW has not been weakened as an institution as a result of this Review Conference. The question, then, is: what did come out of the Review Conference, and where is the Organization now headed?

It will surprise few that the Review Conference did not result in a radical change of direction for the OPCW, or substantive decisions on crucial, still outstanding issues. In part, this can be explained by the comparatively late engagement by states parties, and the Secretariat, in substantive preparations for the Review Conference. Discussion of the draft text for what became known as the 'Review Document' only kicked off in January this year, less than four months prior to the Review Conference, and then only by a comparatively small (though active) number of states parties.

A number of priorities have, however, been clearly recognised by the Review Conference. These priorities have been expressed in the statements made by states parties in General Debate, in their national papers, and, more tangibly, in the recommendations and requests for action by states parties, the Executive Council and the Secretariat emanating from the Review Conference. A tabulation of over 35 such requests and recommendations that require some specific action by the Council and Secretariat (excluding, for the most part, references to activities already being carried out by the Council and Secretariat), together with the time frame specified is set out in the boxes below.¹ These should form the 'road map', to use a current phrase, for the OPCW's next five years of work.

There are now 153 states parties to the Chemical Weapons Convention, 113 of which attended the Review Conference. Despite this considerable, and steadily growing, number of member states, the topic most frequently touched on by states parties during the Review Conference was universality. The Review Conference has

recommended that the Council develop and implement a plan of action to encourage, 'in a systematic and co-ordinated manner', adherence to the Convention. Nevertheless, although a number of countries were specifically targeted by some states during General Debate as being crucial to universality, namely those in the Middle East, including Egypt, Israel, Libya and Syria, and North Korea, the Review Conference has not named any countries when addressing this issue. Similarly, the Review Conference did not identify any states parties as being of concern regarding compliance or, indeed, express any concerns about non-compliance. Given the political nature of these documents, this was an outcome entirely to be expected. The Review Conference has been similarly cautious when discussing challenge inspections. While the right to request a challenge inspection was reaffirmed, the Review Conference also expressed its 'confidence' that the value of the challenge inspection mechanism would be upheld and that states parties would refrain from making 'unfounded' or 'abusive' requests. The Council is now tasked to continue its work to resolve still-outstanding challenge inspection issues.

A second priority clear from the Review Conference documents is the need for full and effective national implementation measures. With national implementation mentioned by over twenty states parties in General Debate and national statements, the Review Conference has agreed to develop, at the next regular session of the Conference of the States Parties in October this year, a plan of action regarding the implementation of Article VII obligations. The recognition of the need for action in this respect is to be applauded. However, at least in theory, this requires the Executive Council to agree upon a recommendation for a plan of action at its next session in late September. With the

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issue not on the agenda of the June Executive Council session, much work will be required if a recommendation is to be finalised by October.

The two priorities listed above are both fairly non-controversial, unlikely to provoke intense political disagreement during negotiations. A more contentious issue at the Review Conference was Article XI of the Convention and International Co-operation and Assistance (ICA). While making the expected reaffirmations of the importance of these provisions and the commitment to fully implement them, the disagreements and differences in approach amongst states parties to Article XI are still unresolved. The Review Conference was not able to agree guidelines for the development of OPCW international co-operation programmes – this task was left to the Executive Council, and no timeline was specified. Similarly, the Review Conference merely ‘urged’ the Council to continue efforts to reach early agreement on the full implementation of Article XI. The particularly sensitive issue of the Australia Group was not mentioned, though reference to it is implicit.

And despite the additional EUR 450,000 of funding agreed for ICA at last year’s session of the Conference of the States Parties, the continuing split on whether increased funding is required for ICA also remains unresolved, with the Review Conference simply recognising the need for ‘adequate resources’. This will, no doubt, be the source of continuing strong debate in regard to the 2004 Programme and Budget for the Organization.

The Review Conference necessarily involved a review of the overall verification regime for the chemical industry. The selection process for Other Chemical Production Facilities (OCPFs) was fairly briefly addressed, with the Scientific Advisory Board (SAB) and Director-General’s reports on this matter noted, and the issue returned to the Council for further work. In a non-committal statement, it was agreed that the number of OCPF inspections should be increased ‘to the extent found appropriate as the budget process unfolds in ensuing years’. Overall, the Review Conference seems to have resolved little in respect of the Article VI inspection allocation debate, merely affirming the

Outline of Actions Requested or Recommended by the First Review Conference		
Para	Recommendation/Request	Timeframe specified
18	[Re universality]...recommended that the Council, with the co-operation of the Secretariat, develop and implement a plan of action to further encourage, in a systematic and co-ordinated manner, adherence to the Convention and to assist States ready to join the Convention in their national preparations to implement it.	None
23	...requested the Council to consider the developments in relation to additional chemicals that may be relevant to the Convention, and assess, <i>inter alia</i> , whether these compounds should be considered in the context of the Schedules of Chemicals.	None
25	...called upon the Council to reach agreement on the declaration criteria for former chemical weapons development facilities... with a view towards promoting confidence among States Parties.	None
27	[Re the OPCW’s verification system] ...also noted that a number of procedures and guidelines that the Convention requires remain to be finalised and adopted. The Council has already included these in its work programme, and should resolve them as soon as possible.	‘as soon as possible’
30	[Re the Scientific Advisory Board report in relation to developments in science and technology]... requested the Council, assisted by the Secretariat and members of the SAB, as appropriate, to study these recommendations and observations with a view to preparing recommendations to the Conference on them.	None
34	[Re the submission of declarations in electronic form]...requested the Director-General to further explore this possibility and to report to the Council, and recommended that an expert meeting open to all States Parties be convened to study all aspects of the proposed submission of declarations in electronic form.	None
37	...requested the Council, assisted by the Secretariat, to intensify its study of how to further optimise the OPCW verification system, aiming at recommendations that should, if possible, take effect beginning in 2004. Such a study should take into account the findings of the SAB. The study should identify essential inspection tasks; assess how the different aspects of the inspection cycle, from planning to reporting, can be made more efficient; identify means that would further increase verification efficiency; and consider how best to meet the Convention’s requirement in relation to sampling and analysis for verification purposes.	Recommendations should ‘if possible’ take effect beginning in 2004
39(d)	[Re implementation of the Conference’s previous decisions on the declaration of aggregate national data]...called upon the Council to review the progress of implementation, supported by reports by the Secretariat.	None
39(g)	...encouraged the Council and the Secretariat to work together to further improve the submission of information on verification results to the States Parties, <i>inter alia</i> by further improving the form and content of the Verification Implementation Report, consistent with the provisions of the Confidentiality Annex.	None

validity of the ‘overall balance found in the Convention’ and the need to ‘ensure the adequate frequency and intensity of inspections for each category’ of Article VI facilities.

A number of other issues were addressed by the Review Conference within the Article VI sphere. These included the need for guidelines in respect of inspections at Schedule 1 facilities, a proposed *de minimis* rule for the notification of transfers of Schedule 1 chemicals, and the submission of declaration data in electronic form. While the Review Conference requested a recommendation on whether there is a need for measures in relation to transfers of Schedule 3 chemicals to be submitted to the next session of the Conference of the States Parties, this seems overly optimistic.

Optimization of verification measures has been a topic of considerable interest within the OPCW for some time, and continued to attract a good deal of attention at the Review Conference. While considering that the OPCW had

established a verification system that meets the Convention’s requirements, the Review Conference called upon the Council to intensify its study on verification resource optimization. Given the work that is already underway at the OPCW on optimization of verification resources, the Review Conference’s request for recommendations to be phased in, if possible, beginning next year may well be achievable.

Several issues seem not to have engaged the Review Conference. No mention of so-called ‘non-lethal’ agents or ‘law enforcement’ ended up in the final version of the Review Document. States parties’ reluctance to address this issue was evident prior to the Review Conference, and the timing was perhaps not right to tackle this controversial issue, but it should not be simply ignored now for another five years. Indeed, it is hard to think of any other issue having as much potential for jeopardizing the long-term

Para	Recommendation/Request	Timeframe specified
39(i)	...requested the Council to intensify its study of the issue of verification resource optimisation, aiming at recommendations that should, if possible, be phased in beginning in 2004.	Recommendations to be phased in beginning in 2004 if possible
39(j)	...requested the Council to resolve urgently the development of recommendations on the still-unresolved issues pertaining to the Convention’s verification regime that the Convention requires it to adopt, and to submit draft decisions to the Conference as early as possible.	‘[R]esolve urgently’ development of recommendations, with draft decisions to be submitted ‘as early as possible’
44	...called upon the Secretariat to continue rendering technical assistance to the States Parties on the preparation of chemical weapons declarations, by mutual consent, and to submit proposals to the Council on any measures that may be necessary to maintain the technical competence of the Secretariat in this respect.	None
46	...recommended that the Secretariat continue working with the Council, with the appropriate involvement of the [possessor] States Parties... towards mutually agreeable solutions for optimising chemical weapons verification, whilst maintaining the effectiveness of verification activities. The Review Conference requested the Council to oversee this work, and to submit to the Conference proposals for recommendations and decisions, with a view toward their implementation starting in 2004.	Proposals are to be submitted to the Conference ‘with a view to’ implementation starting in 2004
52	... noted the intention of the Secretariat to inspect, soon after 29 April 2003, all [CWPFs] that are subject to conversion for purposes not prohibited by the Convention, but that have not yet been certified as completely converted, and to report to the Council about the conversion status of each of these facilities.	None. Inspections to take place soon after 29 April 2003
53	[Re the verification of converted CWPFs] ...requested the Secretariat to submit a concept for these verification measures to the Council for consideration and to enable the Council to submit proposals for recommendations or decisions that may be needed to the Conference.	None
54	...recalled the need to adopt decisions on a number of unresolved issues related to chemical weapons, [OCW], [ACW] and [CWPFs]. It noted that the Council has included several urgent and long-standing issues in its work programme, and requested the Council to continue working towards an early resolution of these issues.	The Council is to work towards ‘early resolution of these issues’
63	[Re changes to annual declarations – refer C-I/DEC.38, dated 16 May 1997]... urged States Parties to... on a voluntary basis, inform the Secretariat of cases when plants or plant sites that have been declared to undertake activities in relation to Schedule 2 or Schedule 3 chemicals cease to do so, and requested the Council to consider whether to require such submissions from States Parties.	None
66	[Re the number, intensity, duration, timing and mode of inspections at Schedule 1 facilities]...Guidelines on this... however, have yet to be considered and approved by the Conference... these guidelines would assist in the future optimisation of the use of resources set aside for verification, and requested the Council, assisted by the Secretariat, to prepare these guidelines for consideration and adoption as early as possible.	‘as early as possible’

future of the CWC regime. The issue of nil declarations in respect of OCPFs also did not make it into the Review Conference report. Nor did the phrase ‘General Purpose Criterion’ appear, replaced instead by the formulation ‘comprehensive nature of the Convention’ — anodyne words that surely risk facilitating disregard for the Criterion during national implementation. Less controversially, and as recommended by the SAB, no changes to the Schedules of Chemicals were made – instead the Council is to consider developments in respect of additional, possibly relevant, chemicals, as well as the SAB Report’s recommendations in general.

What, then, can be learned from this first CWC Review Conference? Perhaps that more time, and more dedicated effort at an early stage by states parties, will be required for preparations for the next Review Conference. NGOs have frequently expressed their frustration at their limited ability to contribute to this Review Conference — increased participation by NGOs, academics and industry representatives active in the CBW community, at an earlier stage, would be a welcome initiative. The interest by delegations in the Open Forum convened by the OPCW during the Review Conference seems to indicate that their involvement is a valuable addition to the review process, not

Para	Recommendation/Request	Timeframe specified
67	[Re a proposed <i>de minimis</i> rule for the notification of transfers of Schedule 1 chemicals]... requested the Council to study this issue, and, if agreed, to prepare a proposal for consideration by the Conference [of the States Parties] at one of its forthcoming annual sessions.	‘for consideration by the Conference at one of its forthcoming annual sessions’
69	[re Other Chemical Production Facilities]... agreed that there was a need to: (a) fully implement all parts of the selection mechanism provided for in paragraph 11 of Part IX of the Verification Annex; (b) reach early agreement on what basis (e.g., regional) proposals by States Parties for inspection should be presented to be taken into account as a weighting factor in the selection process...; (c) take account of the [OCPFs] declared by the States Parties, of their technical characteristics and activities, and of trends in science and technology that impact on these parameters, to increase the number of [OCPF] inspections to the extent found appropriate as the budget process unfolds in ensuing years; and (d) review the conduct of [OCPF] inspections to ensure that they are conducted in a way that efficiently fulfils the inspection aims set out by the Convention. The First Review Conference requested the Council to continue working on these issues, together with the Secretariat, and to prepare recommendations for the Conference’s consideration at an early date.	Recommendations to be prepared ‘at an early date’
71	[Re optimization of the verification regime for the chemical industry] ...encouraged the Council, assisted by the Secretariat, to work toward: (a) resolving outstanding chemical industry cluster issues and submitting recommendations to the Conference at an early date; (b) improving the submission and handling of industry declarations (including, <i>inter alia</i> , common criteria and standards, simplified declaration forms, and the submission of declaration data in electronic form); (c) refining inspection conduct to improve consistency, efficiency and effectiveness (including, <i>inter alia</i> , a common approach to verifying the absence of Schedule 1 chemicals at inspected plant sites, the simplification of the format used to record preliminary findings, and sampling and analysis procedures); (d) providing guidance to the Secretariat in respect to reporting on verification results in the chemical industry in order to increase the utility of the information provided to the States Parties; and (e) studying the need for a recommendation about the future treatment of salts of Schedule 1 chemicals that are not explicitly mentioned in Schedule 1.	(a) ‘at an early date’ (b)-(e) None
73	[re whether there is a need for other measures in relation to transfers of Schedule 3 chemicals and the need for States Parties to implement end-use certification]...requested the Council to continue working towards an early resolution of these issues, and to submit a recommendation on this matter to the next regular session of the Conference.	‘Early resolution’ - Recommendation to be submitted to next regular session of the Conference
83(h)	... agreed to develop, at its next regular session, a plan of action based on a recommendation from the Council regarding the implementation of Article VII obligations, with the objective of fostering the full and effective implementation of the Convention by all States Parties.	Next regular session of the Conference
83(i)	...called upon the Council, in co-operation with the Secretariat, to closely monitor progress toward achieving effective implementation of Article VII obligations by all States Parties, and, at an appropriate time, to make suitable recommendations to the Conference regarding measures to ensure compliance with Article VII.	‘at an appropriate time’
90	...noted that a number of issues related to challenge inspections are yet to be resolved....requested the Council to continue its deliberations in order to expeditiously resolve them.	‘expeditiously’

least for the ability to highlight sensitive topics that are politically untouchable by delegations.

Most importantly, in the next five years, the OPCW, meaning its member states, its Executive Council, its Conference of the States Parties and its Secretariat, should be held to account for the products, such as they are, of this First Review Conference. The Review Conference's report addresses the functioning of the OPCW, amongst other things expressing concerns about delays in implementing Conference decisions on the resolution of unresolved issues, and noting the need for focused agendas. Five years from now, the international CBW community should be in a

position to evaluate how many of the recommendations and requests for action have been acted upon. The list of items still unresolved from PrepCom days is disturbingly long – these items should not be still outstanding, and added to by uncompleted First Review Conference tasks, by the time of the Second CWC Review Conference.

Note

1. The text of the Review Document used in the tabulation for this article is that available on the OPCW website (www.opcw.org) during June. This text later appears under agenda item 7 of the report of the Review Conference.

Para	Recommendation/Request	Timeframe specified
94	[Re annual submission of information on national programmes related to protective purposes] ...requested the Council to expeditiously develop and submit for adoption the procedures called for by the Convention.	'expeditiously'
95	...requested the Secretariat to continue working on the OPCW data bank on protection... The First Review Conference expressed concern about the hitherto-slow progress in establishing this data bank.	None
100	[Re investigations of alleged use or threat of use and delivery of assistance]...requested the Council to take up the possible function of the OPCW in facilitating the efficient delivery of assistance.	None
101	...encouraged the Secretariat to identify and engage relevant international organisations that are likely partners in situations where the OPCW needs to respond to an assistance request by a Member State, and to submit proposals to the policy-making organs.	None
107	[Re Article XI] ...urged the Council to continue its facilitation efforts to reach early agreement on the issue of the full implementation of Article XI, taking into account earlier and recent proposals submitted.	'early agreement'
109	[Re the need to develop guiding principles for international co-operation programmes] The Council should elaborate such guidelines on international co-operation programmes, and apply them when evaluating both reports by the Secretariat on existing programmes, and proposals it makes for new ones.	None
117	...noted the security audit team recommendation to adopt the ISO-17799 information-security management standard, and requested the Secretariat to evaluate what resources would be required to do this, and to inform the Council of its findings.	None
118	...encouraged the OPCW to take steps to reach agreement on developing and implementing guidelines regarding the long-term handling of confidential information.	None
123	...expressed concern about delays in the Council's implementation of Conference decisions on the resolution of unresolved issues. The First Review Conference noted that the Council had included important, long-standing, unresolved issues in its work programme, and urged it to increase momentum and strive to conclude all unresolved issues.	None
124	[Re the Scientific Advisory Board]...recommended that the interaction between the SAB and delegations should continue and be further enhanced, in the context of the Council's facilitation process.	None
127	[Re budgetary and financial mechanisms] ...encouraged the Director-General to move ahead with the stepwise introduction of results-based budgeting. Furthermore, the First Review Conference noted the need for the Council to accelerate its deliberations on the outstanding issues in relation to the OPCW's Financial Rules.	None
128	[Re staffing] ...noted that the issue of the OPCW's Staff Rules and amendments to Staff Regulation 3.3, and the issue of the classification of posts, remain within the purview of the Council and should be resolved without delay.	'without delay'
<p><i>Please note:</i> this table contains only those recommendations or requests that require some specific action by the Council or Secretariat. For the most part, it does not include reference to activities already being carried out by the Council or Secretariat. It also does not include general requests or encouragement to states parties to fulfil their obligations under the Convention. Except where in square brackets, the language used is that of the Review Document. In all cases listed above, it is the First Review Conference recommending, requesting or calling for action.</p>		

SECURITY AND OVERSIGHT OF PATHOGENIC MICROORGANISMS AND TOXINS

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HSP Advisory Board

As reported in “Report from Geneva” in *Bulletin 58*, December 2002, the resumed Fifth Review Conference of the states parties to the Biological and Toxin Weapons Convention (BWC) agreed in November 2002 to hold a series of three annual meetings of states parties to “discuss, and promote common understanding and effective action on” a set of topics. Each meeting would be preceded by a two week meeting of experts. This series of meetings has become commonly known as the “New Process”.

The topics for the meetings to be held in 2003 are:

- i. The adoption of necessary, national measures to implement the prohibitions set forth in the Convention, including the enactment of penal legislation
- ii. National mechanisms to establish and maintain the security and oversight of pathogenic microorganisms and toxins

This article considers the second topic by considering the types of security and oversight measures that states parties should be able to provide as inputs to the experts meeting in Geneva during 18 to 29 August 2003 and the subsequent states parties meeting during 10 to 14 November 2003.

The Requirement for National Measures

Article IV of the BWC requires that

Each State Party to ... take any necessary measures to prohibit and prevent the development, production, stockpiling, acquisition or retention of the agents, toxins, weapons, equipment and means of delivery specified in Article I of the Convention, within the territory of such State, under its jurisdiction or under its control anywhere."

This obliges each state party to ensure national implementation of the prohibitions in the Convention in the broadest possible terms, as the scope clauses at the end of the Article spell out clearly. In considering such national measures, several aspects need to be considered:

- *Adoption.* All states parties need to be seen to have adopted effective measures and to be implementing those measures. There is all too little information as to what measures have indeed been adopted by states parties.
- *Implementation.* The national measures need to implement the prohibitions of the Convention in Article I — the basic prohibition; Article III — the obligation not to transfer; and Article IV — the obligation to *prohibit and prevent*.
- *Effectiveness.* The national measures need to be comprehensive — and be coextensive — with the prohibitions in the Convention. A failure to be coextensive could leave a state party open to charges of non-compliance.
- *Applicability.* The national measures need to apply to **all** with no exclusions.
- *Penal legislation.* The national measures need to be given teeth — so that those who do not comply can be

appropriately punished. Given the overlap between the BWC and the Chemical Weapons Convention in the toxin and mid-spectrum region, there is much to be argued for the national measures for the BWC being enforced by penal legislation which is required for the implementation of the Chemical Weapons Convention.

Such national measures to implement the prohibitions in the BWC are complemented by national measures adopted to enhance security, health and safety and to protect the environment. These complementary measures include:

- *Containment and operating procedures* for pathogens and toxins.
- *Control of access* to pathogens and toxins.
- *Control of transfers* both nationally and internationally.
- *Control of genetic modification* in regard to both contained use and deliberate release.

The effectiveness of such measures are enhanced through effective oversight. Oversight also needs to be taken into account in considering what work should be carried out and what information should be made publicly available:

- *Oversight of national legislation and regulations.* Attention needs to be given to how the national legislation and regulations are made widely known and implemented effectively.
- *Oversight of the nature and purpose of proposed work.* Those who are responsible for the approval of proposed work need to be aware of the prohibitions and regulations and need to evaluate whether the proposed work should indeed be carried out. Whilst there is oversight of the safety consequences of proposed work involving genetic modification this generally does not extend to the purpose of the work.
- *Oversight of publicly available information.* Attention is being given to whether certain information, which might be misused by States non-compliant with the BWC or by sub-national groups or individuals who wish to use biological agents or toxins for prohibited purposes, should be made publicly available. This parallels in some respects the problem of export controls on intangible technology related to weapons of mass destruction. Both of these trends towards constraint and control of information in the public domain are contrary to the trend for more information to be made publicly available, especially in the life sciences and genetic manipulation area, because of public concerns.

Subsequent sections of this article first address the complementary elements to enhance security, health and safety, and protection of the environment using national and regional examples and then go on to address the oversight of pathogens and toxins.

National Measures to Implement the Convention

States parties undertake to implement the prohibitions set out in the Convention. In the United Kingdom, this was

achieved by the Biological Weapons Act 1974,¹ which sets out that:

- No person shall develop, produce, stockpile, acquire or retain—
- (a) any biological agent or toxin of a type and in a quantity that has no justification for prophylactic, protective or other peaceful purposes; or
 - (b) any weapon, equipment, or means of delivery designed to use biological agents or toxins for hostile purposes or in armed conflict.

It goes on to define biological agent and toxin by stating:

‘biological agent’ means any microbial or other biological agent; and ‘toxin’ means any toxin, whatever its origin or method of production

and then sets out the penalty that:

Any person contravening this section shall be guilty of an offence and shall, on conviction on indictment, be liable to imprisonment for life.

The language used in the UK Biological Weapons Act very closely parallels that in Article I of the Convention.

In regard to the UK implementation of the prohibitions in Article III of the Convention, a new legislative framework for the control of strategic goods and technology has recently been adopted with the enactment of the *Export Control Act 2002* for which secondary legislation is currently being introduced. This will include new controls on:

- the electronic transfer abroad of military technology;
- the transfer by any means of technology related to weapons of mass destruction (WMD); and
- the provision of WMD related technical assistance.

The new control on the transfer, by any means, of WMD related technology supplements existing end-use controls on the physical export of goods and technology and the electronic transfer of technology contained in the EC Regulation on dual use items and technology (often called the “Dual Use Regulation” — Council Regulation (EC) No. 1334/2000 of 22 June 2000).² Transfer by any means includes face-to-face communication, personal demonstration or dissemination of written material. However, the communication of information that is in the public domain, or the placing of this information into the public domain is not covered by this control. These new controls implement a European Joint Action of 22 June 2000 (2000/401/CFSP). It should, however, be noted that the WMD end-use controls under the EC Dual Use Regulation are all-embracing and apply to physical and electronic transfers of technology as well as to export of goods. There are **no** exemptions for information in the public domain or for basic scientific research with respect to end-use control.

Although the BWC has been in force since 1975 and currently has 146 states parties and another 17 signatory states, there is little if any basis for assuming that there is widespread adoption and implementation of national measures by states parties. The experience in regard to the implementation of the Chemical Weapons Convention through national measures is not encouraging even though that Convention contains far more explicit requirements for national measures and the Legal Adviser’s Office of the Technical Secretariat has been extremely active in providing assistance to states parties to enact the necessary

legislation. Five years after entry into force, only 42 states parties (28%) have legislation covering all key areas. For 108 states parties there is either no legislation in place, or gaps in legislation, or an unknown legislative situation³. It is strongly recommended that all states parties provide information and copies of their legislation, regulations and other measures relevant to BWC national implementation to the Secretariat in Geneva **prior** to the experts meeting in August, as has been requested by the Chairman of the meetings in 2003.

National Measures for Health and Safety

States have long had measures to protect the health and safety of people as well as measures to protect the health of animals and plants. In the United Kingdom, the basic provisions for health and safety of people are provided by the Health and Safety at Work Act 1974 which is:

to make further provision for securing the health, safety and welfare of persons at work, for protecting others against risks to health or safety in connection with the activities of persons at work, for controlling the keeping and use and preventing the unlawful acquisition, possession and use of dangerous substances...

A key element in the implementation of the Health and Safety at Work Act is the *Control of Substances Hazardous to Health Regulations 2002* (SI 2002/2677)⁴ which are intended to protect both workers and others who may be exposed from work activities from the risks of hazardous substances. In the context of the Regulations, hazardous substances are anything that can harm health if not adequately controlled. Consequently, all pathogens and toxins are covered by these regulations.

The 2002 COSHH Regulations define “substance hazardous to health” as including a substance “which is a biological agent”; and defines biological agent as:

a micro-organism, cell culture or human endo-parasite, whether or not genetically modified, which may cause infection, allergy, toxicity or otherwise create a hazard to human health.

The basic approach in regard to substances hazardous to health, including biological agents, adopted in the COSHH Regulations comprises the following elements:

- assessment of risk to health created by work involving substances hazardous to health;
- prevention or control of exposure to substances hazardous to health;
- use of control measures, etc;
- maintenance, examination and testing of control measures;
- monitoring of exposure at the workplace;
- health surveillance;
- information, instruction and training for persons who may be exposed to substances hazardous to health; and
- arrangements to deal with accidents, incidents and emergencies;

Additional requirements apply to work with biological agents including:

- classification of biological agents;
- special control measures for laboratories, animal rooms and industrial processes;

- list of employees exposed to certain biological agents (in group 3 and group 4);
- notification of the use of biological agents (in groups 2, 3 and 4); and
- notification of the consignment of biological agents (in group 4);

In summary, the UK regulations require biological agents to be categorised, for containment provisions including access and safe storage, for lists to be kept of employees exposed to agents in Group 3 or 4, notification of first use of agents in Groups 2, 3 and 4, and notifications of consignments of agents in Group 4.

Animal Pathogens

Different regulations apply in the UK in regard to animal and plant pathogens where the aim is to protect livestock and plants in the UK from disease. The *Specified Animal Pathogens Order 1998* (SI 1998/463) which entered into force on 1 April 1998 prohibits any person in Great Britain (separate but similar arrangements apply in Northern Ireland) from having in his possession any specified animal pathogen or any carrier in which he knows such a pathogen is present except under the authority of a licence issued in writing by the appropriate Minister. The specified animal pathogens are those organisms listed in the Order causing serious epidemic diseases of farm livestock. Laboratories holding and working with specified animal pathogens are subject to inspection to ensure that the containment conditions meet the requirements for the category of pathogen being held. Such inspections will be made prior to a licence being issued for the specified animal pathogen. These are categorized according to the risk that they pose to livestock and the environment. These categories are not complementary to the hazard groups for human pathogens which are for the protection of employees as the animal pathogen categories are for the purpose of protecting animal health from escapes of organisms from a laboratory and **not** protection of workers in that laboratory.

Plant Pathogens

The aim of British legislation is to prevent the importation into Great Britain of any plant pathogen or pest that is not already established in Great Britain (again, separate but similar arrangements apply in Northern Ireland). Controls that apply to the import, movement, and keeping of plants, plant pests and other material such as soil are laid down in the *Plant Health (Great Britain) Order 1993* (SI 1993/1320) which entered into force on 1 June 1993 and prohibits the importing into Great Britain from a third country any infected plants or plant pests. Plant pests are defined as:

pests of and harmful organisms liable to infect plants or plant products which belong to the animal or plant kingdoms, or which are viruses, mycoplasmas or other pathogens and includes genetically modified plant pests.

The controlled pathogens and pests may only be imported into Great Britain for experimental purposes under a licence issued by the appropriate Minister.

The Order also requires that an official register be kept containing the name and address of each business, individual

or other organization which applies for registration. Such organizations on the register are required to keep records and these are to be inspected at least once in each calendar year. It is also made clear that although licensed material may be provided to persons or organizations within Great Britain who hold a relevant DEFRA (Department of the Environment, Food and Rural Affairs) licence, such material must not be made available to other persons or organizations without written agreement from the Plant Health Division for DEFRA who will make arrangements for the issue of phytosanitary certificates or plant passports or for endorsement of letters of authority.

National Measures to Control Access to Biological Agents and Toxins

Additional requirements addressing the security of biological agents were enacted in the United Kingdom in the *Anti-Terrorism, Crime and Security Act 2001* which includes as Part 7 “Security of Pathogens and Toxins”. This includes the following elements:

- duty to provide notification before keeping or using any dangerous substance;
- power to require information about security of dangerous substances;
- power to require information about persons with access to dangerous substances;
- duty to comply with security directions;
- duty to dispose of dangerous substances; and
- denial of access to dangerous substances;

Part 7 sets out the pathogens and toxins to which these requirements apply as being those pathogens and toxins listed in Schedule 5 to the Act and includes provision for the Secretary of State to add any pathogen or toxin to that Schedule if he is satisfied that the pathogen or toxin is capable of endangering life or causing serious harm to human health. The term “dangerous substance” is defined as meaning anything which consists of or includes a substance for the time being mentioned in Schedule 5 as well as anything which is infected with or otherwise carries any such substance.

The Act also includes the power to extend the requirements to animal or plant pathogens, pests or toxic chemicals. This extension may be exercised in relation to any pathogen or pest only if the Secretary of State is satisfied that there is a risk that the pathogen or pest is of a description that could be used to cause:

- widespread damage to property;
- significant disruption to the public; or
- significant alarm to the public.

In respect of chemicals, this extension may be exercised in relation to any chemical only if the Secretary of State is satisfied that the chemical is capable of endangering life or causing serious harm to human health.

National Measures to Control Genetic Modification

Examples of regulatory measures relating to genetic modification in the UK are the *Genetically Modified Organisms (Contained Use) Regulations 2000* (SI 2000/2831) in force from 15 November 2000 and the

Genetically Modified Organisms (Deliberate Release) Regulations 2002 (SI 2002/2443) in force from 17 October 2002. These Regulations implement in the UK the corresponding EC Directives 98/81/EC and 2001/18/EC.

The Contained Use Regulations set out the requirements for risk assessment and notification of activities involving genetic modification which include:

- notification of the intention to use premises for the first time for activities involving genetic modification;
- notification of class 2 activities involving genetic modification of micro-organisms;
- notification of class 3 or 4 activities involving genetic modification of micro-organisms;

as well as requirements for conduct of activities involving genetic modification which includes containment and control measures for activities involving genetic modification of micro-organisms.

The Regulations also require the establishment of a genetic modification safety committee (GMSC) which is required to review and advise on risk assessments made in accordance with the regulation. The regulation does not detail the composition or function of a GMSC but states that it should ideally be constituted to represent both managers and employees, with its members being representative of all people having access to the genetic modification facilities or who might otherwise be exposed to such work. Guidance is, however, provided on the experience and knowledge of members of such a GMSC and on its possible constitution and functions.

In addition, the Regulations require that emergency plans shall be prepared where, as a result of any reasonably foreseeable accident, either the “health and safety of persons outside the premises in which an activity involving genetic modification is carried on is liable to be seriously affected” or there is a “risk of serious damage to the environment”.

The notification of the intention to use premises for the first time in activities involving genetic modification requires that no such use shall take place until an acknowledgement has been received from the competent authority of the notification.⁵ In regard to notifications to carry out class 2 activities, an acknowledgement is required from the competent authority, whilst in respect of notifications to carry out class 3 or 4 activities, prior written consent is required from the competent authority.

The Regulations also require that a register be maintained of genetic modification activities which shall be open for inspection by members of the public. Provisions are included for the exclusion of certain information regarded as confidential from this register. In addition, an amendment to the regulations — the *Genetically Modified Organisms (Contained Use) (Amendment) Regulations 2002* (SI 2002/63) — which entered into force on 8 February 2002, provides for information to be made confidential in the interests of national security and thus excluded from the public register.

Oversight of National Legislation and Regulations

The effectiveness of national legislation and regulations requires that these are both widely known in the relevant community and implemented effectively. Furthermore,

they need to be reviewed periodically to ensure that they continue to be comprehensive and effective.

National Legislation to Implement the BWC

Insofar as such national legislation is concerned, successive Review Conferences have in the Article IV section of their Final Declarations included language urging:

Inclusion in textbooks and in medical, scientific and military education programmes of information dealing with the prohibitions and provisions contained in the Biological and Toxin Weapons Convention and the Geneva Protocol of 1925.

However, it is far from clear as to what concrete action states parties have taken to implement these measures. It is unfortunately all too often the situation even in developed countries that students in universities are unaware of the BWC and its prohibitions or of national legislation to implement the Convention. There is little evidence that medical, scientific or military education programmes even in developed countries include information about the prohibitions and provisions of the Convention apart from in specialised courses for those interested in international relations, security and arms control.

National Measures for Health and Safety

The situation in respect of awareness and implementation of national measures for health and safety is much more satisfactory. This is because the importance of health and safety has been successfully embedded into the national functioning of laboratories and facilities — with public and media attention being given to prosecutions of those who fail to meet the required health and safety standards. Furthermore, the inspectors of the national health and safety agency — in the United Kingdom, the Health and Safety Executive — carry out regular inspections of all facilities — and have the power, should inadequate health and safety standards be encountered, to issue orders requiring that work in those facilities stops until the health and safety standards have been improved to the satisfaction of the HSE inspectors.

In regard to dangerous pathogens, the United Kingdom has established an Advisory Committee on Dangerous Pathogens (ACDP) whose terms of reference (available via <http://www.doh.gov.uk/acdp>) are:

To advise the Health and Safety Commission, the Health and Safety Executive, Health and Agriculture Ministers, and their counterparts under devolution in Scotland, Wales and Northern Ireland, as required, on all aspects of hazards and risks to workers and others from exposure to pathogens.

The Advisory Committee enables the UK Government to draw upon expert scientific knowledge and thereby ensure that new controls and regulations are soundly based and will be effective. Agendas for the ACDP meetings are posted on the web and are annotated after the meetings to give an indication of the outcome. Information about the work of the ACDP and the latest information on pathogens is published in the *Biological Agents Bulletin* (available via <http://www.doh.gov.uk/acdp>).

National Measures to Control Genetic Modification

The situation in respect of awareness and implementation of national measures for genetic modification is similar to that for national measures for health and safety. This is again because the importance of evaluating the risks to health and safety prior to carrying out genetic modification has been successfully embedded into the national functioning of laboratories and facilities. Furthermore, the inspectors of the national health and safety agency — in the United Kingdom, the HSE — carry out regular inspections of facilities engaged in genetic modification as well as giving prior approval of proposed work — and have the power, should inadequate health and safety standards be encountered, to issue orders requiring that work in those facilities stops until the health and safety standards have been improved to the satisfaction of the HSE inspectors.

In regard to genetic modification, the United Kingdom has established an Advisory Committee on Genetic Modification (ACGM) whose terms of reference (available via <http://www.hse.gov.uk/aboutus/hsc/iacs/acgm>) are:

To advise the Health and Safety Commission and Executive and the Secretary of State for the Environment, and other Ministers and bodies, as appropriate, on all aspects of the human and environmental safety of the contained use of genetically modified organisms.

The ACGM also has a Technical Subcommittee which provides specialised advice to the ACGM on all aspects of the human and environmental safety of the contained use of genetically modified organisms. It advises on the individual activities notified under the GMOs (Contained Use) Regulations and develops and maintains the ACGM Compendium of Guidance. The Advisory Committee enables the UK Government to draw upon expert scientific knowledge and thereby ensure that new controls and regulations are soundly based and will be effective.

A second committee addresses releases to the environment. The Advisory Committee on Releases to the Environment (ACRE) provides advice to the government on the release and marketing of genetically modified organisms within the legislative framework of the UK Environmental Protection Act 1990 and the UK GMO Deliberate Release Regulations 2002 which together implement the European Community Directive 2001/18/EC. The agendas and the minutes of meetings are posted on the web (available via <http://www.defra.gov.uk/environment/acre>) and their annual reports and advice on specific cases are also posted.

Oversight of the nature of work and of proposed work

Although there is oversight of proposed work in relation to biological agents, this is entirely focused on the risks from such work to health and safety and not on whether it is appropriate that such work should be carried out. The scrutiny of proposed work becomes more intense when genetic modification is concerned and particularly when deliberate releases or marketing are being addressed. However, in all these cases the scrutiny is primarily on the risks posed to health and safety and to the environment by the proposed work. It is, however, true that in regard to

deliberate releases of genetically modified organisms there is more intense debate about all aspects of the proposed release including why the proposed release should take place. The availability of information on the deliberations of the various advisory committees becomes the greater as one moves from work in relation to biological agents through the contained use of genetic modification and to deliberate releases of genetic modified organisms. This increased scrutiny and availability of information reflects public awareness and concern, which is currently greatest regarding deliberate releases and least about work with biological agents.

The University of Maryland project on Controlling Dangerous Pathogens⁶ in reviewing oversight notes the security provisions of the Biological and Toxin Weapons Convention internationally and then recognises that some of the most significant environmental and public health-related controls on pathogens can be found in the European Union. It goes on to consider other oversight provisions in the UK such as those for pathogens and for genetic modification. It notes that the UK has even more extensive oversight arrangements for activities involving animals. These more extensive oversight arrangements reflect public awareness and concern about the use of animals in scientific procedures. The UK legislation relating to activities involving animals is the *Animals (Scientific Procedures) Act 1986* which is described on the Home Office website as being widely viewed as the most rigorous piece of legislation of its type in the world. This puts into effect, and in some areas exceeds, the requirements of the European Union Directive 86/609/EEC. The Act recognises that scientific procedures using animals can only be permitted when the benefits that the work is likely to bring (to man, other animals or the environment) outweigh any pain and distress that the animals may experience and where there is no alternative.

The Act implements a three level licensing system under which:

- those carrying out procedures must hold personal licences, which ensures that those doing the work are qualified and suitable;
- the programme of work must be authorised in a project licence; and
- the work must also normally take place in a designated user establishment although in specific circumstances, such as a field trial, work can be carried out elsewhere with the Home Secretary's authority.

No work involving animals can take place without prior licensing by the Home Secretary which will often involve a visit by an Animals (Scientific Procedures) Inspector from the Home Office. Furthermore, the 1986 Act requires that there is also an independent body, the Animal Procedures Committee (APC) whose terms of reference (available at <http://www.apc.gov.uk>) are:

To advise the Secretary of State on such matters concerned with the Act and his functions under it as the Committee may determine or as may be referred to the Committee by the Secretary of State.

In other words, its role is to advise the Home Secretary on matters concerned with the Act and his functions under it, relating to any experimental or other scientific procedure applied to a protected animal and **also** to examine other

related subjects that the Committee considers worthy of further study. The APC currently has 21 members including the Chairman.

In 1998, the Home Secretary decided that an ethical review process should be established and maintained in each designated user establishment within which animal procedures are carried out. From 1 April 1999, the requirement for a local ethical review process would be a standard condition for every designated user and breeding/supplying establishment. The aims of this process are stated by the Home Office as:

3.1. To provide independent ethical advice to the certificate holder, particularly with respect to project licence applications and standards of animal care and welfare.

3.2. To provide support to named people and advice to licensees regarding animal welfare and ethical issues arising from their work.

3.3. To promote the use of ethical analysis to increase awareness of animal welfare issues and develop initiatives leading to the widest possible application of the 3Rs [possibilities for reduction, refinement and replacement].⁷

It is furthermore emphasised that commonly, there should be a promotional role, seeking to educate users (in applying the 3Rs) and non-users (by explaining why and how animals are used), as appropriate. There should be some formal output from the ethical review process for staff and colleagues in the establishment, made as widely available as security and commercial/intellectual confidentiality allow.

Supplementary notes on the ethical review process were issued by the Home Office Chief Inspector in December 2000⁸. It is made clear that the requirement is for a process rather than for an event or a committee because the process should be activated when work is at the concept stage, it should inform the planning process, continue once the work is in progress, and reflect upon the lessons learned when the work has been completed. The named veterinary surgeon and the named animal care and welfare officer are expected to be involved in the process as are representatives of personal and project licence holders. In addition, where possible there should also be input from those who do not have responsibilities under the 1986 Act. It is also strongly recommended that, where possible, an external lay member should take part in the ethical review process. A review of the Ethical Review Process was carried out in November 2001 by the Animals (Scientific Procedures) Inspectorate which concluded that the process should be seen as an evolving one and that those involved in ERPs should be made aware of 'best practice'.

Analysis

It is thus apparent that, in the UK, animal scientific procedures are highly regulated with the requirement for the individual to be licensed as being competent to carry out the work, the specific project licensed and the establishment in which the project is carried out also licensed. There is also a requirement that any proposed project shall have been subjected to an ethical review process. This highly regulated process has emerged largely because of public concerns about the use of animals in scientific procedures. It is for consideration whether the dangers posed by the misuse of

pathogenic microorganisms and toxins — and their expression in public concerns about bioterrorism — merit consideration of a similar highly regulated framework. There is much to be said for an ethical review process for work on pathogenic microorganisms and toxins in which the possible risks are balanced against the potential benefits — a risk benefit analysis which is likely to be required in any event for health and safety and environmental reasons — together with an ethical review in which risks to security, including compliance with the BWC, and safety should be addressed.

Oversight of Publicly Available Information

Recently, following the attacks of 11 September 2001 and the subsequent anthrax letters in the United States, attention is being given to whether certain information, which might be misused by states non-compliant with the BWC or by sub-national groups or individuals who wish to use biological agents or toxins for prohibited purposes, should be made publicly available. This parallels in several respects the recent moves towards the control of the transfer of information which might assist a state seeking to acquire biological or toxin weapons which have resulted in several states bringing in controls on the transfer of intangible technology. Such considerations as to whether publicly available information should be limited are contrary to the general trend over the past decade or more which has been towards making more and more information publicly available — especially in the life sciences and in the area of genetic modification in order to reassure public concerns about the risks associated with such work.

Scientific Openness and National Security

The United States National Academy of Sciences held a workshop⁹ in Washington, D.C., on 9 January 2003 intended to stimulate consideration of the pivotal role of scientific communication in today's society and the ethical responsibility to prevent misuse of published scientific information. Three particular questions were posed:¹⁰

- a. Should there be restrictions on publication, or other dissemination of biomedical research results — even when the research is not classified and if so, what criteria should be used and who should decide?
- b. Should some aspects of biotechnological research be withheld from publication, such as methods sections or genome sequences, and should publishers agree to publish papers with details omitted?
- c. Should we manage access to scientific information and if so, who should be responsible for controlling that access?

In the opening session, the Director of the White House Office of Science and Technology Policy pointed out that modern biotechnology has two aspects — first the determination of molecular codes and structures and their significance to the organism, and second, the technical procedures used to produce novel organisms based on this knowledge.¹¹ The first, discovery activity on which the whole field depends for its advance is the one that is the most technically difficult to acquire, whilst the second, the applications phase is easier. He went on to say that the

current US national policy is that in National Security Decision Directive 189 issued by President Ronald Reagan on 21 September 1985 which states that:

It is the policy of this Administration that, to the maximum extent possible, the products of fundamental research remain unrestricted

and

where the national security requires control the mechanism for control of information generated during federally funded research ... is classification.

Furthermore, the policy states that:

No restrictions may be placed upon the conduct or reporting of federally funded fundamental research that has not received national security classification, except as provided in applicable U.S. Statutes.

The following day, 10 January, saw a meeting by a group of editors in the life sciences to discuss the issues with specific reference to the scientific publication process. A statement emerged from that meeting which has been widely published.¹² This states that:

Fundamental is a view, shared by nearly all, that there is information that, although we cannot now capture it with lists and definitions, presents enough risk of use by terrorists that it should not be published.

A number of agreed statements were included:

First: The scientific information published in peer-reviewed research journals carries special status, and confers unique responsibilities on editors and authors. We must protect the integrity of the scientific process by publishing manuscripts of high quality, in sufficient detail to permit reproducibility. Without independent verification — a requirement for scientific progress — we can neither advance biomedical research nor provide the knowledge base for building strong biodefence systems.

Second: We recognize that the prospect of bioterrorism has raised legitimate concerns about the potential abuse of published information, but also recognize that research in the very same field will be critical to society in meeting the challenges of defence. We are committed to dealing responsibly and effectively with safety and security issues that may be raised by papers submitted for publication, and to increasing our capacity to identify such issues as they arise.

Third: Scientists and their journals should consider the appropriate level and design of processes to accomplish effective review of papers that raise such security issues. Journals in disciplines that have attracted numbers of such papers have already devised procedures that might be employed as models in considering process design. Some of us represent some of these journals; others among us are committed to the timely implementation of such processes, about which we will notify our readers and authors.

Fourth: We recognize that on occasions an editor may conclude that the potential harm of publication outweighs the potential societal benefits. Under such circumstances, the paper should be modified or not published. Scientific information is also communicated by other means: seminars, meetings, electronic posting, etc. Journals and scientific societies can play an important role in encouraging investigators to communicate results of

research in ways that maximize public benefits and minimize risks of misuse.

In the absence of further detail on precisely how such screening can and will be carried out, it is difficult to assess the effectiveness of the proposed procedures.

Intangible Technology Transfer

As mentioned earlier, new controls are being introduced within the European Union on:

- the electronic transfer abroad of military technology;
- the transfer by any means of technology related to weapons of mass destruction (WMD); and
- the provision of WMD related technical assistance.

These new controls on the transfer, by any means, of WMD related technology supplements the existing end-use controls on the physical export of goods and technology and the electronic transfer of technology contained in the EC Dual Use Regulation. Transfer by any means includes face-to-face communication, personal demonstration or dissemination of written material. Furthermore, in Article 2 of the Regulation, “export” is defined as meaning:

transmission of software or technology by electronic media, fax or telephone to a destination outside the Community; this applies to oral transmission of technology by telephone only where the technology is contained in a document the relevant part of which is read out over the telephone, or is described over the telephone in such a way as to achieve substantially the same result.

The European Joint Action of 22 June 2000 requires the export control system within the Community to cover:

technical assistance including oral transfers of technology required to be controlled by the international export control regimes, bodies and treaties for weapons of mass destruction.

It is made clear in Article 4 of the Joint Action that “technical assistance” does not apply:

where it takes the form of transferring information that is “in the public domain” or “basic scientific research” as these terms are respectively defined in the international export control regimes, bodies and treaties.

In the UK implementation of the Joint Action, it is made clear that “in the public domain” is defined as:

available without restriction upon further dissemination (no account being taken of restrictions arising solely from copyright)

and “basic scientific research” is defined as:

experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts, not primarily directed towards a specific practical aim of objective.

It should, however, be noted that the WMD end-use controls under the EC Dual Use Regulation are all-embracing and apply to physical and electronic transfers of technology as well as to export of goods. There are **no** exemptions for information in the public domain or for basic scientific research with respect to end-use control since all European Member States have agreed that deliberately to send to a known WMD proliferator even a published book

or article which might be of use to that WMD programme should require a licence.¹³

Publicly Available Information on Genetic Modification

In contrast to the measures thus far described which seek to control and restrain information, there are moves in the opposite direction to meet public concerns and anxieties about genetic modification that seek to assure the provision of information to the public. The Earth Summit at Rio de Janeiro in 1992 included agreement of the *Rio Declaration on Environment and Development*¹⁴ which contained Principle 10:

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by the public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public access and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

In Europe, Principle 10 has been elaborated in the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters,¹⁵ which was adopted on 25 June 1998 in Aarhus, Denmark — and is known as the Aarhus Convention — at the Fourth Ministerial Conference in the “Environment for Europe” process.

The Convention sets out its objective in Article 1 as being that:

each Party shall guarantee the rights of access to information, public participation in decision-making, and access to justice in environmental matters in accordance with the provisions of this Convention.

Article 5 on Collection and Dissemination of Environmental Information includes the following:

Each Party shall ensure that...

(c) In the event of any imminent threat to human health or the environment, *whether caused by human activities or due to natural causes*, all information which could enable the public to take measures to prevent or mitigate harm arising from the threat and is held by a public authority is disseminated immediately and without delay to members of the public who may be affected. [Emphasis added]

Article 6 on Public Participation in Decisions on Specific Activities includes the provision that:

11. Each State Party shall, within the framework of its national law, apply, to the extent feasible and appropriate, provisions of this article on decisions on whether to permit the deliberate release of genetically modified organisms into the environment.

The Aarhus Convention which required ratification by 16 states for entry into force entered into force on 30 October 2001. In June 2003, it currently has 24 states parties and a further 20 signatory states.¹⁶ In June 1998 when the Aarhus

Convention was adopted, the signatories agreed the following:¹⁷

Recognize the importance of the application of the provisions of the Convention to deliberate releases of genetically modified organisms into the environment, and request the Parties, at their first meeting to further develop the application of the Convention by means of *inter alia* more precise provisions, taking into account the work done under the Convention on Biological Diversity which is developing a protocol on biosafety.

This led to the establishment of a task force on genetically modified organisms (GMOs) to summarise the experience of implementing the provisions of Article 6, Paragraph 11 (reproduced above) and to make recommendations for further action. The task force met twice in 2000 and reported to the second meeting of the signatories which decided that an Intergovernmental Working Group should be established to continue the work of the task force. This Working Group has followed a two track approach, one legally-binding and the other non-legally-binding. At its third meeting on 17–19 June 2002, the Working Group finalized work on a draft decision on GMOs as well as draft guidelines on access to information, public participation and access to justice with respect to genetically modified organisms.

The first meeting of the States Parties to the Aarhus Convention, in Lucca, Italy on 21–23 October 2002, adopted the decision on GMOs¹⁸ as well as the guidelines without amendments. The decision established a further

Working Group on Genetically Modified Organisms to examine and build upon the preparatory work undertaken ... regarding possible legally binding options, including a draft amendment of the Convention.

The first meeting of that Working Group took place in Geneva on 9–11 April 2003. The guideline include among their objectives:

c. Encourage the development of a common approach to access to information, public participation and access to justice with respect to GMOs, including on GMO matters which are not explicitly referred to in the Convention.

and go on to state that:

The Guidelines provide a non-legally binding and voluntary framework and should be used as examples of good practice.

In regard to the scope of public participation in decision making on specific activities with GMOs, the guidelines state:

It is recommended that, in principle, public participation should be provided for in decision-making procedures in all three areas of GMO application, and adapted to the specific requirements of these decision-making procedures and uses:

- a. Deliberate use;
- b. Placing on the market;
- c. Contained use.

It is recommended that public participation should be provided for as appropriate in the following procedures:

- a. First-time deliberate release into the environment of GMOs in any new location; ...
- d. ... the contained use of GMOs in a specific installation where in the event of an accident there would be a risk of

serious damage to the environment and/or human health and therefore suitable contingency plans are foreseen.

The Guidelines also set out in Annex III the information recommended to be available within a public participation process as including:

- a general description of the GMOs;
- the name and address of the notifier or applicant;
- the purpose of the proposed activity with the GMOs;
- experience gained with deliberate release into the environment of certain GMOs;
- location of the site where the proposed deliberate release of the GMOs into the environment will take place;
- a description of any emergency response plan; and
- the location of the facility where the contained use of GMOs under the scope of this chapter of the Guidelines will take place, and a description of the specific containment measures ...; a description of any emergency response plan and the possibility for its implementation.

Conclusions

It may thus be concluded that all states parties will have a significant contribution to make to the experts meeting this coming August and to the subsequent states parties meeting through the sharing of their national experience, legislation and regulations relating to the implementation of the BWC, to national measures to protect health and safety from pathogenic microorganisms and toxins, and to national measures to protect health and the environment from genetically modified organisms. They will also have contributions to make from sharing national experience regarding the oversight of such legislation and regulations, of the work involving pathogenic microorganisms and toxins, and of genetic modification as well as the provision of publicly available information.

This article has shown that there are several relevant Europe-wide regulations and directives relating to many aspects of the security and oversight of pathogenic microorganisms and toxins that will apply not only within the 15 member states of the European Union but also in the 10 additional countries that are set to join on 1 May 2004. Although less attention is paid specifically to toxins, other than as toxic chemicals, than to pathogenic organisms, and there is less oversight or prior approval of work involving pathogenic microorganisms and toxins than there is of work involving genetically-modified organisms, the European framework should nevertheless provide a sound basis for the multilateral consideration of the security and oversight of pathogenic microorganisms and toxins and the identification by the experts and the states parties of best practice and of which areas require further work — such as oversight and prior approval of work with pathogenic microorganisms and oversight and constraint of publicly available information — and what balance needs to be struck given the increasing trend to making more information publicly available, especially in the life sciences, in order to assuage public concerns.

It is considered that all states parties have a real opportunity to move forward decisively by carrying out a similar survey nationally to that provided in this article and submitting this **prior** to the meeting of experts on 18 to 29 August or **at the very least** bringing such a national survey

with them to the experts meeting as background material to be circulated to the other states parties. There is also much to be said for states parties presenting papers at the expert meeting focused on the core principles and requirements which might form the basis of common understandings and effective action. The experts could thus identify best practice thereby providing a substantive and vital input to the states parties meeting on 10–14 November.

References and Notes

1. Most of the UK legislation cited in this article is available via the www.hmsso.gov.uk website, although this is only comprehensive from the late 1980s. Selected key legislation cited here (including the Biological Weapons Act 1974 which is not on the HMSO site) is reproduced on the www.opbw.org website.
2. Council Directives, Regulations and Joint Actions are available in all of the official languages of the European Union via <http://europa.eu.int>.
3. Nicholas A. Sims, “The Importance of National Implementing Legislation for the Chemical Weapons Convention”, *First CWC Review Conference Paper* [University of Bradford, Department of Peace Studies], no 5, April 2003. Available at <http://www.brad.ac.uk/acad/scwc>.
4. All Statutory Instruments, a form of secondary legislation, are given an SI number to identify them.
5. Current notification requirements are set out in the Advisory Committee on Dangerous Pathogens, *Biological Agents Bulletin No. 6*, March 2003. Available at <http://www.doh.gov.uk/acdp/publications.htm>.
6. John Steinbruner, Elisa D. Harris, Nancy Gallagher and Stacy Gunther, *Controlling Dangerous Pathogens: A Prototype Protective Oversight System*, 5 February 2003. Available at <http://www.puaf.umd.edu/cissm/projects/amcs/amcs.html>.
7. Home Office, *The Ethical Review Process*, 1 April 1998. Available at <http://www.homeoffice.gov.uk/erpstatement.html>
8. Home Office, *The Local Ethical Review Process, Supplementary Note by the Chief Inspector December 2000*, December 2000. Available at <http://www.homeoffice.gov.uk/erpchief.html>.
9. National Academy of Science, *Scientific Openness and National Security Workshop*, 9 January 2003. Agenda available at http://www7.nationalacademies.org/pga/Scientific_Openness_Agenda.html.
10. National Academy of Science, Scientific Openness and National Security Workshop, 9 January 2003. Ron Atlas, *Preserving Scientific Integrity and Safeguarding Our Citizens: Challenges for Scientific Publishers in the Age of Bioterrorism*. Available at http://www7.nationalacademies.org/pga/Atlas_Presentation_Sci_Openness.pdf.
11. National Academy of Science, Scientific Openness and National Security Workshop, 9 January 2003. *Remarks by John Marburger, Director, Office of Science and Technology Policy, Executive Office of the President*. Available at http://www7.nationalacademies.org/pga/Marburger_Presentation_Sci_Openness.pdf.
12. “Statement on the Consideration of Biodefence and Biosecurity”, *Nature*, Vol. 421, 20 February 2003, p. 771.
13. Department of Trade and Industry, See Annex B, *Existing Export Controls*, in *Consultation Document on Draft Orders to be made under the Export Control Act 2002*. Available at <http://www.dti.gov.uk/export.control/legislation/pdfs/consultdoc.pdf>.
14. United Nations General Assembly, *Report of the United Nations Conference on Environment and Development*, Rio de Janeiro, 3–14 June 1992, *Annex I Rio Declaration on*

Environment and Development, A/CONF.151.26 (Vol.I) 12 August 1992. Available at <http://www.un.org/documents/ga/conf151/aconf15126-1annex1.htm>.

15. United Nations Economic Commission for Europe (UNECE), *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, done at Aarhus, Denmark, on 25 June 1998. Available at <http://www.unece.org/env/pp/cep43e.pdf>.

16. UNECE, *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, Participants*. Available at <http://www.unece.org/env/pp/ctreaty.htm>.

17. UNECE, *Resolution on Access to Information, Public Participation in Decision-Making and Access to Justice in*

Environmental Matters, Aarhus, Denmark, 23–25 June 1998. Available at <http://www.unece.org/env/documents/1998/cep/cep.43.add.1.rev.1.e.pdf>.

18. UNECE, Meeting of the Parties to the *Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters*, First meeting, Lucca Italy, 21–23 October 2002, *Draft Decision 1/4 Genetically Modified Organisms*, MP.PP/2002/5, 12 August 2002. Available at <http://www.unece.org/env/pp/mop1/decision.1.4.e.doc>.

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Progress in The Hague

Quarterly Review no 42

Developments in the Organization for the Prohibition of Chemical Weapons

The focus of events in The Hague during the period under review, from late March to the end of June 2003, was without doubt the First Special Session of the Conference of the States Parties to Review the Operation of the Chemical Weapons Convention, better known as the Review Conference. The Review Conference was held in The Hague over the two week period spanning 28 April–9 May. Late on 9 May, the Review Conference closed, having adopted a Political Declaration and final report, incorporating a Review Document.

During the period of that Review Conference, however, states parties also met for a second Special Session of the Conference of the States Parties, in order to adopt a decision relating to implementation of the tenure policy of the OPCW. Members of the Executive Council met for the thirty-third session of the Council during the last week of June.

The OPCW continued to see its membership grow during the period under review, with Timor Leste and Tonga both acceding to the Chemical Weapons Convention in May. At the end of June, the CWC had 153 states parties.

First Review Conference

Of the (then) 151 states parties, 113 attended the Review Conference, as did two signatory states (Haiti and Israel) and two non states parties (Libya and Angola). In addition, five international organizations (the European Space Agency, International Committee of the Red Cross (ICRC), Permanent Court of Arbitration, CTBTO Preparatory Commission and UNIDIR), 22 non-governmental organizations (NGOs) and six industry associations were approved to attend the Review Conference.

An event which made a significant impact during the Review Conference was the statement during the first morning of General Debate by US Assistant Secretary of State for Arms Control, Stephen Rademaker. The United States named three non-states parties, Syria, Libya and North Korea, as countries pursuing offensive chemical weapons programmes and gave details of the alleged

programmes. In addition, the US addressed compliance concerns relating to states parties, stating that the US was ‘most troubled by the activities of Iran’ which they believed ‘continues to seek chemicals, production technology, training, and expertise from abroad’, with stockpiles of ‘blister, blood and choking agents’ as well as having ‘made some nerve agents’. The US also stated that it was working with Sudan to reconcile concerns. This statement was followed up by a press conference at the OPCW by Stephen Rademaker.

The statement provoked a reply by Iran later that morning (in addition to its statement in General Debate), stating that the American allegations were baseless and that, if there were any concerns about non-compliance, the answer was to use the ‘route drawn in the Convention’. The statement also referred to the US having enacted national legislation ‘clearly contrary to the Convention’ and stated that the US and other countries which ‘equipped and helped Saddam’s regime’ were to blame for Iran having been a victim of chemical weapons. Iran acknowledged that, during the last phase of the war with Iraq, it had acquired ‘chemical capabilities’, but stated that these facilities had been destroyed under OPCW supervision. Following this exchange, a major concern was whether it would jeopardise any substantive outcome from the Review Conference or whether the states parties would be able to reach consensus on final documents.

Preparations for the Review Conference As agreed by the thirty-second session of the Executive Council in March this year, the open-ended working group on preparations for the Review Conference continued its informal discussions up until the Review Conference, with the last meeting taking place on 22 April.

At the thirty-second session of the Council, the Chairman of the Council, Ambassador Lionel Fernando of Sri Lanka, had asked the Chairman of the open-ended working group, Ambassador Davèrède of Argentina, to report to the Review Conference directly on the results of the working group’s meetings. Ambassador Davèrède therefore submitted to the

Review Conference the consolidated Chairman's text relating to the Review Conference's agenda item seven (review of the operation of the Convention) and a Chairman's draft political declaration. Both documents formed the basis for the work of the Review Conference and the Review Document and Political Declaration ultimately adopted by the Conference.

Seven background papers prepared by the Technical Secretariat were submitted to the Review Conference. The documents were on the topics of: the conduct of inspections under the Convention and related issues; international co-operation programmes; assistance and protection programmes; universal adherence to the Convention; implementation support; the consolidated unclassified Verification Implementation Report (April 1997–31 December 2002); and the implementation of the OPCW Confidentiality regime. These background papers were updates of documents that had previously been made available to, and discussed in, the meetings of the open-ended working group.

In addition, the Director-General submitted a note to the Review Conference which addressed the major activities and objectives of the OPCW. The Director-General's note set out eight points that the Review Conference might consider when formulating recommendations and guidance: continued chemical weapons destruction activity at the pace required by the Convention; the further optimisation of all aspects of the verification system of the OPCW; the urgent completion by all states parties of their legislative action; the consolidation of inspection conduct under Article VI; improvement of the quality of the OPCW's international co-operation programme portfolio, supported by adequate financing and working in partnership with other relevant organizations; urgent agreement on the precise nature of the OPCW's role in providing assistance in the case of use or threat of use of chemical weapons; further improvement of the functioning of the OPCW, and of the co-operation between the Secretariat and the policy-making organs; and further enhancement of the OPCW's actions against terrorism. The note characterised the achievement of the universality of the Convention as a major objective of the OPCW.

The Director-General's note also highlighted that a number of the (over one hundred) unresolved issues received at the first session of the Conference of the States Parties remained unresolved and that new issues had also been encountered. While some progress has been made, the Director-General stressed that the 'Paris Resolution issues' (where the Convention's legal framework still needs to be completed) and issues with an operational impact required resolution without delay.

The Director-General noted that the issue of 'non-lethal weapons' and the use of toxic chemicals for law enforcement had received attention. Stating that these issues required careful analysis to prevent potential harm to the Convention, and noting relevant provisions in the Convention, the Director-General suggested that member states 'might wish to address these issues'. Reference to these issues did not ultimately appear in any of the documents adopted by the Review Conference.

The Director-General also submitted a separate note on the report of the Scientific Advisory Board (SAB) on developments in science and technology. In addition to the

actual report of the SAB to the Review Conference, which recorded fourteen main findings and was attached as an annex to the Director-General's note, the note contained the Director-General's own assessments and recommendations.

In brief, the main findings of the SAB were that, while it was not practical to amend the Schedules of chemicals at this stage, there might be a need to adjust them in the future. The SAB also encouraged states parties to submit data on potential novel agents. The definition of chemical weapons under Article II was considered adequate cover against unscheduled and new toxic compounds – however, unscheduled toxic chemicals with a potential for weaponisation should not be ignored when the OPCW Central Analytical Database (OCAD) is being developed further. Increasing the number of Other Chemical Production Facilities (OCPF) inspections was also thought prudent, though not at the risk of decreasing the effectiveness of the verification regime for facilities involved with scheduled chemicals. Accordingly, the selection mechanism for OCPF inspections needs to be improved. Suitable training for inspectors on new production equipment and processes is required. On-site analysis procedures based on GC-MS, combined with the use of AMDIS software and the OCAD, meet the needs of the Convention without jeopardizing commercial confidentiality, and no alternatives to this technique for on-site analysis are expected to become available in the coming years. It would be necessary to extend the OCAD database, and develop additional on-site analytical techniques such as immunoassays if the OPCW should acquire an on-site capability to identify toxins. For off-site analysis, LC-MS is a suitable alternative.

The SAB report also concluded that some additional research was required to resolve some problems related to on-site sample preparation, in order to improve overall OPCW verification capabilities and reduce costs. Furthermore, flexible procedures were considered necessary in order to allow for on-site analysis of samples taken during the 24 hours of inspection time allowed for Schedule 3 and OCPF inspections. The SAB report stated that a temporary working group should be established to evaluate approaches to the analysis of biomedical samples in investigations of alleged use. On the topic of verification of destruction operations, the SAB stated that it was currently too labour intensive and options such as remote monitoring and random checks offered possibilities. The SAB stated that it would be worthwhile assessing the role the OPCW could play in detection, identification and decontamination in relation to cooperation and exchanges among states parties in assistance and protection. Generating greater awareness among scientific and technical communities about the key issues faced by the OPCW and the Convention's objectives and benefits was also considered necessary. Finally, the SAB stated that the technical capabilities of the Secretariat must be maintained by ensuring the correct training of staff and having fit-for-purpose equipment. Flexibility is required in adjusting the approved equipment in order to keep pace with progress in science and technology and changing supply situations.

Opening of the session The Review Conference was opened on the morning of 28 April by the Chairman of the Conference of the States Parties, Ambassador Nourredine

Djoudi of Algeria, who had also chaired the seventh session of the Conference of the States Parties in October 2002. By default, the states parties had resolved (at least for this First Review Conference) the question of whether to elect new officers for the Review Conference by continuing with those elected at the seventh session of the Conference. The provisional agenda for the Review Conference agreed upon at the thirty-second session of the Council was adopted by the Conference. The substantive part of the agenda was item 7, the review of the operation of the Convention as provided for in paragraph 22 of Article VIII, taking into account any relevant scientific and technological developments, and as required by paragraph 26 of Part IX of the Verification Annex.

A message from the Secretary-General of the United Nations was delivered by the Director of the Geneva Branch of the UN Department of Disarmament Affairs, Mr Enrique Roman-Morey. While recognising that there were (at that point) 151 states parties to the Convention, the Secretary-General's statement noted that this did not include a number of 'significant states, including in regions characterized by serious political tensions'. The Secretary-General recognised the need for further co-operation between the OPCW and the UN in the years ahead. It was stated that a solemn commitment by states parties to the full implementation and further strengthening of all provisions of the Convention was necessary to give 'new impetus to the realization of its goals'.

The Director-General's opening statement to the First Review Conference stated that the Convention and regime established by the Convention 'can be considered a success story' — nevertheless, there was a warning that such success should not be taken for granted and instead must be confirmed every day. The biggest practical challenge facing the OPCW in relation to destruction, according to the Director-General, is how to deal with the projected increase in activity in national destruction programmes beginning this year.

Turning to the industry verification regime, the Director-General considered that, to be truly credible, the number of OCPF inspections 'should increase significantly to a level that would provide overall confidence in the verification regime'. The Director-General also took up the sensitive issue of challenge inspections. While stating that it would be inappropriate for him to speak in favour of challenge inspections, Mr Pfirter recalled that challenge inspections 'are part of the array of possibilities...at the disposal of the OPCW' and that the Secretariat needed to maintain a high state of readiness to conduct one if a request was made. Alluding to what was described as the 'present security crisis in the Middle East and the Persian Gulf', the Director-General noted that there had been a number of requests for assistance in developing national protecting capacities against possible use of chemical weapons. However, resource constraints meant that the ability of the Secretariat to respond to such requests remained limited.

Acknowledging the trauma associated with the replacement of the former Director-General, Mr Pfirter concluded that the OPCW had 'emerged stronger from that difficult period and is now moving ahead on all fronts'. Related to that, the Director-General acknowledged the decision taken by the Executive Council in relation to staff

tenure, stating that it was not an easy decision for states parties to take, and nor would it be easy to implement, but that he would do so in a fair and transparent manner. In regard to the future of the OPCW, the Director-General envisaged 'the consolidation of the OPCW as an open international organisation in constructive dialogue with other international bodies and with civil society as a whole'. Mr Pfirter also recognised the contribution that the Convention can make to the fight against international terrorism.

General Debate Fifty-two states parties made statements during the General Debate, which took place all day on Monday 28 and Tuesday 29 April, and during the morning sessions on Wednesday 30 April and Thursday 1 May. Included in that number were: Nigeria on behalf of the African Group; Greece on behalf of the European Union, acceding and associated countries and the EFTA countries, Iceland and Norway; and Malaysia on behalf of the Non-Aligned Movement and China.

Contrary to some expectations, no entity other than the states parties and the representative of the UN Secretary-General was permitted to make a statement to the Conference.

National Papers Twenty-nine official national papers (as distinct from the statements made in General Debate) were circulated during the Review Conference, the texts of which are available on the OPCW website. These papers were prepared by: China (2); the UK (9); Japan (3); Switzerland (1); Bulgaria (1); the Republic of Korea (3); Germany (2); Italy (1); Cuba (1); Romania (1); Finland (1); Sweden (2); Australia (1); and Greece on behalf of the EU (1).

The topics covered by the national papers were wide-ranging. Several of the papers were national reports on domestic implementation of the Convention and efforts to support the Convention. Other topics addressed by the national papers included: the need for national implementation of the Convention; the comprehensive nature of the Convention with respect to verification and national implementation measures (the General Purpose Criterion); declarations of national protective programmes under Article X; abandoned chemical weapons (ACW); the industry verification regime, including in relation to Schedule 3 chemicals and DOC/PSF facilities; developments in the chemical industry and chemical technology; the role of Chemical Abstract Service (CAS) numbers; the treatment of salts of scheduled chemicals; sampling and analysis; the role of export controls; tracking systems for trade in scheduled chemicals; eliminating discrepancies among declarations on transfers of scheduled chemicals; designated laboratories; Article IX of the Convention and aspects of compliance; the role and importance of transparency; and the need for an effective challenge inspection mechanism and the role of prior consultations.

Subsidiary bodies As usual for Conferences of the States Parties, the substantive work of the Review Conference was conducted under the auspices of the Committee of the Whole, chaired by Ambassador Marc Vogelaar of the Netherlands. Between 29 April and 9 May, the Committee of the Whole held 14 meetings and a number of informal consultations.

Another group of 'friends of the chair' was established by the Chairman of the Committee of the Whole. It met for informal deliberations, open to all delegations and was chaired by Ambassador Dato' Noor Farida Ariffin of Malaysia. The friends of the chair group was invited to undertake editorial work related to issues where substantive agreement had already been reached in the Committee. In practice, the group focused on preparing the draft political declaration, with the Committee of the Whole primarily concentrating on what became the 134 paragraph-long 'Review Document', as reflected in item 7 of the agenda for the Review Conference.

In addition, Mrs Maria Dulce Silva Barros of Brazil chaired the Credentials Committee, which reported orally to the First Review Conference.

Political Declaration The 23 paragraph-long Political Declaration was intended to be accessible to those without an in-depth understanding of the Convention or chemical weapons. It contained a reaffirmation of commitment by the states parties to the object and purpose of the Convention, stating that its 'full, universal and effective implementation will exclude completely, for the sake of all mankind, the possibility of the use of chemical weapons, which is prohibited by the Convention'. The Political Declaration contained a pledge to further strengthen the OPCW and the commitment by states parties to comply with all their obligations under all the provisions of the Convention. It also urged all states not party to the Convention to join without delay and recognised the role of the Convention in the present security environment.

In addition to reaffirming various commitments and obligations specified within the Convention, some of the other issues touched on were the stipulation that States Parties should, 'without prejudice to the right to request a challenge inspection', make efforts to resolve ambiguity or concern about compliance; the OPCW's verification system and the need for it to be applied in a 'non-discriminatory, efficient and cost-effective manner'; as well as the importance of further assessing the verification regime applied to Chemical Weapons Storage Facilities (CWSFs) and Chemical Weapons Destruction Facilities (CWDFs) with a view to optimising verification measures. While noting the progress in chemical weapons disarmament, the Political Declaration also noted difficulties in the destruction of chemical weapons stockpiles. Several paragraphs were also devoted to national implementation, and to Article XI issues, amongst other things, stressing the importance of international co-operation and inviting the OPCW to enhance its programmes in this arena. The Political Declaration stated that states parties would 'continue to take account of developments in science and technology in the implementation of the Convention'.

Review Document As noted above, item seven of the report of the Review Conference was the substantive review of the operation of the Convention (known as the 'Review Document'). As previously agreed, the substantive review was conducted under the following headings: the role of the Convention in enhancing international peace and security; measures to ensure the universality of the Convention; general obligations and declarations related thereto; general provisions on verification; chemical weapons and Chemical

Weapons Production Facilities (CWPFs); activities not prohibited under the Convention; national implementation measures; consultation, co-operation, and fact-finding; assistance and protection against chemical weapons; economic and technological development; final clauses: Articles XII to XXIV; the protection of confidential information; and the functioning of the OPCW.

In the context of this necessarily brief review of progress in The Hague, any attempted summary of a document this long, which has been the subject of considerable diplomatic negotiation over a period of time both prior to and at the Review Conference, is risky and would fail to render a complete or accurate picture of the Review Document. Both it and the Political Declaration are available on the OPCW website. What can be noted is that, in addition to reiterating the obligations contained within the Convention, the document contained encouragement, recommendations and requests for action directed at the Secretariat, the Executive Council, and the states parties. A tabulation of these requests for action by the Review Conference to the Council and Secretariat, prepared by the Harvard Sussex Program, is to be found at pages 2-5 above.

In particular, the Review Conference requested recommendations, proposals or draft decisions to be submitted by the Council to the Conference of States Parties on several issues, including in relation to still-unresolved issues pertaining to the verification regime, and, if agreed, on a proposed *de minimis* rule for the notification of transfers of Schedule 1 chemicals. Contemplating action by the Conference at its next regular session in October, the Review Conference requested a recommendation on whether there is a need for other measures in relation to transfers of Schedule 3 chemicals and the need for states parties to implement end-use certification. It also requested the Council to submit proposals for recommendations and decisions regarding optimizing chemical weapons verification, with a view to implementation starting in 2004.

Significantly, and reflecting the growing attention that the issue of Article VII obligations (often referred to as the need for 'qualitative universality') is receiving, the Review Conference agreed to that the Conference of the States Parties develop at its eighth session in October 'a plan of action based on a recommendation from the Council regarding the implementation of Article VII obligations, with the objective of fostering the full and effective implementation of the Convention by all states parties'. These requests will require action at the next session of the Council, to be held in September.

Another priority issue reflected in the Review Document was universality. The Review Conference recommended that the Council, with the co-operation of the Secretariat, develop and implement a plan of action to encourage adherence to the Convention and to assist states ready to join the Convention in their national preparations to implement it. As is apparent from the Conference's requests listed above, optimization of the verification activities of the OPCW has also been identified by the Review Conference as a priority.

Open Forum An Open Forum on 'Challenges to the Chemical Weapons Ban' was held at the Peace Palace on the afternoon of Thursday 1 May. Approximately 240 people

attended, primarily from delegations attending the Review Conference. Ambassador von Wagner, the final-year chairman of the Ad Hoc Committee on Chemical Weapons of the Conference on Disarmament, gave the keynote address to the forum on the handling of toxic chemicals for law enforcement purposes, including domestic riot control purposes.

During the first part of the forum there were six presentations by NGO representatives and academics, updating the audience on chemical weapons destruction in Russia and the United States, implementing legislation, activities not prohibited, and the impact of scientific developments. The second part of the forum, during which there were four presentations, addressed the use of incapacitants in warfare and law enforcement, the general purpose criterion and the implications for international humanitarian law. The majority of questions following the presentations centred on this second part of the forum. The forum appeared well received by delegates.

On other NGO and international organisation matters, prior to the Review Conference, the OPCW (both Secretariat staff and interested delegations) received presentations by the CBACI and the ICRC. During the Review Conference, on 5 May, SIPRI also made a presentation at the OPCW.

Second Special Session of the Conference of the States Parties

Representatives of 87 states parties participated in the Second Special Session of the Conference of the States Parties, which was declared to be a private session. The session took place on the third day of the Review Conference, 30 April, and lasted for less than 15 minutes. The decision of the Conference was adopted by consensus, in contrast to the decision taken at the First Special Session (21–24 April and 25 July 2002) to terminate the tenure of the then Director-General.

The session had been convened at the request of the Executive Council, with the only substantive agenda item being the tenure policy of the OPCW. In March, the Council had adopted 2 July 1999 as the effective starting date for the seven-year total length of service for the over 300 Secretariat staff subject to tenure at this moment, an issue which had been outstanding since 1999. The Council had also made a number of recommendations to the Conference regarding the modalities of the implementation of the tenure policy. Those recommendations were all accepted and adopted at the special session of the Conference without change.

The Conference therefore decided that the average rate of turnover, beginning this calendar year, shall be one-seventh per year. As an exceptional measure, so as not to compromise the finances or operational effectiveness of the OPCW, the Director-General shall, until 1 January 2009, be authorized to grant contract extensions beyond the seven-year total length of service. However, by 31 December 2009, no member of staff subject to the tenure policy who has served more than seven years shall remain on staff at the OPCW. The Conference reaffirmed the Director-General's authority to not extend or renew contracts for staff who have served less than seven years. It also reaffirmed the need for decisions by the Director-General on contracts to contribute to, and be consistent with, faithful implementation of the overall tenure policy.

Executive Council

The thirty-third session of the Executive Council took place during 24–26 June. This was the first Executive Council session chaired by Ambassador Petr Kubernát of the Czech Republic. It was also the first session during which there was consideration of the OPCW's draft Programme and Budget for 2004. The final report of the session was not yet available at the time the *Bulletin* went to print — the following represents the HSP Hague Researcher's understanding of the outcomes of the thirty-third session of the Executive Council.

The Vice-Chairpersons and co-ordinators for clusters of issues reported to the Council on informal consultations during the intersessional period: Ambassador Arróspide of Peru on chemical weapons issues; Ambassador Olbrich of Germany on chemical industry and other Article VI issues; Ambassador Azar of Iran on administrative and financial issues; and Mr Makwarela on behalf of Ambassador Jana of South Africa on legal, organizational, and other issues. The Chairman also reported on his own activities on behalf of the Council. The need for facilitators in regard to a number of issues was reiterated by the Chairman and several of the Vice-Chairpersons.

The Director-General delivered a long opening statement to the Council, taking stock of the situation some 11 months after his appointment by the Council. The Director-General touched briefly on the Review Conference, stating that it had been a 'great success' and had 'reaffirmed fundamental commitments'.

Concentrating on budgetary issues, the Director-General noted that the draft programme and budget for 2004 seeks an 8.36 per cent increase in 2004, of which almost three per cent was stated to result from implementation of the tenure decision, and five per cent is due to fixed costs. The Director-General addressed six areas in the draft budget which were stated to be of concern to member states: International Co-operation and Assistance (ICA) funding; staff turnover costs; the increased budget for official travel (an almost 128 per cent increase over 2003); training costs; the ability to reactivate four frozen staff posts; and the appointment of consultants to the Organization. On the issue of consultants, the Director-General stated that consultants had been appointed to deal with the following issues: planning the migration of hardware; the staff recruitment process; the transition to Result-Based Budgeting; the 'legal sector' (including the tenure issue and an 'important case' filed in the ILO); optimization measures and cost-saving proposals on verification activities; universality in connection with Latin America; and universality with specific reference to 'the Korean peninsula'.

Other issues addressed by Mr Pfirter in his opening statement included: implementation of the tenure policy; Article IV and V reimbursements; delays in the provision of documentation to the Council and the internal review underway to investigate this; progress in Russian destruction; and an update on activities conducted by the OPCW.

The outcome and recommendations of the Review Conference were touched on by most of the Executive Council members making statements in General Debate. In particular, attention was drawn to the need for further activity by the Council as a result of the Review Conference; it was also asked why the agenda for this thirty-third session of the

Council did not include an item relating to follow-up to the Review Conference. Priority issues were considered to be action plans for promoting universality of the Convention and ensuring national implementation measures under Article VII. Another topic to which reference was made by several delegations was the need for optimisation of verification resources and activities.

The other topic often mentioned during General Debate was the draft programme and budget for 2004, with the lack of a substantial increase in funding for ICA programmes again a contentious point. In addition, the issue of the consultants hired by the Director-General exercised the Council members, with some voicing concerns about the practice and requesting transparency and others approving of the appointment of consultants.

During the period under review, informal meetings and consultations took place on the following issues: sampling procedures; the OPCW programme and budget for 2004; Article IV and V costs; the 2002 Verification Implementation Report; draft report of the Organization for 2002; schedule 2A and 2A* low concentration limits; the handbook on chemicals; status of requests for the clarification of declarations; understanding on captive use regarding declarations under Article VI, Part VII and VIII of the Verification Annex; the Declaration handbook; implementation of Section B of Part IX of the Verification Annex; progress in the destruction of chemical weapons and destruction or conversion of CWPFs.

Status of Implementation of the Convention The updated report by the Director-General on national implementation measures (relating to the second legislation questionnaire and Article VII, paragraph 5 submissions) was noted by the Council. The report contained additional information received by the Secretariat on national implementation of the Convention in ten states parties.

An updated report on the status of implementation of Articles X and XI was considered and noted by the Council. The report reflected the declarations by member states of national protection programmes under Article X, paragraph 4. For 2002, 22 states parties have made such declarations, three of which reported that they had no national protection programmes. This is a slight increase on previous years' declarations (in 2001, 19 declarations were made, in 2000, 15 declarations were made, and in 1999 only 11, etc).

The Council also received a second report on the status of the project to assist member states to meet their declaration-related obligations under Article VI. There were two parts to the project: the first, initiated in 2001, involved the Secretariat assisting states parties which had not submitted any Article VI industry declarations, as at May 2001, to identify new declarable facilities; in the second part, initiated in 2002, the Secretariat included those states parties which had previously submitted Article VI declarations. The report stated that, based on open source information and as at 30 May this year, 55 of the (then) 151 states parties were not likely to have any potentially declarable facilities under Article VI. Eleven states parties which had not yet been approached (out of a total of 19) would be contacted as soon as the project team had finalised its assessments. Of the remaining 77 states parties, 10 have submitted their first declarations of Article-VI-related facilities, 7 have provided

additional declarations, 32 have provided partial information or have reported that they are working on providing information and 12 reaffirmed that no additional declarations are required. Sixteen states parties have not yet responded.

Since the beginning of the project in June 2001, when there were 51 declaring states parties, there has been an increase to 61 declaring states parties as at the date of the report. While the report stated that most states parties had responded positively to the project, it was reported that a small number of states parties had voiced concerns about it, including concerns about the methodology used, the (lack of) authorisation under the Convention for the project, and possible dissemination of confidential information. The Council will receive a further update on the project at its thirty-fifth session in December.

The report on the optimization and efficiency of verification activities (initially provided to the thirty-second session of the Council) was considered by the Council. The report concluded that verification activities at CWSFs, CWPFs and OACWs had been optimized such that no additional general measures for optimization are currently envisaged. However, depending on the task at specific facilities, the Secretariat could consider further reduction in inspection team size on a case by case basis.

Six options were set out in relation to optimization of verification at CWDFs. Options 1–3 could be put into immediate practice. These options include: (1) continuing systematic on-site verification with a continuous physical presence; (2) eliminating inspectors' night shifts and keeping an independent inventory of incoming chemical weapons and outgoing streams, together with review of video recordings and random physical short-notice checks; and (3) as for option 2, but without verification of outgoing streams. Instead, spot checks of materials leaving the facility would be conducted. Options 4–6 would require extensive discussion with states parties. Option (4) is similar to option 3 but the accounting of items delivered would be done only by a review of the state party's records; (5) is similar to option 4, but there would be only random visits of an inspection team deployed to a facility on short notice, rather than a continuous presence during a day shift; and (6) is similar to option 5, but one inspection team would verify several destruction facilities in one state party sequentially. The report stated that budgetary implications were savings of EUR 500,000 for option 2 and EUR 700,000 for option 3. Options 4–6 could involve significant alternative savings.

In regard to Article VI inspections, the report concluded that the savings possible strongly depended on the distribution of types of inspection and size and complexity of the sites selected for inspection. The estimated cost savings were EUR 50,000 each for Schedule 1–3 inspections, and EUR 150,000 for OCPF inspections.

The Council also received an oral briefing by a consultant to the OPCW on progress made on the optimization of verification activities through more substantial use of monitoring equipment for cost-savings purposes.

The Council received a report on the status of resource savings in verification activities between 1 January and 29 April 2003. A total of EUR 89,658 was reported to have been saved in respect of inspections conducted under Articles IV, V and VI during the four month period. Less than EUR 450 of those savings, however, was in respect of Article IV and

V inspections, although the Secretariat expects that significant financial savings for the whole year will be possible in respect of CWDFs. The reduction from eight to six inspectors for CWSF inspections did not result in additional savings because this had already been factored into the 2003 budget. The substantial savings in respect of Article VI inspections were due to reduced inspection team sizes and, in some cases, a reduced duration of the inspections. For example, the Secretariat concluded that a standard team size of three inspectors can be used on a routine basis for Schedule 3 inspections, and also for OCPF sites that are less complex in terms of their activities and chemicals handled at the sites. The Secretariat also conducted, on a trial basis, two Schedule 1 inspections with teams of two members each.

The Council also considered and noted the *2002 Verification Implementation Report (VIR)*, a highly protected document, as well as the Chairman's summary of the informal consultations held on this issue on 28 May.

Destruction issues Once again, the Council received two reports, one by the Director-General and one by the Russian Federation, on progress in Russian destruction of its chemical weapons stockpiles. The note by the Director-General stated that, between the beginning of the destruction campaign on 19 December 2002 and 26 April this year, Russia had destroyed 401.4 metric tons of mustard gas, or one per cent of the Russian declared stockpile of Category 1 chemical weapons, at the Gorny CWDF. Russia has therefore met (ahead of time) the revised intermediate deadline for one per cent destruction set by the Council. In late April, Russia informed the Secretariat about its amended detailed annual destruction plan, stating that resumption of destruction operations at the Gorny CWDF would be delayed until at least 20 July. A pause in the destruction process had been signalled during the last report to the Council. The Director-General's note also stated that work was continuing on the optimization of the on-site verification regime and that agreement was close in relation to Unit 2 (mustard gas destruction). It is anticipated that the outstanding issues in relation to the facility agreement for the CWDF at Gorny should be resolved shortly, with distribution of the draft facility agreement likely at the next session of the Council.

The report by the Russian Federation on progress in destruction of chemical weapons stockpiles stated that the second process line for the destruction of lewisite at Gorny is scheduled to be brought into operation in the third quarter of 2003. By November 2003, it is expected that the maximum rate of destruction (8.8 tonnes per month) will be reached. The Russian report also contained details on construction of the Kambarka (lewisite) destruction facility, which is expected to be launched in 2007. It was stated that operation of the Gorny and Kambarka facilities should make it possible to destroy 20 per cent of Russia's chemical weapons stockpiles on time. To destroy chemical munitions filled with organophosphorus agent, a destruction facility is being set up at Shchuchye, with renewed funding from the United States. The report also stated that the Russian programme provided for detoxification facilities at Pochep, Leonidovka and Maradikovskiy, to destroy aerial bombs filled with organophosphorus agent. The financial assistance in the various construction projects by the United States, Germany, Italy, Canada, the United Kingdom, the

Netherlands, Norway and the European Union, as well as the Russian budgetary allocation, was noted.

The Council approved an agreed detailed plan for verification of destruction of chemical weapons in the United States at the Umatilla Agent Disposal Facility. The plan for the verification of destruction at the Aberdeen Chemical Agent Disposal Facility was deferred by the Council until its next session.

Conversion and Verification of Chemical Weapons

Production Facilities Also before the Council for consideration were seven combined plans for destruction or conversion and verification of CWPFs and draft decisions approving the plans. Six of these were approved: one in Bosnia and Herzegovina, one in the United States (Newport Chemical Depot); and four in Russia (one at Open Joint Stock Company (OJSC) Sibur-Neftekhim, Kaprolaktam plant in Dzerzhinsk, and three at OJSC Khimprom in Volgograd). The combined plan relating to conversion and verification at OJSC Khimprom in Novocheboksarsk (production of a VX-type substance and filling it into munitions) was deferred until the thirty-fourth session of the Council.

At its thirty-third session, the Council noted the report by the Director-General on the status of 12 former CWPFs which had been approved for conversion between 1997 and October 2002 by the Conference of the States Parties. Of those 12, one is in the United Kingdom and the other 11 are in the Russian Federation. Information on ten of the CWPFs is restricted. The report stated that certificates confirming that conversion is complete have been issued for the other two facilities: a former Ministry of Supply Agency Factory in the United Kingdom and the former Facility for Filling of Mustard Gas and Lewisite Mixture into Munitions (OJSC Khimprom, Volgograd) in Russia.

The Council's view was that, during the last regular Council session of each year, it should be fully informed by relevant states parties about the status of conversion at CWPFs located on their territories where conversion was still in progress. Additionally, the Director-General should inform the Council at its first regular session following the conduct of an annual usual inspection by the Secretariat at such CWPFs of progress made. If a change in the schedule of conversion activities at a CWPF occurs, the Council stated that it understood that an amendment to the detailed plan for conversion would be submitted to the Secretariat as soon as possible.

Facility Agreements As occurred with the detailed plans for destruction, the Council considered and approved the facility agreement with the United States relating to on-site inspections at the Umatilla Chemical Agent Disposal Facility, and deferred that relating to the Aberdeen Chemical Agent Disposal Facility.

Chemical Industry issues The Council received a verbal report on progress in respect of a draft decision on the use of the term 'captive use' when considering declarations under Parts VII and VIII of the Verification Annex and of Schedule 2A and 2A* chemicals. The Council decided to defer consideration of the facilitator's proposed draft decision on 'captive use' until its thirty-fourth session.

New Validated Data The Council approved a list of new validated data for inclusion in the OPCW Central Analytical Database. The Council also noted the report by the Director-General of an identified, cost-effective manner for inclusion of CAS numbers in the list of new validated data. This report updated the situation since December last year, at which stage it had been established that a computer-searchable file containing the structure of chemicals would be the most effective solution for identifying CAS numbers that had already been allocated. Under the present agreement between the OPCW Preparatory Commission and CAS, CAS numbers can only be made available to Secretariat staff and cannot be distributed in the OPCW's periodic publication of the OCAD. The Secretariat is preparing an updated agreement for signature by the parties to allow for such distribution. A response from CAS on the cost of distributing CAS registry numbers is awaited.

During 20–21 May, the Fifteenth Validation Group meeting took place. The report of the meeting stated that the sixth hard-copy version of the OCAD, together with the fourth electronic version, would be released during June. The group again considered naming rules, in particular for class 2.B.10, 2.B.11 and 2.B.12 compounds and decided to re-examine them to bring the naming of these compounds into line with the naming practices in the Convention. The group will also develop guidelines governing the removal of existing data on the OCAD. Re-evaluation of a number of mass spectra was undertaken. The report also noted that the group had been asked by the Secretariat to produce lists of unscheduled degradation products of scheduled chemicals, in particular Schedule 1 chemicals and riot control agents, for which analytical data should be gathered and evaluated. The group recommended guidelines to be taken into account when extending the list of unscheduled degradation products of scheduled chemicals.

Financial issues The Council received reports on the OPCW's income and expenditure for the months of March, April and May. As of 31 May, 45.7 per cent of the assessed contributions for 2003 had been received. Seventy-two states parties had fully paid their assessed contribution, and thirteen had partly paid. The amount outstanding was EUR 30,692,789. Japan noted in General Debate that these figures did not reflect that it had paid its assessed contribution for the year.

In regard to Article IV and V reimbursements of verification costs over the period 1997-2003, a total of over EUR 2 million remains outstanding. Looking at Article IV and V reimbursements for this calendar year, EUR 3.9 million in reimbursements has been budgeted for. To date, EUR 1,182,164 has been invoiced. Of that, EUR 10,448, or 0.9 per cent, has been collected.

At its thirty-third session, the Council reviewed the situation regarding payment of Article IV and V invoices issued in respect of 2002 (and 2003 invoices to date). It urged the relevant states parties and the Secretariat to 'enhance efforts to achieve prompt issue and payment of invoices', as far as possible in the same year as the inspection activity takes place.

The Council also renewed its request, made at its twenty-eighth session, to those states parties 'able and willing to do so' to consider payment at the beginning of each

financial year, of an 'appropriate proportion' of the Article IV and V verification costs likely to be incurred during that year.

The Council recommended to the eighth Conference of the States Parties that it decide, when adopting the 2004 programme and budget, that all transfers of funds from the Working Capital Fund for the purpose of financing budgetary appropriations in 2004 should, as an exceptional measure, be reimbursed to the Fund as soon as possible, but no later than the end of 2005.

The Council was also notified by the Director-General on transfers made between or within OPCW programmes in 2002, as required by the OPCW Financial Regulations. The note stated that in no instance did the total of all transfers in 2002 exceed 15 per cent of the original appropriation for the programme to which the transfer was made. The most common explanation for the transfer was to fund items that had been underfunded in the 2002 budget, particularly salaries and common staff costs.

As noted above, the Council received the draft OPCW Programme and Budget for 2004, which it will consider further during its thirty-fourth session.

The Advisory Body on Administrative and Financial Matters (ABAF) met for its fourteenth session during 9–14 June. The Council received the ABAF's report and decided to consider it further at its next session. It also noted that the report recommended approval by the Council of the Director-General's note on proposed amendments to draft Financial Rule 9.1.02. The Council noted the resignation of Lauren Flejzor, Amir Shadani, and C.H. Kim from the ABAF and approved the appointment of John Fox, Sajjad Kamran and S.S. Lee, of the United States, Pakistan and the Republic of Korea respectively, with application retrospective to the date of nomination.

Anti-Terrorism Mr Blum of the United States reported to the Council as facilitator of the Open Ended Working Group on Terrorism. In its meetings so far, the group has focussed on the issues of universality and Article VII obligations, issues highlighted by the Review Conference as requiring action plans.

Provisional Agenda for Eighth Session of the Conference The Council considered and drew up the draft provisional agenda for the eighth session of the Conference of the States Parties in October.

Follow-up to the Review Conference Although not an item on the agenda for the Executive Council, the Council included in the report of its thirty-third session a statement noting with satisfaction the outcome of the Review Conference and noting the need for a number of follow-up actions. The Council decided to include these various issues in its work programme.

Member States

Timor Leste became the 152nd state party to the Chemical Weapons Convention with its accession on 7 May, with entry into force occurring on 6 June. This was followed by the accession of Tonga on 29 May, with entry into force of the Convention occurring for Tonga on 28 June, raising the

number of states parties to 153. According to the OPCW website, there remain 25 signatory states and 16 states not party to the Convention.

During the first half of 2003, voluntary contributions have been made by Japan (funding for the Associate Programme, a National Authority Personnel course in Singapore and a voluntary contribution for training), the Netherlands (pledge for a regional workshop held in the Netherlands Antilles), the United Kingdom (pledge for the regional workshop in the Netherlands Antilles, funding for the Associate Programme and procurement of GC/MS systems), Norway and Blucher GmbH of Germany (funds for implementation of Article X), Australia (funding for the Thailand workshop) and Kuwait (funding for the promotion of universality, particularly in Africa).

Secretariat

Declaration Processing As at 30 June, 146 member states had submitted initial declarations, with Guatemala, Mozambique, Nauru, Saint Vincent and the Grenadines, Thailand, Timor Leste and Tonga yet to do so. Ten states parties continue to have incomplete initial declarations. Fifty-nine states have submitted annual declarations of past activities for 2002, and 41 states parties have submitted annual declarations of anticipated activities for 2003.

Inspections and Verification As of 27 June, 1,494 inspections at 633 sites had been completed, or were ongoing, in 56 states parties and one state non-party since entry into force. The breakdown of inspections is as follows: 340 at CWDFs, 290 at CWPfFs, 208 at CWSFs, 20 to ACW sites, 45 to old chemical weapons sites, 7 to destruction of hazardous chemicals sites, 1 to an emergency destruction of chemical weapons site, 120 to Schedule 1 facilities, 222 to Schedule 2 facilities, 103 to Schedule 3 facilities, 137 to DOC sites and 1 other. During 2003, 166 inspections at 129 sites have been, or are being, carried out.

Destruction Official destruction figures reflect that, as at 30 June, 7,697 metric tons of chemical agents, out of a declared total of 69,883 metric tons, had been destroyed. Some 1,929,971 munitions/containers, out of a declared total of 8,625,219 had also been destroyed.

According to the Director-General's statement to the thirty-third session of the Council, destruction and verification activities are continuing as expected. In the United States, destruction commenced at the Aberdeen facility in April, and the Tooele Chemical Agent Disposal Facility was reported to have started its VX campaign on 28 March. Preparations were said to be underway in respect of the Anniston and Pine Bluff chemical agent disposal facilities. In a state party of withheld identity, a destruction campaign began on 10 March and was said to be progressing normally. As outlined above, one per cent of the Russian declared Category 1 stockpile has now been destroyed.

Implementation of Article X During 28 March–4 April, an investigation of alleged use (IAU) of chemical weapons exercise was carried out at Vyskov in the Czech Republic, jointly organised by the OPCW and the Czech government. The exercise was conducted in order to provide training in an

IAU initiated under Article X, paragraph 9 of the Convention. It was based on a request for assistance and protection by a state party alleging use of chemical weapons by a state not party.

At the NBC Training Centre in Spiez, Switzerland, the sixth Chief Instructor Training Course (CITPRO VI) was attended by 36 participants from 27 member states, training in detection, decontamination and civilian CW protection, during 6–11 April. Also in Spiez, the Swiss Emergency Field Laboratory Training Programme (SEF-LAB VII) was held during 29 April–2 May. The course provided training for 16 chief instructors from member states. During 12–16 May, a chemical weapons civil defence training course for 15 chief inspectors from 14 states parties was held in Lazne Bohdanec in the Czech Republic.

During 26–30 May, 39 participants from 26 countries attended the fifth annual course on the medical aspects of the defence against chemical weapons, held in Tehran at the International Medical Centre for Training and Treatment against Chemical Weapons.

During 2–4 June, an international workshop on co-ordination of the provision of assistance under Article X took place in the Slovak Republic. A National Protection Course was held in Armenia during 8–11 June. An Assistance and Protection National Capacity Building Course was held in Kyrgyzstan, during 23–27 June, and another assistance and protection national capacity building course is scheduled for 25–29 August in Kazakhstan.

In late March, an invitation was issued for participation in the Seventh Annual workshop to co-ordinate assistance and protection under Article X. The workshop will be held in Stockholm during 13–17 October.

Implementation Support Three National Authority Training Courses were held during the period under review: one in Manila, the Philippines, during 21–24 April; one in Quito, Ecuador, during 28 April–2 May; and the third in La Paz, Bolivia, during 5–9 May.

A Basic Course for National Authorities was held in The Hague during 2–6 June. The course, intended to increase the ability of states parties to comply with their obligations under the Convention, was attended by representatives of 38 states parties. Over the next few months, National Authority courses are scheduled for Costa Rica (10–11 July) and Colombia (14–16 July). An Advanced Course for personnel involved in national implementation of the Convention will be held in The Hague during 28 July–1 August. The Fifth Annual Meeting of National Authorities will take place in The Hague during 17–19 October.

The first regional meeting of National Authorities in Africa, which had been postponed from 19–21 April, will now be held during 27–29 August in Khartoum, the Sudan. A regional workshop for National Authorities in Central Asia on the practical implementation of the Convention is scheduled for 10–12 September in Tashkent, Uzbekistan. The first regional meeting of National Authorities in Asia, previously scheduled to take place in Singapore during 14–16 May, has been postponed — no new dates have yet been announced.

The first regional seminar on the role of the chemical and other relevant industries in the implementation of the Convention in Latin America and the Caribbean was held in

Mexico during 10–13 June. The seminar, attended by National Authority representatives responsible for relations with the chemical industry and chemical industry association representatives, was intended to be a forum for discussing issues related to the practical implementation of the Convention. Amongst other things, topics on the agenda included the declarations required under the Convention, inspection requirements and international co-operation.

Implementation of Article XI The 2003 Associate Programme, with 24 participants taking part this year, began on 28 June and will conclude on October 3.

An internship for development of analytical skills will take place during 1 May–31 October.

Proficiency Testing, Sampling and Analysis In April, the Director-General released notes evaluating the results of the Twelfth Official OPCW Proficiency Test, held during 17 October–28 February, and reporting the status of laboratories designated for the analysis of authentic samples. Nineteen laboratories representing 17 states parties participated in the proficiency test, with the Agency for Defence Development, CB Department in the Republic of Korea preparing the test samples and the Defence Procurement Agency, Spiez Laboratory in Switzerland evaluating the test results. Sixteen of the 19 laboratories met the adopted criteria and could be scored. Of those 16, eight identified all the spiked chemicals and reported them with sufficient analytical data.

In respect of the status of laboratories, 15 laboratories from 14 member states have been designated. Of this number, four laboratories, from the Czech Republic, Poland, Sweden, and the Russian Federation, are temporarily suspended. The 11 not suspended are laboratories in China, Finland, France, Germany, the Netherlands, the Republic of Korea, Singapore (the newly designated Verification Laboratory, Centre for Chemical Defence, DSO National Laboratories), Switzerland, the United Kingdom and two laboratories in the United States — in addition to the Edgewood centre, the University of California Lawrence Livermore National Laboratory has been newly designated.

The OPCW, together with VERIFIN, has invited applications from representatives of laboratories in member states to take part in an international workshop on the analysis of chemicals related to the CWC. The workshop will be held at the University of Helsinki during 8-13 September. The workshop is particularly aimed at those laboratories active in the analysis of CWC-related chemicals and that participate or are intending to participate in the OPCW proficiency tests.

In May, the Director-General issued a note on preparations by the Secretariat to undertake sampling and analysis. The note provided an assessment as to the Secretariat's current capability to conduct on- and off-site analysis. It also described an exercise carried out in January and February this year to test the sampling and analysis procedure — the exercise was deemed to be a success and to demonstrate the readiness of the Secretariat to conduct off-site sampling and analysis.

Challenge Inspection Exercise In late March, the Director-General released a note on a challenge inspection tabletop exercise, held on 17 February. The exercise was designed to practice the revised draft standard operating procedure for

challenge inspections at the Secretariat and to identify areas where readiness could be enhanced. While it was concluded that all essential steps for preparation and planning by the Secretariat had been taken, the exercise highlighted some matters which the Executive Council may wish to consider. These included: that there is no procedure to ensure that the Council receives the challenge inspection request at the same time as the Director-General; that clarification may be needed as to what constitutes receipt by the Council of a challenge inspection request; the possible need for visas to be issued to inspectors at short notice; the difficulties involved in the logistics of quickly getting an inspection team and equipment to the point of entry; and the fact that by the end of 2002, only 81 states parties had provided standing diplomatic clearance numbers for non-commercial aircraft.

Legal Issues In late March, the Office of the Legal Adviser issued a prioritised checklist for non-possessor states parties, outlining general obligations under the Convention and related tasks. The checklist is designed for states intending to adhere to the Convention or those with new National Authorities. It is prioritised chronologically, identifies the tasks required and gives a time frame, the Convention reference, and name of the contact person in the Secretariat.

Toward the end of May, the OPCW released a note inviting states parties to nominate experts to take part in a network of legal experts which is to be established. The note stated that, as of 7 May, only 82 states parties (54 per cent) had complied with their Article VII, paragraph 5 obligation to inform the Organisation of legal and administrative measures taken to implement the Convention. The Network will be similar to that created in 2000 in Latin America and the Caribbean, and will have the objective of increasing the OPCW capacity to assist states in implementing their Article VII obligations by creating a framework for states parties to offer bilateral legal assistance. The Secretariat will convene a meeting of the nominated experts in The Hague during 3-7 November.

Official Visits The Director-General visited Switzerland during 7–8 April, and the Czech Republic during 18–20 May. This was followed by a visit to Mexico during 11–13 June, to coincide with the chemical industry seminar held there. On 26 June, the Director-General attended the Geneva Forum for the destruction of chemical weapons, which concentrated on minimising the risks to implementation of the G-8 Global Partnership Initiative. The Director-General attended the African Union summit during the second week of July.

A visit of Brussels-based representatives to the OPCW took place on 2 April. On 17 April, a delegation from the National Defence College of Pakistan visited the OPCW, and the Foreign Secretary of Pakistan visited the OPCW on 19 May. On 30 May, a group of over 20 Sudanese diplomats visited the OPCW as part of their study programme at the Clingendael Institute. On 5 June, the Foreign Secretary of the Republic of Tunisia visited the OPCW. On 23 June, the US Deputy Assistant Secretary for Defense met the Director-General. In late June, the Director-General met with General Kholstov, the new head of the Russian Munitions Agency, and with a representative of the Office of the Director of Non-Nuclear Arms for the Department of Defense.

Outreach Activities A workshop on universality of the Convention, jointly organised by the OPCW and Thailand, was held in Thailand during 10–12 March. Aiming to draw together officials and experts from states not party to the Convention in the Asian and Pacific region, the workshop had 45 participants from 16 states, including: Bhutan, Cambodia, Kyrgyzstan and Myanmar (signatory states), and the Solomon Islands, Timor Leste, Tonga, and Tuvalu (then states not party), as well as the then-contracting state of Palau. Financial support for the workshop came from Australia, New Zealand and the United Kingdom. The workshop was also attended by a representative of the UN Department of Disarmament Affairs.

A universality and legislation seminar was held in Sint Maarten, the Netherlands Antilles, during 20–22 May, jointly hosted by the Netherlands and the OPCW. Twenty-three participants from eight states not party (Antigua and Barbuda, Bahamas, Barbados, Belize, Grenada, Haiti, Honduras, and Saint Kitts and Nevis), as well as representatives from several states parties, attended the seminar. Both the Netherlands and the United Kingdom provided voluntary contributions to help finance the seminar.

Staffing As of 13 June, the actual personnel strength of the OPCW was reported as 516. Of those, 450 staff members are on fixed-term contracts, and 314 are P-level staff. For the June–August period, it was reported that seven fixed-term staff members would be departing the Organisation, including two members of the Inspectorate (one Team Leader).

Subsidiary Bodies The final report of the Fifth Session of the Scientific Advisory Board was issued in April, the fifth session itself having taken place during 4–5 February. The SAB reported that Claude Eon of France would continue as Chairman of the SAB until the end of the First Review Conference and that Will Carpenter of the United States had

resigned from the SAB for health reasons. The SAB will elect a new Chairman and Vice Chairman at its next regular session.

The SAB reported that it had completed and adopted its report to the Review Conference. Looking to the work ahead, the SAB considered that a temporary working group on biomedical samples ought to be formed as soon as possible so that its work might begin. The SAB also stated that it looked forward to being called upon to assist in upcoming discussions on optimization of the verification regime and that it was interested in having discussions with representatives of states parties on its recommendations and findings to date.

The fifth meeting of the Confidentiality Commission, after a hiatus of over two years, took place during 26–27 May.

Future Work

With the summer break about to begin, consultations and meetings will soon be on hold. However, consultations on the Draft Programme and Budget of the Organisation for 2003 began during the last quarter and will increase in the next few months in the lead-up to the eighth session of the Conference of the States Parties in October. Also before the summer break, the Chairman of the Executive Council will hold informal consultations on the way forward with the action plan on Article VII implementation and the action plan on universality.

The Council will meet again for its thirty-fourth session in September. In addition to the budget, a number of recommendations issued by the First Review Conference will require the attention of states parties, the Secretariat and the Council in the near future.

This review was written by Fiona Tregonning, the HSP researcher in The Hague.

News Chronology

February through April 2003

What follows is taken from issue 60 of the Harvard Sussex Program CBW Chronicle, which provides a fuller coverage of events during the period under report here and also identifies the sources of information used for each record. All such sources are held in hard copy in the Sussex Harvard Information Bank, which is open to visitors by prior arrangement. For access to the Chronicle, or to the electronic CBW Events Database compiled from it, please apply to Julian Perry Robinson.

1 February Bulgaria is in the process of forming a 150-member voluntary chemical, biological and nuclear corps, with a view to its possibly being deployed to Iraq should conflict break out. According to Chief of General Staff of the Bulgarian Armed Forces General Nikola Kolev, “the contingent will be ready to operate on Bulgarian territory as well, because [Bulgaria is] not fully protected against terrorist acts [involving chemical, biological or nuclear] weapons”.

3 February Palau deposits its instrument of accession to the CWC with UN Secretary-General. In thirty days, Palau will become the 149th party to the Convention.

3 February Georgian President Eduard Shevardnadze says he has information that, although not complete, definitively proves that Iraq is producing chemical and biological weapons.

3 February In Beirut, Hezbollah leader Sheik Hassan Nasrallah says that a recent allegation — carried by *Janes Foreign Report* and picked up by some Israeli newspapers — that Hezbollah possesses weapons of mass destruction, “has no basis of truth whatsoever”. It is, he says, “a ridiculous accusation that has no value”.

3 February The UK government publishes a dossier entitled *Iraq — Its Infrastructure of Concealment, Deception and Intimidation*.

3 February The UK Home Office releases *Strategic National Guidance — The Decontamination of People Exposed to Chemical, Biological, Radiological or Nuclear (CBRN) Substances or Material*. The purpose of the Guidance is to “provide all those involved in the decontamination of people

exposed to CBRN substances or materials with a common set of principles, using common terminology, and with a shared and agreed understanding of each others' roles and responsibilities".

3 February In the UK House of Commons, Armed Forces Minister Adam Ingram states: "The United Kingdom considers that non-lethal weapons have potential military uses, where such uses are compatible with international legal obligations". He says that whilst the Ministry of Defence has held bilateral discussions on non-lethal weapons with the US military representatives [see also 4 Nov 02], "no joint developments of non-lethal weapons with United States are currently planned".

3 February US President George Bush requests \$399.1 billion from Congress for his FY04 national defence budget. The request represents an increase of around \$20 billion on last year [see 4 Feb 02]. It is proposed that the US Chemical-Biological Defense Program receive a \$200 million increase, i.e. \$1.1 billion, so as to extend chemical and biological protection to around 200 installations, increase Army biological detection capabilities, and combat new chemical agent threats. On, Project Bioshield [see 28 Jan], for which \$6 billion is being requested, Bush says — during a speech at the US National Institutes of Health: "[T]he government will have the spending authority to purchase these vaccines in huge amounts, sufficient to meet any emergency that may come. [It] will give our scientific leaders greater authority and flexibility in decisions that may affect our security. Our labs will be able to hire the experts, get more funding quickly, and build the best facilities to accelerate urgently needed discoveries".

4 February Iraqi President Saddam Hussein says: "Iraq has no weapons of mass destruction whatsoever. We challenge anyone who claims that we have to bring forward any evidence and present it to public opinion". This is said during an interview with former UK Member of Parliament Tony Benn in Baghdad.

4 February In Paris, Marcus Klingberg, 83, gives his first interview since completing his twenty-year prison sentence in Israel two weeks earlier. He had served the last five years of his sentence under house arrest on the grounds of ill health [see 3 Sep 98]. He relates how — during his time at the Ness-Ziona Biological Research Institute in Israel — he would rendezvous with a Soviet agent, who he knew only as 'Victor'. Klingberg had worked at the said Institute from 1957 until 1983. He insists that he never harmed Israel's security. "To this day I don't consider myself a spy. I handed over some information", says Klingberg.

4 February The US Department of State imposes sanctions on the Indian corporation NEC Engineers Pvt Ltd and its president, Hans Raj Shiv [see 9 Jul 02], for 'knowingly and materially contributing to Iraq's chemical/biological weapons programme'. The sanctions — which are to remain in force for at least twelve months — prohibit the US government from contracting for goods or services from, or importing any products manufactured by, NEC Engineers Pvt Ltd and Shiv. The sanctions are imposed under the Chemical and Biological Weapons Control and Warfare Elimination Act of 1991. US State Department spokesman Richard Boucher refuses to list the specific goods involved or to confirm whether Iraq has received them, saying only that the Indian media had reported [see 26 Aug and 21 Oct 02] the company as having "sent 10 shipments containing titanium vessels, filters, titanium centrifugal pumps, atomized and spherical aluminium powder, and titanium anodes to Iraq". The decision to impose sanctions on the said entities appears two weeks later in the US Federal Register.

5 February In New York, US Secretary of State Colin Powell addresses a specially convened session of the Security Council, on Iraqi possession of weapons of mass destruction. He plays recordings of intercepted conversations between Iraqi officers that he claims evidences a deliberate intention to deceive the UN weapons inspectors. He also presents various slides and some satellite imagery that he claims shows the Iraqi military relocating weapons of mass destruction. Some conceptual drawings are also adduced to illustrate what an Iraqi mobile biological-weapons laboratory might look like. "[E]very statement I make today is backed up by sources, solid sources. These are not assertions. What we are giving you are facts and conclusions based on solid intelligence", says Powell. On the UK government's dossier *Iraq — Its Infrastructure of Concealment, Deception and Intimidation* [see 3 Feb], he says: "I would call my colleagues' attention to the fine paper that the United Kingdom distributed yesterday which describes in exquisite detail Iraqi deception activities". Powell concludes thus: "Operative paragraph four of UN Resolution 1441 [...] clearly states that false statements and omissions in the declaration and a failure by Iraq at any time to comply with and cooperate fully in the implementation of this resolution shall constitute — the facts speak for themselves — shall constitute a further material breach of its obligation. [The demand for an honest declaration from Iraq] was designed to be an early test. They failed that test. By this standard, the standard of this Operative Paragraph, I believe that Iraq is now in further material breach of its obligations. I believe this conclusion is irrefutable and undeniable". Iraqi Foreign Minister Naji Sabri later transmits a letter to UN Secretary-General Kofi Annan rejecting Powell's accusations.

5 February US Secretary of Defense Donald Rumsfeld, testifying before the House Armed Services Committee, alludes to possible future use by US forces of "non-lethal riot agents", in the event of conflict with Iraq. Responding to a question from Congressman Martin Meehan, Rumsfeld says: "I regret to say that we are in a very difficult situation. There is a treaty that the United States signed, and there are existing requirements that, without getting into details, require — let me put it this way, absent a presidential waiver, in many instances, our forces are allowed to shoot somebody and kill them but they're not allowed use a non-lethal riot control agent, under the law. It is a very awkward situation. There are times when the use of non-lethal riot agents is perfectly appropriate, when transporting dangerous people in a confined space, in an airplane, for example, when there are enemy troops, for, example, in a cave in Afghanistan and you know that there are women and children in there with them, and they're firing at you and you have the task of getting at them, and you'd prefer to get at them without also getting at women and children, and non-combatants ... We are doing our best to live within the straitjacket that has been imposed on us on this subject, and trying to find ways that we can write things [i.e., rules of engagement] in a way that people can understand them and function and not break the law and still, in certain instances, be able to use non-lethal riot agents."

5 February The US Food and Drug Administration (FDA) announces its approval of pyridostigmine bromide as a pre-treatment against the nerve gas soman, for military personnel. A statement released by the FDA reads: "[Animal testing] shows that administration of the drug before exposure to Soman, together with atropine and pralidoxime given after exposure, increase survival ... [M]ilitary personnel must carefully follow instructions and use the drug only under specific circumstances. For example, if US troops faced the threat of exposure to Soman, they would be given instructions to take pyridostigmine bromide every 8 hours prior to the anticipated

exposure. Soldiers will be warned that the drug is not effective and should not be taken at the time of, or after exposure to Soman ... The approved dose of pyridostigmine bromide for Soman pretreatment is one 30-mg tablet every 8 hours...". Pyridostigmine bromide is the first drug to be approved under a regulation that entered into force on 30th June 2002, which permits animal data to be used in assessing a drug's effectiveness, where human testing is neither feasible nor ethical. [See also 19 Oct 99.]

6 February UK Prime Minister Tony Blair says he believes that the ricin recently seized in London [see 5 Jan] could have been manufactured in Iraq. "The poison factory in northern Iraq not strictly under the control of Saddam is run by operatives that have people in Baghdad and stuff that they are producing, that includes ricin and other poisons, we believe is dispersed around the world. I'm not sitting here and saying that is why we are taking action against Saddam. It isn't, but it would not be correct to say there is no evidence linking al-Qa'ida and Iraq". His comments are made during a special BBC Newsnight television programme.

6 February In Spokane, Washington, a district court hears testimony that a US military intelligence officer stole boxes of top-secret national security documents relating to, amongst others, chemical and biological weapons matters. It also hears, that his wife distributed them to a variety of recipients, including a Neo-Nazi organization based in North Carolina. FBI agent Leland McEuan is testifying at the hearing, at which Raphael and Deborah Davila are applying for release on bail. Both had been charged two weeks previously with illegally retaining national defense documents, and Deborah Davila with the additional crime of attempting to sell the said documents for profit, as well as lying to the FBI.

8-9 February In Baghdad, UNMOVIC Executive Chairman Hans Blix and IAEA Director-General Mohammed ElBaradei meet with Iraqi officials to discuss Iraqi compliance with Security Council resolution 1441, ahead of their next briefing to the Security Council on 14 February [see also 19-20 Jan]. Iraqi officials address a number of outstanding disarmament issues and hand over a number of papers relating thereto which, however, are subsequently found not to resolve the said issues. Other matters being discussed include the possibility of verifying, through technical and analytical methods, the quantities of biological agents and chemical precursors that had been declared as having been unilaterally destroyed. The establishment of Iraqi Commissions to search for proscribed items and relevant documents is also being discussed, as is the necessity of Iraq permitting the IAEA and UNMOVIC to conduct private interviews. Iraq is also being pressured to enact national legislation in accordance with the monitoring plan [see 26 Nov 93] approved by the Security Council in resolution 715 (1991).

10 February In the UK House of Commons, Secretary of State for Defence Geoff Hoon says that use by the UK of nuclear weapons "would only be contemplated in extreme circumstances of self defence". He adds: "Those, at every level, responsible for any breach of international law relating to the use of weapons of mass destruction will be held personally accountable". Hoon is responding to a question concerning the hypothetical use of chemical or biological weapons by Iraq in any future conflict therewith. During an interview eight days previously, Hoon had said that Saddam Hussein "can be absolutely confident" that the UK was willing to use nuclear weapons "in conditions of extreme self-defence".

10 February At UN headquarters, the permanent representatives of France, Russia and Germany transmit a joint

declaration to the President of the Security Council, stating that they "favour the continuation of inspections [in Iraq] and the substantial strengthening of [UNMOVIC's and the IAEA's] human and technical capabilities by all possible means". The declaration follows recent visits to Berlin and Paris by Russian President Vladimir Putin to discuss the Iraq crisis. The said declaration states: "The inspections [...] have already yielded results [...] The Russian Federation, Germany and France note that the position they express coincides with that of a large number of countries, within the Security Council in particular."

10 February The US Department of Homeland Security urges families to purchase, amongst others, supplies of duct tape and plastic sheeting in order to seal their homes in the event of a chemical or biological attack. The Department says that most of its advice is based on disaster-preparedness programmes run by the American Red Cross and the Federal Emergency Management Agency. Two days later, the FBI's National Infrastructure Protection Center advises thus: "Most (chemical, biological, radiological and nuclear) threats represent an inhalation or contact hazard. To minimize further contamination, individuals who come in contact with an unusual substance should cover their mouths with a cloth while leaving the area, avoid touching surfaces, and wash their hands thoroughly."

11 February In the UK, only 8,103 of around 16,500 armed forces service personnel destined for Iraq have thus far accepted the offer to receive the anthrax vaccine, according to Parliamentary Under-Secretary of State for Defence Lewis Moonie.

11 February US Under Secretary of Defense for Policy Douglas Feith says that in the event of armed conflict with Iraq, US troops — once having located weapons of mass destruction sites — would then have to "secure the relevant weapons or facilities, or rapidly and safely disable them". He continues: "After hostilities, we will have to dismantle, destroy or dispose of nuclear, chemical, biological and missile capabilities and infrastructure". His comments are made before a Senate Foreign Relations Committee hearing on The Future of Iraq.

11 February In the US Senate, during a Select Intelligence Committee hearing on Current and Projected National Security Threats to the United States, Senator Carl Levin asks Director of Central Intelligence George Tenet to give "an approximate percentage" of Iraqi sites suspected of housing weapons of mass destruction that have been shared with UNMOVIC. Tenet replies: "[T]here is a collection priority list [...] of sites that we have held over many, many years. The vast majority of these sites are low priority and against which we found little data ... We have given them everything we have and provided every site at our disposal [...] we have held nothing back from sites we believe based on credible intelligence could be fruitful for these inspections". Levin says that this "is a very different statement" to what the Committee had previously been told., to which Tenet replies: "I was briefed last night, and I think we owe you an apology. I don't know that you have gotten the full flavor of this. But in going through this last night, I can tell you with confidence that we had given them every site."

The next day, before the Armed Services Committee hearing on Worldwide Threats to US National Security, Tenet qualifies his aforementioned remarks to Levin: "As I said yesterday, we have briefed all [...] high value and moderate value sites to UNMOVIC and the IAEA. Of the remaining sites of lower interest on this suspect site list, I had my analysts review all of them last night to see what we had shared with UNSCOM, with UNMOVIC, and with the IAEA. We identified a handful, one handful of sites which may not have been known to the UNSCOM [*sic*] inspectors that we will pass to them."

12 February US President George Bush transmits a letter to Congress in which he certifies — pursuant to Condition 7(c)(l) of the Senate resolution of advice and consent to ratification of the CWC — the ‘effectiveness of the Australia Group’. This annual certification requirement repeats, verbatim, previous certifications [see 17 Jan 01].

12 February Guatemala deposits its instrument of ratification to the CWC with UN Secretary-General. In thirty days, Guatemala will become the 150th party to the Convention.

14 February In Iraq Saddam Hussein issues a presidential decree forbidding the production or import of nuclear, chemical or biological weapons and associated matériel. The decree states: “Individuals and companies in the private and mixed sectors are banned from importing, producing, or manufacturing biological, chemical and nuclear weapons. This applies to both materials and weapons. Ministries concerned, each according to its prerogatives, shall implement this decree and do what is necessary to penalize whoever violates its provisions”. The decree is issued only hours before UNMOVIC Executive Chairman Hans Blix and IAEA Director-General Mohammed ElBaradei are due to address the Security Council. The passing of the decree satisfies one of the demands Blix and ElBaradei made of Iraq during their penultimate visit to Baghdad [see 19–20 Jan], and again a few days previously [see 8–9 Feb].

14 February South African President Thabo Mbeki announces the despatch to Iraq of a team of experts, that had assisted *inter alia* in decommissioning South Africa’s chemical and biological weapons programme. Speaking on the occasion of the State of the Nation Address to Parliament, Mbeki says: “Recently, we proposed to the Government of Iraq and the Secretary-General of the United Nations, Kofi Annan, that this team should visit Iraq ... I am pleased to inform the honourable Members that Iraq has accepted our offer, which we have already discussed with the leadership of the weapons inspectors. We trust that this intervention will help to ensure the necessary proper cooperation between the United Nations inspectors and Iraq, so that the issue of weapons of mass destruction is addressed satisfactorily, without resort to war ... To assist with regard to this last matter, we have given Iraq copies of our own legislation dealing with weapons of mass destruction, the Non-Proliferation of Weapons of Mass Destruction Act of 1993, and notices and regulations published in terms of the Act in the period between 1997 and 2002.”

14 February At UN headquarters UNMOVIC Executive Chairman Hans Blix and IAEA Director-General Mohammed ElBaradei brief an open session of the Security Council [see also 27 Jan]. Blix says: “Through the inspections conducted so far, we have obtained a good knowledge of the industrial and scientific landscape of Iraq, as well as of its missile capability but, as before, we do not know every cave and corner ... More than 200 chemical and more than 100 biological samples have been collected at different sites ... The results to date have been consistent with Iraq’s declarations. We have now commenced the process of destroying approximately 50 litres of mustard gas declared by Iraq that was being kept under UNMOVIC seal at the Muthanna site. One-third of the quantity has already been destroyed. The laboratory quantity of thiodiglycol, a mustard gas precursor, which we found at another site, has also been destroyed ... How much, if any, is left of Iraq’s weapons of mass destruction and related proscribed items and programmes? So far, UNMOVIC has not found any such weapons, only a small number of empty chemical munitions, which should have been declared and destroyed. Another matter — and one of great significance — is that many proscribed weapons and items are not accounted for. To take an example, a document, which Iraq

provided, suggested to us that some 1,000 tonnes of chemical agent were ‘unaccounted for’. One must not jump to the conclusion that they exist. However, that possibility is also not excluded. If they exist, they should be presented for destruction. If they do not exist, credible evidence to that effect should be presented ... The declaration submitted by Iraq on 7 December last year, despite its large volume, missed the opportunity to provide the fresh material and evidence needed to respond to the open questions. This is perhaps the most important problem we are facing. Although I can understand that it may not be easy for Iraq in all cases to provide the evidence needed, it is not the task of the inspectors to find it. Iraq itself must squarely tackle this task and avoid belittling the questions ... The presentation of intelligence information by the US Secretary of State [see 5 Feb] suggested that Iraq had prepared for inspections by cleaning up sites and removing evidence of proscribed weapons programmes. I would like to comment only on one case which we are familiar with, namely, the trucks identified by analysts as being for chemical decontamination at a munitions depot. This was a declared site, and it was certainly one of the sites Iraq would have expected us to inspect. We have noted that the two satellite images of the site were taken several weeks apart. The reported movement of munitions at the site could just as easily have been a routine activity as a movement of proscribed munitions in anticipation of imminent inspection.”

15 February The Israeli Lands Authority commences the spraying of land in the west of the Negev desert farmed by the Abu Kaff tribe of the Bedouin. It will repeat the operation at the beginning of March and April. Israel claims that the Bedouin — an Arab people — are squatters and that they had been warned several times not to illegally cultivate the land. “This is a double criminal act: the (ILA) acted without waiting for a court order and used chemical products”, says Bedouin deputy Taleb al-Sanna. A health clinic in Mitzpeh Ramon later claims to have treated at least 17 individuals as a result of their having been exposed to the chemicals sprayed by the so-called ‘Green Patrol’.

15 February The Helsinki *Iltta-Sanomat* reports the head of the Finnish Foreign Ministry’s Political Division, Markus Lyra, as confirming last October that the Iraqi Embassy in Helsinki sought information on suitable methods to detect and protect against anthrax, as well as advice on decontamination. Lyra says: “We did not answer [the request] at all, and there have been no further discussions”.

15 February In Denver, Colorado, the Journal Editors and Authors Group on Scientific Publishing Group and Security — comprising 32 leading journal editors — present a joint statement at the American Association for the Advancement of Science’s annual meeting [see also 14–19 Feb 02]. The third part of the statement reads: “Scientists and their journals should consider the appropriate level and design of processes to accomplish effective review of papers that raise such security issues. Journals in disciplines that have attracted numbers of such papers have already devised procedures that might be employed as models in considering process design”. The fourth part reads: “We recognize that on occasions an editor may conclude that the potential harm of publication outweighs the potential societal benefits. Under such circumstances, the paper should be modified, or not be published. Scientific information is also communicated by other means: seminars, meetings, electronic posting, etc. Journals and scientific societies can play an important role in encouraging investigators to communicate results of research in ways that maximize public benefits and minimize risks of misuse” [see also 9 Jan].

16 February In the UK, members of the intelligence community are becoming increasingly concerned by the

government's removal of "checks and balances" and its "selectively" using intelligence reports on *inter alia* Iraqi possession of chemical and biological weapons [see 24 Sep 02]. The claim is made by UK Member of Parliament Menzies Campbell.

16 February The American Society for Microbiology releases its report *Microbial Forensics: A Scientific Assessment*, which states that the USA needs to develop a microbial forensics capability to better detect and investigate acts of biological terrorism and crime. "Developing systems and methods to detect and track bioattacks will lead to greater safety and security for our nation against international terrorists. But it will also benefit the investigation of all biocrimes, including those carried out in a personal manner", says the report.

17 February In Serbia, a UK team of experts visits the Milan Blagojevic chemical factory [see 24 Mar 99] to investigate recent allegations of its being used for the manufacture of chemical weapons. "I believe this visit will have a positive effect", says President of the Serbian & Montenegrin National Commission for the Implementation of the Convention on the Prohibition of Chemical Weapons, Prvoslav Davinic.

18 February The US Army announces that a new provisional agency is to undertake the Chemical Demilitarization Program's and the Soldier Biological and Chemical Command's functions vis-à-vis demilitarization and storage of chemical weapons. The Chemical Materials Agency (CMA) is expected to become an official US Army entity by October. "The CMA brings all the parties under one roof necessary to carry out the mission of the safe storage and elimination of obsolete and ageing chemical weapons in the US", says CMA acting Director Michael Parker.

19 February In Moscow, OPCW Director-General Rogelio Pfirter says that the OPCW will offer Russia additional assistance in relation to its chemdemil programme although he declines to say whether Russia will or will not be permitted to extend its chemdemil deadline from 2007 to 2012. The announcement follows a meeting between Pfirter and Russian Munitions Agency Director General Sergei Kiriyyenko.

20 February Palau deposits its instrument of accession to the BWC with the USA, thereby becoming the 149th party to the Convention.

20 February Russian Foreign Minister Igor Ivanov says that Russia has received "alarming information" that UN weapons inspectors have been subjected to "very strong pressure in order to provoke their departure from Iraq". He further asserts that the said information indicates pressure being applied on the inspectors to present negative assessments to the Security Council that "could be used as a pretext for the use of force". Ivanov had previously blamed "certain circles" in Washington for interfering with the work of the inspectors.

20 February In the Ukraine, the National Security and Defence Council agrees to send a Ukrainian chemical and radiological battalion to the Gulf so as to assist in the decontamination in the event that chemical or radiological weapons are used in any future conflict. The decision to despatch the battalion is subject to approval by Ukraine's parliament. The previous day, US Ambassador to the Ukraine, Carlos Pascual, had requested such assistance.

23 February In Maryland, a 13-member team from Rooting Out Evil — a Canadian-based coalition of peace activists — arrives to inspect the Edgewood Chemical Biological Center, with a view to verifying whether the USA is or is not in compliance with its international obligations under the BWC and

CWC. They are refused access to inspect the facility. The team comprises parliamentarians, scientists, academics, faith leaders and union leaders, from Canada, the UK, Italy, Denmark and the USA. Prior to the team embarking upon their mission, the coalition's spokesperson, Christy Ferguson, says: "The Bush administration has repeatedly declared that the most dangerous rogue nations are those that: have massive stockpiles of chemical, biological, and nuclear weapons; ignore due process at the United Nations; refuse to sign and honour international treaties; and have come to power through illegitimate means. [I]t is clear that the current US administration poses a great threat to global security".

24 February At UN headquarters, the President of the Security Council receives a joint memorandum from the permanent representatives of France, Russia and Germany setting out their assessment of the work of the weapons inspectors in Iraq. The memorandum states: "So far, the conditions for using force against Iraq have not been fulfilled. While suspicions remain, no evidence has been given that Iraq still possesses weapons of mass destruction or capabilities in this field. Inspections have just reached their full pace; they are functioning without hindrance; they have already produced results. While not yet fully satisfactory, Iraqi cooperation is improving, as mentioned by the Chief Inspectors in their last report [see 14 Feb] ... Further measures to strengthen inspections could include [the] increase and diversification of staff and expertise; establishment of mobile units designed in particular to check on trucks; completion of the new system of aerial surveillance; systematic processing of data provided by the newly established system of aerial surveillance". The memorandum then sets out a strict timetable which the "inspections and assessment" should follow.

The next day, the USA, the UK and Spain release a draft resolution which, after setting out Iraq's 'material breaches' of Security Council resolution 1441, concludes: "Acting under Chapter VII of the Charter of the United Nations, [the Security Council] [d]ecides that Iraq has failed to take the final opportunity afforded to it by resolution 1441(2002)..."

24–25 February In Kuala Lumpur, the 12th Conference of Heads of State or Government of the Non-Aligned Movement takes place. On biological weapons, the Final Document states that they "recognised the particular importance of strengthening the Convention through multilateral negotiations for a legally binding Protocol to the Convention ... They have been deeply disappointed at the inability that has been demonstrated in the endeavours of the States Parties to the [Convention] to successfully undertake initiatives to strengthen the implementation of the Convention". As regards chemical weapons, the Final Document states: "The Heads of State or Government of the States Parties to the Chemical Weapons Convention [...] reiterated their call on the developed countries to promote international cooperation through the transfer of technology, material and equipment for peaceful purposes in the chemical field and the removal of all and any discriminatory restrictions that are contrary to the letter and spirit of the Convention."

24–25 February In Cairo, there is a symposium sponsored by UNIDIR and the League of Arab States on 'Building a Weapons of Mass Destruction Free Zone in the Middle East: Global Non-Proliferation Regimes and Regional Experiences'. It addresses matters such as global non-proliferation regimes and the role of regional organizations vis-à-vis verifications and safeguards. Practical steps for creating a weapons of mass destruction free zone in the region are also discussed.

24–25 February At UN headquarters, the UNMOVIC College of Commissioners convenes for its twelfth plenary session [see

26 Nov 02]. Observers from the OPCW and the IAEA attend the session.

25 February In Auckland, two of four letters — addressed to the US Embassy, the British and Australian High Commissions and *The New Zealand Herald* — containing white powder test positive for cyanide. The letters were written by a group calling itself ‘September 11’, which claims to possess 25 kg of “weapon grade cyanide”. The letters warn that “America, Australia and British will suffer because of foreign policies” and says “September 11 awaits at the America’s Cup for instruction if Iraq is attacked”. Three days later *The New Zealand Herald* receives another two letters, both containing cyanide and restating the aforementioned threats.

25 February UK Foreign Secretary Jack Straw responds to the report of the House of Commons Foreign Affairs Committee on the Biological Weapons Green Paper [see 11 Dec 02]. In response to the Committee’s recommendation to consider establishing an organization similar to the OPCW, he says: “[T]his was one of the major losses when the Protocol negotiations ended in failure ... [I]f as a result of the work undertaken in the Review Conference follow-up meetings over the next two to three years, it became apparent that such a proposal had the necessary support, then HMG would wish to explore with other States Parties the option of more permanent institutional arrangements as a practical proposition”. With regard to the recommendation to consider the establishment of a central authority responsible for dangerous pathogens in the UK, Straw states: “There is little evidence to suggest that a new body would manage the different approvals and enforcement regimes any more effectively than they are already. Furthermore, responsibility for each approvals mechanism is sited within Departments where there is a large body of experience and technical understanding of the issues”. In response to the Committee’s recommendation that the Government take steps to promulgate an international code of conduct for scientists working with dangerous pathogens, even before BWC states parties consider the matter in 2005, he replies: “[E]arly preparation for the meetings in 2004 and 2005 will be essential to ensure the maximum use and productive outcome of these meetings. The Government plans therefore to begin work on a code of conduct this year. The UK has volunteered to chair the work on this topic in 2005.” In relation, to the Committee’s request for the Government to outline how it hopes to proceed towards achieving greater transparency between states parties on legitimate dual-use capabilities which might be in danger of being misconstrued or misused, the Secretary of State says that this “does not depend on a single measure taken in isolation or adopted at a single moment in time”. In this regard, he says of the general purpose criterion: “The UK’s experience with the implementation of the BWC Convention can be used to initiate dialogues with other States Parties with a view to exchanging experiences and learning from best practices on the implementation of the General Purpose Criterion; this process need not be confined to the UK. The Government will encourage other States Parties to pursue similar exchanges, either bilaterally or in the context of the Review Conference follow-up work”.

25 February In the UK House of Commons, the Parliamentary Under-Secretary of State for Foreign and Commonwealth Affairs Mike O’Brien says: “All States Parties to the Chemical Weapons Convention (CWC) have undertaken not to use any toxic chemical or its precursor, including riot control agents (RCAs), as a method of warfare. This applies in any armed conflict...”. O’Brien is responding to a question on whether the prohibitions on the use of riot control agents and other disabling chemicals

as a method of warfare under the CWC would apply to any potential conflict in the Gulf.

Two days later, the Ministry of Defence issues a similar statement, Armed Forces Minister Adam Ingram telling the House of Commons that: “the use of all chemical weapons is prohibited by the [CWC, which] also prohibits the use of riot control agents (i.e., temporarily disabling agents) as a method of warfare”.

25 February The US Patent and Trademark Office grants a patent (number 6,523,478) for “a rifle-muzzle launched payload delivering projectile” that is designed to disperse *inter alia* aerosols of “crowd control agents, biological agents [and] chemical agents”. The contraption enables projectiles to be launched using “only a conventional rifle instead of a specialized launcher”, and the projectile uses “controlled pressurization of [a] frangible casing to effect a safe blowout [*sic*] and dispersal of the corresponding payload”. The patent specification states that “aerosols” are stated to “have been used extensively by the military for offensive and defensive purposes in order to incapacitate or confuse enemy troops”. Three months later, the US Army announces — following much criticism — that it intends to revise the patent. US Defense Department spokesman Don Sewell will say: “Our objective was to claim chemical and biological payloads in general, not to specify chemical or biological warfare agents ... It is clear now, in hindsight, that inserting the term chemical or biological ‘agent’ was unfortunate and that ‘materials’ may have been a better choice of words”.

26 February Italian Health Minister Gerolamo Sirchia announces the acquisition by Italy of five million doses of the smallpox vaccine as a precaution against a bioterror attack. According to Sirchia, Italy now has a sufficient stock of the vaccine to immunize its entire population which numbers around 57 million.

26 February In London, three men are charged under the Chemical Weapons Act 1996 for conspiring to make a chemical weapon between 1 and 20 January 2003. It is the first time that the said Act has been used as the basis for a prosecution. Rabah Kadre, 35, Mouloud Sihali, 27, and David Aissa Khalef, 20 will appear before Bow Street Magistrates Court — together with a number of others — later today. The charges relate to the seizure by police of traces of ricin in a flat in north London last month [see 5 Jan].

26 February–2 March In the USA, a symposium on the Biology of DNA takes place at the Cold Spring Harbor Laboratory to commemorate the 50th anniversary of the discovery of the structure of DNA. Preventing the misuse of research publications is discussed in depth. In this regard, one of the founding fathers of molecular biology, Professor Matthew Meselson of Harvard University, outlines the Harvard Sussex Program’s draft treaty on criminalization. The said draft treaty contains an *aut dedere aut judicare* obligation on states vis-à-vis “anyone who knowingly develops, produces, acquires or uses biological or chemical weapons”.

27 February Andorra deposits its instrument of accession to the CWC with UN Secretary-General. In thirty days, Andorra will become the 151st party to the Convention.

27 February The US Department of Defense approves neutralization (hydrolysis) followed by supercritical water oxidation, as the method to be used for the chemdemil of the Lexington Blue Grass Army Depot’s chemical weapons stockpile. The decision has been taken based on *inter alia* “mission needs, cost, schedule, environmental considerations, public and local community concerns, and compliance with the CWC”. The decision comes following a consultation period that

commenced following the Department's issuance of a memorandum stating that neutralization should be the "preferred alternative technology" [see 20 Nov 02].

27–28 February In Panama City, the Fourth OPCW Regional Meeting of National Authorities in Latin America and the Caribbean takes place [see 25–27 Mar 02].

28 February Russian Security Council Secretary Vladimir Rushaylo says that chemdemil at the Gorny facility [see 19 Dec 02] is "working as planned and in full compliance with international standards". He says, that a total of 180 tonnes of mustard gas have been destroyed at the facility since it commenced operations. If such pace is maintained, Russia will be able to honour its obligation to decommission one percent of its chemical weapons stockpiles by 29 April 2003, says Rushaylo.

28 February UN Secretary-General Kofi Annan submits to the Security Council the twelfth quarterly report [see 27 Nov 02] of the Executive Chairman of UNMOVIC, in accordance with Security Council resolution 1284. The report covers the activities of UNMOVIC for the period 1 December 2002 to 28 February 2003.

On the Iraqi declaration submitted under paragraph 3 of Security Council Resolution 1441 [see 7 Dec 02] the report states: "UNMOVIC experts have found little new significant information in the part of the declaration relating to proscribed weapons programmes, nor much new supporting documentation or other evidence. New material, on the other hand, was provided concerning non-weapons-related activities during the period from the end of 1998 to the present, especially in the biological field and on missile development. The part that covers biological weapons is, in UNMOVIC's assessment, essentially a reorganized version of a previous declaration provided by Iraq to the United Nations Special Commission (UNSCOM) in September 1997. In the chemical weapons area, the basis of the current declaration was a declaration submitted by Iraq in 1996 with subsequent updates and explanations ... However, some sections contained new information. In the chemical weapons field, Iraq further explained its account of the material balance of precursors for chemical warfare agents, although it did not settle unresolved issues on this subject".

The report states with regard to the activities of the inspectors: "Since the arrival of the first inspectors in Iraq on 27 November 2002, UNMOVIC has conducted more than 550 inspections covering approximately 350 sites. Of these 44 sites were new sites. All inspections were performed without notice, and access was in virtually all cases provided promptly. In no case have the inspectors seen convincing evidence that the Iraqi side knew in advance of their impending arrival ... UNMOVIC has identified and started the destruction of approximately 50 litres of mustard declared by Iraq that had been placed under UNSCOM supervision and seal at the Muthanna site in 1998. This process will continue. A laboratory quantity (1 litre) of thiodiglycol, a mustard precursor, which had been found at another site, has also been destroyed".

On the matter of UNMOVIC conducting interviews with Iraqi officials under paragraph 5 of resolution 1441, the report says: "In the review period, UNMOVIC requested 28 individuals to present themselves for interviews in Baghdad (without the presence of observers). At first, none of them agreed ... [T]he Iraqi side committed itself to 'encourage' persons to accept interviews 'in private' [see 19–20 Jan]. Immediately prior to the next round of discussions, Iraq informed UNMOVIC that three candidates, who had previously declined to be interviewed under UNMOVIC's terms, had changed their minds. UNMOVIC is currently examining the practical modalities for conducting interviews outside the territory of Iraq."

As far as Iraqi cooperation is concerned, the report states: "[A] distinction has been made between cooperation on 'process' and cooperation on 'substance'. UNMOVIC has reported that, in general, Iraq has been helpful on 'process', meaning, first of all, that Iraq has from the outset satisfied the demand for prompt access to any site, whether or not it had been previously declared or inspected ... Iraq has further been helpful in getting UNMOVIC established on the ground, in developing the necessary infrastructure for communications, transport and accommodation ... [On 'substance'] the destruction of some items, e.g., small known quantities of mustard, is taking place under UNMOVIC supervision and further such action will take place, e.g., as regards the empty 122-mm chemical munitions [see 16 Jan] ... The presidential decree [see 14 Feb] which prohibits private Iraqi citizens and mixed companies from engaging in work relating to weapons of mass destruction, standing alone, is not adequate to meet the United Nations requirements. UNMOVIC has enquired whether a comprehensive regulation is being prepared in line with several years of discussions between Iraq and UNSCOM/UNMOVIC ... Without the required [Iraqi] cooperation, disarmament and its verification will be problematic. However, even with the requisite cooperation it will inevitably require some time ... During the period of time covered by the present report, Iraq could have made greater efforts to find any remaining proscribed items or provide credible evidence showing the absence of such items. The results in terms of disarmament have been very limited so far ... Iraq could have made full use of the declaration, which was submitted on 7 December. It is hard to understand why a number of the measures, which are now being taken, could not have been initiated earlier".

1 March From Palestine, Yasser Arafat addresses by satellite link the Arab summit in Sharm al-Shaykh. In his address as broadcast by Palestinian Television he says that the Israeli army is "equipped with the state-of-the-art US weapons, including internationally-banned weapons, like depleted uranium and poisonous gases".

1 March In Las Vegas, a man is admitted to hospital after apparently attempting suicide by injecting himself with ricin. The incident causes two emergency rooms to be closed for three hours as authorities check that it is not part of a larger bioterrorist threat. The man, 60 year-old Tomoo Okada, later dies, and subsequent tests by the Centers for Disease Control and Prevention confirm that he did indeed kill himself with ricin.

2 March In Baghdad, UNMOVIC and Iraqi officials hold a technical meeting at the Foreign Ministry regarding Iraqi proposals for the quantitative verification of VX and anthrax that Iraq declared it had unilaterally destroyed at specific locations. The officials indicate that Iraq would soon provide UNMOVIC with their proposed approaches. The following day, UNMOVIC's spokesman in Baghdad, Hiro Ueki, says that Iraq has promised to submit the reports in a week's time.

2 March Saddam Hussein has ordered that Baghdad be surrounded with a "belt" of chemical weapons in the event of an attack by US and UK military forces, so it is reported. According to Hussein al-Shahristani [see 12 Mar 01], a former Iraqi nuclear researcher who fled Iraq in 1991, "there was a report from the resistance groups inside Iraq that Saddam had considered setting up a chemical belt around Baghdad, entrapping about 4 million residents in the city and using them as a human shield." Al-Shahristani also said that the chemical weapons would be buried shallowly, spaced about 100 metres apart and linked to detonators at Saddam's command centre.

2 March The London *Independent on Sunday* reports that US armed forces are preparing to use toxic chemicals in Iraq [see 5 Feb and see also 25 Feb]. According to the newspaper, the US Marine Corps confirmed a week previously that it had already shipped CS gas and pepper spray to the Persian Gulf. The newspaper also reports that the UK Ministry of Defence has warned the US that it will not allow British troops to be involved in operations where riot control agents are used, or to transport them to the battlefield. The newspaper quotes the Foreign and Commonwealth Office as saying: "All states parties to the Chemical Weapons Convention have undertaken not to use any toxic chemical or its precursor, including riot control agents. This applies in any armed conflict." The next day in Parliament, when questioned about the report, Defence Secretary Geoff Hoon says: "I am confident that the United States, like the United Kingdom, will fully respect its obligations in international law."

3 March In Russia, the Natural Resources Ministry issues an order suspending chemdemil operations at the Gorny chemical weapons destruction facility, so it is reported. The decision follows an inspection a month earlier which highlighted a number of violations of environmental protection legislation, including the absence of a licence to handle chemical waste. Denis Kiselyov, head of the Ministry's department of state control in the sphere of nature management and environmental protection, says on television that the violations included the absence of the proper licence for handling chemical waste, lax control over emissions of waste into the atmosphere and violations of rules for storage of liquid waste obtained after processing mustard gas.

However, the following day, Alexander Karichev, secretary to the chairman of the State Commission for Chemical Disarmament, says: "No plans to suspend the functioning of the chemical weapons destruction plant in Gorny are under consideration. The facility is continuing to work normally." According to Karichev the problem is one of "failure to submit documents dealing with the limits and licences on its operations in due time" and, he adds, "these shortcomings have no direct links to the safety issue of chemical weapons disposal." Karichev says that the criticisms from the Natural Resources Ministry do not refer to the ongoing destruction of mustard but to chemdemil operations to commence in May involving lewisite.

Also on the same day, the director-general of the Russian Munitions Agency, Zinovy Pak, meets with Minister for Natural Resources Vitaliy Artyukhov to discuss the issue. Pak comments later: "The essence of our meeting was to agree on bringing Gorny documentation strictly in line with current legislation. This plant was unveiled recently and, obviously, some time is needed to make it serve its purpose. But we are sure that there are definitely no deviations from the norm that could endanger the service personnel or environment." Pak adds: "The instruction issued by the Natural Resources Ministry for us was fair. It warned that if things in this field are not put right as soon as possible, sanctions tougher than a warning might follow."

Four days later, it is reported that the regional Ministry of Industry is banning the press from Gorny and that the village will soon be given the status of a closed territory. The same report also mentions residents' complaints that cats in apartment blocks near the plant have begun dying.

3 March In Moscow, Russian Minister for Industry, Science and Technology Sergei Lisovsky announces that Germany is planning to allocate EUR6 million to the chemical weapons destruction facility at Gorny. He says that discussions are going on as to whether the extra funds should be spent on increasing the facility's capacity or on construction of residential and social facilities.

3 March In Brussels, the NATO Euro-Atlantic Disaster Response Coordination Centre (EADRCC) receives a request for assistance from Turkey. The request relates mainly to capabilities that might be needed by medical teams, civil protection teams and airport personnel to deal with the consequences of possible chemical or biological attacks against the civilian population as a result of possible military action in Iraq. The request is forwarded to the 46 members of the EADRCC and the Centre is subsequently involved in matching the request with its inventory of national capabilities. Based on the findings, each country that might be a potential donor has been approached with the aim to obtain a picture of what might be offered. Eventually, 13 EADRCC countries offer assistance to Turkey, the delivery offers protective clothing and decontamination equipment from Norway, Macedonia and Poland, medical supplies from Hungary, Canada and the Czech Republic, and 10,000 doses of smallpox vaccine from Denmark.

3 March In the UK, Home Secretary David Blunkett informs Parliament of steps taken to deal with a terrorist attack with chemical, biological radiological or nuclear weapons. The Department of Health has provided 360 mobile decontamination units and 7,250 national specification personal protection equipment suits around the country, to enable the treatment of contaminated people. The CBRN Police Training Centre has been established at Winterbourne Gunner and has already delivered command training to at least four commanders from each force. The police now have over 2,350 officers trained and equipped in CBRN response. Fire brigades have all been involved in work to prepare for decontaminating people following an incident and an interim decontamination methodology has been disseminated to all brigades. Funds have been provided for the Fire Service to provide a national mass decontamination capability. The Department of Health has established a UK Reserve National Stock of vaccines and antibiotics suitable for the treatment of infectious diseases and specialist equipment which is now ready for deployment. In 2001/02, £16m was allocated by the Department of Health to provide medical countermeasures against CBRN agents and a further £80m has been allocated for 2002/03, including spending on extra vaccines and antibiotics.

3 March In the UK House of Commons, Secretary of State for Defence Geoff Hoon is asked whether he will make it his policy to withdraw British troops from military action where an ally uses biological and chemical weapons [see 2 Mar London]. He responds: "Our NATO allies are State Parties to both the Chemical Weapons Convention (CWC) and the Biological and Toxin Weapons Convention (BTWC) and have renounced the use of such weapons."

Responding to another parliamentary question ten days later, he says: "The Chemical Weapons Convention prohibits the development, production and use of all toxic chemicals (both lethal and incapacitating) and their precursors, except where they are intended for purposes not prohibited under the Convention, as long as the type and quantities are consistent with such purposes." Secretary Hoon had also been asked whether it was the government's policy to forbid British armed forces from handling riot control agents during wartime and what the government's policy was on British armed forces taking part in joint military operations with other countries where riot control agents are used. His colleague Adam Ingram responds: "The Chemical Weapons Convention prohibits the use of riot control agents as a method of warfare. United Kingdom armed forces will comply with their obligations under the Convention. The Government expect that other states parties to the Convention will likewise comply with their obligations under the Convention."

3 March In the US, *Newsweek* magazine reports that Hussein Kamel, who defected from Iraq in 1995 but later returned and was killed, had told UNSCOM inspectors and US and UK intelligence officers in mid-1995 that Iraq had destroyed its chemical and biological weapons and the missiles to deliver them after the 1991 Gulf War. According to the magazine, Kamel's revelations were not publicized in order to bluff Iraq into disclosing more information. The transcript of Kamel's interview with UNSCOM Executive Chairman Rolf Ekeus, marked "UNSCOM/IAEA SENSITIVE", has recently been posted on the internet. According to the transcript, Kamel told Ekeus that Iraq's biological weapons were destroyed and buried before UNSCOM entered Iraq. He also says: "All chemical weapons were destroyed. I ordered destruction of all chemical weapons. All weapons — biological, chemical, missile, nuclear were destroyed." Kamel also says that Iraq filled VX into bombs during the last days of the Iran-Iraq war but that they were not used and the programme was terminated. Iraq did not use chemical weapons during the 1991 Gulf War because of the fear of retaliation from the Allied forces.

3 March In Arkansas, a man is arrested and charged with threatening to use a weapon of mass destruction within the US and with affecting interstate commerce. It follows the delivery of an envelope labelled "Caution: contents contain ricin" to the FBI office in Little Rock. The following day, the man, named as Bertier Ray Riddle, appears in court where US attorneys say they intend to file a motion seeking to determine Riddle's mental competency.

4 March The *New Zealand Herald* newspaper receives another threatening letter [see 25 Feb] which this time threatens the use of cyanide to poison water supplies and the gassing of a cinema. The letter states that at noon on 28 March there will be a "demonstration of capability" in Wellington and Auckland. The authorities announce later that the letter bears similarities to the earlier letters and that it may have been written by the same person. On 10 March, the government issues a formal public alert about the threats but stresses that carrying them out would be technically difficult. According to counter-terrorism chief, Assistant Commissioner Jon White: "While it is a matter for individual judgement, I strongly believe New Zealanders should continue with their normal everyday activities such as visiting entertainment venues."

4 March From Geneva, the International Committee of the Red Cross posts on its website an informal information note to Red Cross and Red Crescent national societies about the ICRC position on the use of nuclear, biological or chemical weapons in the light of possible conflict in Iraq. With regard to chemical and biological weapons, the note states: "According to customary international humanitarian law which is binding on all States and on all parties to an armed conflict, the use of biological and chemical weapons is prohibited. This norm is based on the ancient taboo against the use in war of 'plague and poison', which has been passed down for generations in diverse cultures. It was most recently codified in the 1925 Geneva Protocol and subsequently in the 1972 Biological Weapons Convention and in the 1993 Chemical Weapons Convention. The great majority of States are parties to these three treaties. The prohibitions based on these texts cover not only the use, but also the development, production and stockpiling of biological and chemical weapons. It should be emphasized that in situations of armed conflict this absolute prohibition applies to all biological and chemical agents, whether labelled 'lethal' or 'non-lethal'. For example, even the use of riot control agents which is permitted for domestic riot control purposes is prohibited in situations of armed conflict."

4 March In Moscow, residents of Shchuch'ye, the site of one of Russia's chemical weapons destruction facilities, begin a legal battle for government compensation for medical conditions linked to chemdemil activities at the facility. According to one Shchuch'ye resident, the area has seen increases in the number of cancer cases and in kidney and nervous system disorders. The local hospital has registered an increased number of cancer sufferers and health disorders with children. The claimants contend that the ailments are linked to the destruction of phosgene-filled munitions at the chemdemil facility [see 3 Dec 01].

4 March In the US, the State Department decides to impose sanctions on an Indian company and a Jordanian individual under the *Iran-Iraq Arms Nonproliferation Act of 1992* for providing support to Iraq's biological and chemical weapons efforts over the past few years. The entities sanctioned are Protech Consultants Private, Ltd of India and Mohammed Al-Khatib of Jordan. The sanctions took effect on 13 February and prohibit the US from purchasing goods from or providing an export license to the two entities for two years. Speaking six days later when the determination is published in the *Federal Register*, State Department press spokesman Richard Boucher says that the "penalties were imposed on these entities for knowingly and materially contributing to Iraq's chemical and biological weapons program." [See also 4 Feb.]

4 March In the US House of Representatives, the Armed Services Committee convenes a hearing on *US Cooperative Threat Reduction and Non-Proliferation Programs*. Testifying before the Committee are: J.D. Crouch, Assistant Secretary of Defense for International Security Policy; Ambassador Linton Brooks, Acting Administrator, National Nuclear Security Administration; Paula DeSutter, Assistant Secretary of State, Bureau of Verification and Compliance; David Steensma, Deputy Assistant Inspector General, Auditing, Department of Defense; and Joseph Christoff, Director, International Affairs and Trade Team, General Accounting Office.

5 March In Russia, director-general of the Munitions Agency Zinoviy Pak says in an interview with *Gosudarstvennaya Sluzhba* magazine says that the problem of chemical weapons will not be solved with the destruction of current stockpiles. He says: "The problem of chemical weapons will remain as long as the chemical industry exists and it will exist eternally. I am absolutely sure that new compositions and substances will be found and their efficiency will be higher than those we are destroying now."

5 March In Paris, the foreign ministers of France, Germany and Russia meet to discuss the situation in Iraq and the ongoing deliberations in the UN Security Council. The three adopt a joint statement in which they state that "our common objective remains the full and effective disarmament of Iraq, in compliance with resolution 1441 (2002). We consider that this objective can be achieved by the peaceful means of the inspections." The statement also addresses Iraqi cooperation with the inspectors: "We firmly call for the Iraqi authorities to cooperate more actively with the inspectors to fully disarm their country. These inspections cannot continue indefinitely." The three countries therefore propose that the inspections now be "speeded up" as suggested in their earlier memorandum to the Security Council [see 24 Feb]. The joint statement adds: "In these circumstances, we will not let a proposed resolution pass that would authorize the use of force. Russia and France, as permanent members of the Security Council, will assume all their responsibilities on this point."

5 March In Paris, there is a meeting of senior officials from the G8 to discuss ways for implementing the Global Partnership agreement against the spread of weapons and materials of mass destruction. A subsequent Russian Foreign Ministry press release states: "The Russian delegation placed at the center of discussions the question of intensifying work on the translation of the Kananaskis political accords [see 26–27 Jun 02] into specific bilateral projects in the priority areas for Russia — destruction of chemical weapons and the disposition of decommissioned nuclear submarines. The partners submitted preliminary estimates of their capacities for realization of the Russian proposals, the lists of which had been transmitted to them at the senior officials' previous meeting in January 2003. There was particularly stressed the importance of launching practical work in this sphere even by the upcoming (June 2003) summit of G8 leaders in the French city of Evian. In this regard, the greatest advance in project development had been achieved jointly with Germany and Japan."

5 March In the UK House of Commons, the Science and Technology Committee convenes the first evidence session in its new inquiry into *The Scientific Response to Terrorism*. This session deals with medical planning and preparedness to tackle any terrorist attack in the UK. It hears evidence from the Public Health Laboratory Service, the Centre for Applied Microbiology and Research, the National Focus for Chemical Incidents, the National Radiological Protection Board, the British Medical Association and acute and ambulance trusts from the National Health Service.

5 March At UN headquarters, UNMOVIC Executive Chairman Hans Blix briefs the press on the latest developments in Iraq. He tells the reporters that he will not be asking the UN Security Council to give him four more months to complete his task: "That sort of suggests that I have confidence that they will cooperate sufficiently to succeed in answering the questions in that time. I would not dare to give any check on that they would do so, because the track record has not been good." Blix continues: "They have been very active I would say, even pro-active in the last month or so. But in the past the track record was not so good and therefore I would not want to suggest that I am confident that this will happen. I would not want to base a request that would intimate that assumption." He also says that he does not favour "inspections forever": "I don't think it's reasonable to go as we did from 1991 to 1998. There has to be an awareness that it concludes somewhere. That is for the members of the Council to set that time."

6 March In Moscow, the State Commission on Chemical Disarmament convenes for a meeting, after which the chairman, Sergei Kiriyyenko, says that security measures at Russia's chemical weapons storage facilities are to be improved. According to Kiriyyenko, current security measures "were not meant for a terrorist war. ... The Commission demands that more money be spent on security, even if it means cutting spending in other areas".

Two weeks later, an unidentified source at the Commission is reported as saying that the federal budget for 2003 will allocate 107.9 million roubles for the security of chemical weapons facilities and 58.5 million roubles for environmental monitoring. In addition, combined counter-terrorism and emergency management exercises are to be held at the storage facilities in Kambarka, Kizner and Leonidovka involving the Federal Security Service, Defence Ministry, Interior Ministry and Emergencies Ministry.

6 March In the UK House of Commons, Parliamentary Under-Secretary of State for Foreign and Commonwealth Affairs Mike O'Brien says that the BWC expert group meeting

scheduled for August will "provide a major opportunity to encourage states parties to take steps to monitor their own compliance with the Convention". In his answer to a written parliamentary question he continues: "The UK will table papers setting out some of the specific requirements which may need to be included in national measures to implement the Convention and in penal legislation. We will use our own experience in health, safety and physical security legislation to outline minimum standards for other states parties to follow, where they are presently without comparable legislation. The UK will also use this meeting to argue the case for a sustained international process to encourage all states parties to put in place legislation and effective measures to ensure implementation of the Convention."

6 March In the UK, the London *Guardian* newspaper discloses that the Fallujah 2 chlorine plant in Iraq — which has been singled out by both the US [see 4 Oct 02] and UK [see 24 Sep 02] governments as part of Iraq's chemical weapons programme — was built in the 1980s by a UK-based company. Basing its story on government documents, the newspaper reports that Uhde Ltd was allowed by the government of the time to supply the plant to the Iraqi State Enterprise for Pesticide Production (SEPP), despite intelligence that it could be used to make chemical weapons. Uhde Ltd, which was wholly owned by Uhde GMBH of Dortmund, a subsidiary of the German chemical company Hoechst, won the contract in December 1984.

According to the documents obtained by the newspaper, both the Foreign Office and the Ministry of Defence cautioned against the deal. A junior Foreign Office minister at the time, Richard Luce, is quoted as having written to the then Secretary of State for Trade and Industry, Paul Channon, that: "I consider it essential everything possible be done to oppose the proposed sale ... We understand from the experts in the Ministry of Defence that production from such a factory could be used ... to manufacture chemical warfare agents." However, Channon supported the deal, according to a briefing note prepared by his officials for a meeting with Luce from which *The Guardian* quotes: "British industry would resent a unilateral ban as an unreasonable commercial restraint ... A ban would do our other trade prospects in Iraq no good." Once the decision had been taken to approve the deal, Channon and Luce both agreed that it would have to be concealed from the US government which was pressing for tighter controls on such transactions, according to Luce: "Officials here are in touch with the Americans on the question of further controls on chemicals ... (though for obvious reasons we do not wish to draw attention to chlorine plants)." *The Guardian* quotes Uhde GMBH of Dortmund, which is now owned by ThyssenKrupp, as confirming that their then UK-subsiary had indeed built the plant for the SEPP. However, a company spokesman adds: "This was a normal plant for the production of chlorine and caustic soda. It could not produce other products."

The following day, *The Guardian* additionally reports that during the mid-1980s the government allowed shipments of hydrogen fluoride to Egypt despite having intelligence that previous shipments had been immediately transported overland to Iraq. In January 1986, the Private Secretary to then Prime Minister Margaret Thatcher wrote to Trade Minister Alan Clark that: "The information we have received is that the material is intended for the Sepp company in Iraq, and procurement through Egypt is intended to bypass restrictions imposed on the export of hydrogen fluoride to Iraq." According to the newspaper, when the predicted further orders were submitted to the Department of Trade they were allowed to proceed. Ministers said that an end-use certificate had been provided by the Egyptian military and they did not want to accuse them of being liars.

6 March South African President Thabo Mbeki submits to UN Secretary-General Kofi Annan the report of the South African disarmament experts [see 14 Feb] who have recently visited Iraq. The report is later distributed to all members of the UN Security Council. South Africa's permanent representative to the UN, Dumisani Khumalo, says that: "Given South Africa's experience in the destruction of chemical and biological weapons, we are providing a road map for the Iraqi situation."

6 March At UN headquarters, the Security Council's Counter-Terrorism Committee established under resolution 1373 [see 28 Sep 01] convenes for a special meeting with over 50 international, regional and subregional organizations with counter-terrorism programmes. In his statement to the meeting, UN Secretary-General Kofi Annan says: "Although recent terrorist attacks have been massive in their scale, future attacks could make them pale in comparison, particularly if terrorists were to acquire lethal chemical, biological or nuclear weapons. Never has it been more important to strengthen the multilateral regimes that have been developed to prevent the proliferation of such weapons." The OPCW is represented by Ralf Trapp from the Office of the Director-General and Bob Blum, the facilitator of the Executive Council's working group on counter-terrorism.

6 March At UN headquarters, UNMOVIC completes a working draft of the document *Unresolved Disarmament Issues: Iraq's Proscribed Weapons Programmes*. Although Security Council resolution 1284 [see 17 Dec 99] only requires UNMOVIC to submit its work programme to the Security Council, Executive Chairman Hans Blix has decided to declassify this document and make it available to Council members on request. It is posted on UNMOVIC's website five days later.

The 175-page report takes as its starting point the final report produced by UNSCOM and the "Amorim panel" report on disarmament aspects of UN-Iraq relations [see 27 Mar 99]. However, the report also utilizes material from UNMOVIC's archive such as Iraqi full, final and complete declarations. This has been supplemented by information acquired in the years since, including material from the backlog of semi-annual declarations transmitted by Iraq in October 2002, from the declaration presented by Iraq [see 7 Dec 02] as required by resolution 1441 [see 8 Nov 02], from suppliers, from documents provided by Iraq since the resumption of inspections, from inspection reports by UNMOVIC, from open sources and from overhead imagery and intelligence reports.

After a description of the factors which have shaped Iraq's policies on weapons of mass destruction and a summary of developments from December 1998 until the present, the report categorizes the unresolved disarmament tasks into 29 clusters and presents them by discipline: missiles; munitions; chemical; and biological. As well as providing UNMOVIC's assessment of each cluster, the report also contains suggestions as to how Iraq could resolve the issues. Finally, appended to the report is a historical account of Iraq's proscribed weapons programmes.

The report is used by both sides in the current deliberations within the Security Council to justify their respective positions.

7 March In Russia, Viktor Petrunin, head of the Research Institute of Organic Chemistry and Technology, announces that Russia will offer to help China destroy the more than two million chemical weapons left in China by Japan following the Second World War. Petrunin says: "Russian technology cannot be used directly in such conditions, but Russian experience of chemical weapons destruction is quite applicable."

7 March In Pretoria, South African Deputy Foreign Affairs Minister Aziz Pahad says that, during last week's visit to Iraq by South African disarmament experts [see 14 Feb] which he had led, Iraq requested help in proving that it had destroyed chemical

weapons. "They want us to help them to scientifically analyse the soil where they say they have disposed of their chemical agents", Pahad tells reporters. He adds: "They want us to help them ... to try to determine through scientific ways whether we can find out the quantities there matches [sic] the figures they have given." The report of the group of experts had been submitted the day previously to the UN Secretary-General who will decide whether or not the document should be made public. Pahad says that the team will not be returning to Iraq.

7 March In Moldova, the parliament amends the country's Criminal Code to add a new article establishing criminal responsibility for "using, developing, producing, receiving, directly or indirectly transferring, processing, accumulating, storing and transporting" weapons of mass destruction, including chemical and biological weapons. Individuals or groups engaged in such activities will face a sentence of 7 to 15 years imprisonment which can be increased to 25 years or life imprisonment, in cases of repeated and premeditated by the same group of individuals, or if the crime results in "severe consequences" or the loss of human life. The article was added to the Moldovan Criminal Code to fulfil the country's obligations under the CWC.

7 March At UN headquarters, the US, UK and Spain jointly introduce into the Security Council another [see 24 Feb] draft resolution on Iraq. The draft reaffirms the need for full implementation of resolution 1441 and includes the following as its third operative paragraph: "Decides that Iraq will have failed to take the final opportunity afforded by resolution 1441 (2002) unless, on or before 17 March 2003 the council concludes that Iraq has demonstrated full, unconditional, immediate and active cooperation in accordance with its disarmament obligations under resolution 1441 (2002) and previous relevant resolutions, and is yielding possession to UNMOVIC and the IAEA of all weapons, weapon delivery and support systems and structures, prohibited by resolution 687 (1991) and all subsequent relevant resolutions, and all information regarding prior destruction of such items." The draft is not put to an immediate vote, instead negotiations on the substance of the draft commence.

7 March At UN headquarters, UNMOVIC Executive Chairman Hans Blix briefs the Security Council on UNMOVIC's twelfth quarterly report [see 28 Feb], which he notes is the first of the reports to describe three months of inspections. Blix reports that initial difficulties with the Iraqis had been overcome, but he goes on: "This is not to say that the operation of inspections is free from frictions, but at this juncture we are able to perform professional no-notice inspections all over Iraq and to increase aerial surveillance."

With respect to claims by Western intelligence agencies that Iraq has mobile BW production units [see 5 Feb], Blix says: "As I noted on 14 February, intelligence authorities have claimed that weapons of mass destruction are moved around Iraq by trucks and, in particular, that there are mobile production units for biological weapons. The Iraqi side states that such activities do not exist. Several inspections have taken place at declared and undeclared sites in relation to mobile production facilities. Food testing mobile laboratories and mobile workshops have been seen, as well as large containers with seed processing equipment. No evidence of proscribed activities have so far been found. Iraq is expected to assist in the development of credible ways to conduct random checks of ground transportation."

Blix refers to "a significant Iraqi effort underway to clarify a major source of uncertainty as to the quantities of biological and chemical weapons, which were unilaterally destroyed in 1991." This concerns the re-excavation of a disposal site during which Iraq has unearthed eight complete bombs consisting of two

intact liquid-filled R-400 bombs and six other complete bombs. Bomb fragments were also found and samples taken.

Blix also reports Iraqi proposals [see 2 Mar] to use advanced technology to quantify the amount of unilaterally destroyed anthrax dumped at a site. Blix notes however, that “even if the use of advanced technology could quantify the amount of anthrax, said to be dumped at the site, the results would still be open to interpretation. Defining the quantity of anthrax destroyed must, of course, be followed by efforts to establish what quantity was actually produced.” Iraq has also suggested using a similar method to quantify a VX precursor said to have been unilaterally destroyed in 1991.

Following Blix’s briefing the Security Council reconvenes at ministerial level. US Secretary of State Colin Powell states that: “I was sorry to learn that all of this still is coming in a grudging manner, that Iraq is still refusing to offer what was called for by 1441: immediate, active and unconditional cooperation. Not later, immediate; not passive, active; not conditional, unconditional in every respect. Unfortunately, in my judgment, despite some of the progress that has been mentioned, I still find what I have heard this morning a catalog still of noncooperation.”

Blix is later criticized by US officials for not having specifically mentioned in his briefing new information which was included in the UNMOVIC report on unresolved disarmament issues [see 6 Mar]. According to media reports, the officials are particularly surprised that Blix did not refer to Iraqi work on unmanned aerial vehicles or on cluster munitions. US Secretary of State Colin Powell says on television: “That’s the kind of thing we’re going to be making some news about in the course of the week ... And there are other things that have been found that I think more can be made of.”

8 March From Tbilisi, the Chechenpress news agency website reports that Russian forces have been using chemical weapons in the Chechen Republic of Ichkeria. According to the report, the majority of residents of the village of Samashki complain about nausea and weakness. Local doctors attribute the complaints to the specific features of the munitions used by Russian forces.

9 March In Moscow, the deputy chairman of the State Commission on Chemical Disarmament tells reporters that the Commission has ordered the speeding up of construction of a second chemical weapons destruction facility. The facility will be built at Kambarka where there are stored some 6,360 metric tons of lewisite.

9–12 March In Baltimore, the American Society of Microbiology holds its first biodefense research meeting on *Future Directions for Biodefense Research: Development of Countermeasures*. Attending are more than 800 scientists from 27 countries.

10 March In Israel, there is an exercise simulating a sarin attack on Ben Gurion airport conducted by the Home Front Command, the Fire and Rescue Service, Magen David Adom and the Environment Ministry. Although the exercise was reported to have ended successfully, the Environment Ministry says that it suffers from a chronic shortage of mobile units and equipment necessary to identify and contain hazardous materials.

11 March In Russia, the Foreign Ministry, the State Commission on Chemical Disarmament and the Munitions Agency are in negotiations with donor countries about the creation of industrial areas at chemical weapons destruction facilities, so it is reported. A source at the State Commission tells Interfax that Russia has suggested that donors support the following sites: US — Shchuch’ye; Germany — Kambarka; Italy — Pochev; Canada — Leonidovka; UK — Maradykovskiy; and

France — transportation of toxic chemicals from Kizner to Shchuch’ye.

11 March In France, 150 volunteers, mainly health workers but also firefighters and gendarmes, are to be vaccinated against smallpox, so the Paris *Liberation* reports. According to the newspaper, the volunteers will form a small response force in case of an attack. The newspaper also reports that France expects to have 72 million doses of smallpox vaccine on hand by the end of May and be able to vaccinate 60 million people in two weeks in the event of an attack.

11 March In the US, the *Journal of Burns and Surgical Wound Care* publishes a report of research into the long-term effects of exposure to sulphur mustard. The research has been carried out by Iranian researchers studying the civilian population of the town of Sardasht in northwestern Iran which was the target of an Iraqi chemical weapons attack during the Iran-Iraq war. According to the report, Iraqi aircraft dropped four 250kg sulphur mustard bombs on the town centre exposing an estimated 4,500 people to the chemical. The study examines incidences of disease and mortality rates among a representative cross-section of those exposed, including 355 survivors and 108 deceased individuals. Of the survivors, pulmonary impairment was the “most common complaint” with all survivors suffering from varying degrees of long-term respiratory problems. The editor of the *Journal of Burns and Surgical Wound Care* says: “This was the first time since World War I that there had been a long-term study of the effects of mustard gas. So this study is very significant.” The journal also publishes an article on the long-term health status of children from Sardasht who were exposed to mustard gas. The authors state that: “Examination of medical records dating from the time of the attack revealed that when the occurrence of lesions in the acute phase of mustard exposure was compared with chronic phase lesions, children’s symptoms were considerably more severe than that of adults given equal levels of mustard exposure. Conversely, we have observed that the chronic effects tended to be significantly more pronounced in adults than in children.”

11 March In Washington, a number of local community organizations from areas near proposed chemical weapons incinerators file a lawsuit in the Federal District Court claiming that the US Government has violated the *National Environmental Policy Act*. The lawsuit claims that the US Army “failed to adequately assess and compare the impacts from the incineration of chemical weapons with non-incineration alternatives” and “failed to update their assessments of the impacts expected from the baseline incineration program, including the impacts on workers.” The lawsuit seeks to ban any additional spending on incinerator construction or operation until the Army complies with requirements under the Act to review and update its agent destruction plans.

12 March In Cape Town, speaking to a special parliamentary session, South African Deputy Foreign Minister Aziz Pahad who led the recent visit to Iraq by disarmament experts [see 7 May] says that Iraq requested South African assistance in validating the proposed methodology to verify the destruction of anthrax and VX. Pahad tells the parliament: “Having considered the Iraqi request, it is our initial view that the methodology that Iraq has proposed contains some promise of verifying the actual presence of the chemical and biological agents. Due to the variables of exposure, evaporation, time lapse, however, it is likely that there would still be a sizable discrepancy in volumes that may not be convincing or acceptable to UNMOVIC and the Security Council. In the absence of documentary evidence of the destruction, which was apparently destroyed, it would therefore be necessary for this initiative to be accompanied by additional

corroborative evidence, such as interviews with all of the persons who were involved with the disposal process, if there is to be an expectation of reaching closure on the issues related to Iraq's stockpiles of biological and chemical weapons".

12 March In Cuba, the government recently invited science journalists to visit the Centre for Genetic Engineering and Biotechnology to demonstrate that US allegations about Cuba's "limited offensive biological warfare research and development effort" are false, so it is reported. A researcher at the Centre is quoted as saying: "It would be nonsense on our side to produce biological weapons. ... If we can produce vaccines and people are going to pay the same amount and even more, why produce biological weapons? We can do the vaccines, we're very good at that. Why lose time producing bioweapons and having this type of hassle within your country? It's absurd, makes no sense." An unidentified US State Department official is cited as saying that the US stands by the earlier comments.

12 March In the UN Security Council, where negotiations on the UK-US-Spain draft resolution on Iraq [see 7 Mar] are still ongoing, the UK proposes six "tests" by which Iraqi compliance with resolution 1441 could be measured. If acceptable to the rest of the Council, the "tests" could be adopted by the Council as a political commitment. The UK Foreign Secretary, Jack Straw, says of the "tests": "Each of those tests is demanding, but deliverable." He goes on: "These tests are not traps. Every one of them could be met promptly, if only Saddam Hussein were to make the strategic choice to cooperate with the UN."

The six "tests" are as follows: "A statement by Saddam Hussein admitting that he has concealed weapons of mass destruction, but will no longer produce or retain weapons of mass destruction; deliver at least 30 scientists for interview outside Iraq, with their families; surrender all anthrax, or credible evidence of destruction; complete the destruction of all Al Samoud missiles; account for all unmanned aerial vehicles, including details of any testing of spraying devices for chemical and biological weapons; surrender all mobile chemical and biological production facilities."

On anthrax, the UK proposes that: "All remaining anthrax, anthrax production capability, associated growth media, and related weapons/dispersal mechanisms must be surrendered or credible evidence provided to account for their whereabouts; Credible evidence must also be provided that anthrax was not produced in 1991 and accounting for the anthrax Iraq claims was destroyed in 1991; Credible evidence must be produced concerning Iraq's efforts to dry BW (biological warfare) agents." On UAVs, the UK proposal would require that: "Credible evidence must be provided on the purpose of all RPV/UAV programs, information on organisations involved, and the inventory of all items related to the programme (such as engines, GPS (Global Position Systems), guidance systems, air frames, etc.) including details of all tests made, of range capabilities, of payloads and of CBW (chemical and biological warfare) spray devices." On mobile CBW production facilities, the tests would require that: "Mobile chemical and/or biological production facilities must be surrendered for destruction; A complete accounting must be provided for mobile chemical and/or biological facilities production programs. Details should also be provided of sites providing support for/servicing/hosting mobile facilities."

12 March In Canada, it is reported that the Department of National Defence is to fund historical research to discover whether live anthrax spores were ever used during biological warfare tests on Canadian soil under the US-UK-Canada tripartite agreement. According to documents quoted by the Toronto *Globe and Mail* newspaper: "In light of the persistent nature of the anthrax spore, it is highly desirable that a concerted

effort be made to determine the extent of Canadian participation in this project." The research will be part of a larger C\$ 2 million project in which the Department will document its various weapons testing sites dating back to 1914 with a subsequent decontamination project if any toxic contamination is found. The research on biological warfare tests will cover other agents in addition to anthrax.

12 March In the US, new regulations implementing the transfer provisions of the *Public Health Security and Bioterrorism Response Act of 2002* (PL 107-188) [see 12 Jun 02] enter into force. All scientists working with listed 'select agents' must submit their personal information and fingerprints to the FBI. Individual researchers must file registration forms by 12 April and the FBI has until 12 June to complete its security assessments and to report back to the Centers for Disease Control and Prevention and to the Department of Agriculture. Scientists from Iraq, Iran, North Korea and other designated state-sponsors of terrorism are disqualified from handling the 'select agents'.

13 March In Prague, Czech Deputy Defence Minister for Army Reform Jan Vana tells reporters that a new NATO development, doctrinal and training centre for combating weapons of mass destruction could be established at Vyskov in 2004. The Czech Republic offered to build the centre during the NATO summit in Prague last November. A decision on the establishment of the centre should be taken by a forthcoming NATO ministerial meeting.

13 March In Washington, the Natural Resources Defense Council hosts a press briefing at which it presents the results of computer simulations modelling various potential scenarios involving the use of chemical, biological or nuclear weapons in a war in Iraq. Using software developed for the US Department of Defense by Science Applications International Corp, the NRDC predicts that an Iraqi release of 30kg of *Bacillus anthracis* spores from an aerial drone over Kuwait City could infect 800,000 people under certain wind conditions. Another scenario involving the release of half a kilogramme of *Bacillus anthracis* spores from a hypothetical damaged facility near Baghdad could produce more than 300,000 infections with a gentle wind blowing across the city, according to the NRDC. The simulations also modelled Iraqi chemical weapons attacks on Tel Aviv and Riyadh and US retaliatory nuclear attacks on Baghdad and Tikrit. According to NRDC analyst Matthew MacKinzie, the simulations demonstrated that potential Iraqi chemical weapons attacks would probably cause far fewer casualties than biological or nuclear attacks: "What NRDC took away from this analysis is really that all weapons of mass destruction are not equal, that the scenarios that we calculated paint very different pictures of chemical, nuclear or biological attacks."

13 March In Chicago, Joseph Daniel Konopka is sentenced to 13 years imprisonment after a federal judge accepts his guilty plea to one count of violating the Chemical Weapons Statute, Title 18 US Code Section 229. Konopka, aged 26, is the first person to be sentenced under this law, which acts as part of the US domestic implementation of the CWC. Konopka, also known as "Dr Chaos", was charged with possession of sodium cyanide and potassium cyanide when apprehended in a tunnel beneath the University of Chicago [see 11 Mar 02]. No other cases have been tried under Title 18 USC 229, although several cases have been brought but the prosecution was either dropped or moved to another statute. There are no further cases pending under 18 USC 229.

14 March The US and Russia sign an agreement under which the destruction of Russia's chemical weapons stockpiles will be accelerated, so it is later reported. Under the new plan, Russia

will conduct the initial neutralization of chemical weapons at the current storage sites before they are transported for final processing at the chemdemil facilities at Gorny and Shchuch'ye. According to the director-general of the Russian Munitions Agency, Zinoviy Pak, an agreement has been reached with France on the transportation of artillery shells from the storage site at Kizner to the chemdemil facility at Shchuch'ye.

14 March In Ukraine, the security service has prevented an attempt to sell 80kg of chloropicrin stolen from an army base, so it is reported. The chemical had been stolen from a warehouse of a nuclear, chemical and radiological protection unit in Dnipropetrovsk region in eastern Ukraine. The Ukrainian security service had infiltrated the group trying to sell the chloropicrin and three army officers have been taken into custody. A criminal investigation into the theft of a chemical substance and abuse of office has been launched under Article 191 of Ukraine's penal code.

14 March In Baghdad, the Iraqi government submits to UNMOVIC a list of names of additional persons who had been involved in the past chemical weapons programme. The list contains 183 names. In its *Unresolved Disarmament Issues* document [see 6 Mar], UNMOVIC pointed out that Iraq had listed less than 132 "experts, specialists, and technicians" as having worked in the entire chemical weapons programme. The document also states that UNMOVIC databases indicate that over 325 individuals were engaged in chemical weapons-related research or had responsible positions associated with agent production at the Muthanna State Establishment alone.

14 March Iraq finally submits to the United Nations in New York and Baghdad its promised report on VX but does not submit another report it had promised on anthrax. The 25-page VX report is half in English and half in Arabic and is currently being translated. Iraq's permanent representative to the UN, Mohammed al-Douri, says that the report "will show reliable evidence that we have no more of these materials and that they have been destroyed. We are trying now our best to convince UNMOVIC that everything has been destroyed."

14 March In the UK House of Commons, in answer to a written parliamentary question, Home Secretary David Blunkett says that two juveniles have been detained and released on bail for hoaxing charges under the *Anti-Terrorism, Crime and Security Act 2001*. Additionally, he says that as a result of investigations in London [see 26 Feb] four people have been charged under section 2 of the *Chemical Weapons Act 1996* and that, following a subsequent investigation, five other people have been charged under section 1(1) of the *Criminal Law Act 1967* with conspiracy to produce or develop chemical weapons. Blunkett adds that the pathogen and toxin security measures in the *Anti-Terrorism, Crime and Security Act 2001* are being taken forwards.

14 March In Brasilia, José Bustani, the former Director-General of the OPCW Technical Secretariat, meets with Brazilian President Luiz Inacio Lula da Silva before travelling to London to take up his new post as Brazilian ambassador to the UK. Upon leaving the president's office, Bustani tells reporters that he would have no trouble representing Brazil in the UK: "Of all the 145 members of the OPCW, Great Britain [*sic*] was the country that cooperated with me most during the five years that I headed the organization."

15 March The foreign ministers of France, Germany and Russia adopt another [see 5 Mar] joint declaration on the disarmament of Iraq in which they "reaffirm that nothing in the current circumstances justifies abandoning the inspections process or resorting to force." The declaration continues: "The

successive reports of Mr Hans Blix and Mr Mohamed ElBaradei have shown that the inspections are producing results. The disarmament of Iraq has begun, and there is every reason to believe that it can be completed rapidly and in accordance with the rules set out by the Council. Iraq, for its part, must cooperate actively and unconditionally." The declaration states that "the use of force can only be a last resort."

16 March Across Iraqi Kurdistan, there are commemorations of the 15th anniversary of the Iraqi chemical weapons attack on the Kurdish town of Halabja. The *Brayati* newspaper of the Kurdistan Democratic Party carries a statement by the council of ministers which includes the following: "To coincide with the remembrance of this occasion, Kurdistan regional government asks all our citizens, as it is customary every year, to show their respect to our martyrs and express sorrow and sadness, by stopping all traffic and movement in all streets, markets and institutions."

At the White House two days previously, US President George Bush had received three Iraqis now living in the US representing victims of the attack on Halabja. The following day, President Bush refers to Halabja in his weekly radio address: "This weekend marks a bitter anniversary for the people of Iraq. Fifteen years ago, Saddam Hussein's regime ordered a chemical weapons attack on a village in Iraq called Halabja. With that single order, the regime killed thousands of Iraq's Kurdish citizens. Whole families died while trying to flee clouds of nerve and mustard agents descending from the sky. Many who managed to survive still suffer from cancer, blindness, respiratory diseases, miscarriages, and severe birth defects among their children. The chemical attack on Halabja — just one of 40 targeted at Iraq's own people — provided a glimpse of the crimes Saddam Hussein is willing to commit, and the kind of threat he now presents to the entire world. He is among history's cruelest dictators, and he is arming himself with the world's most terrible weapons."

16 March In Iraq, President Saddam Hussein has reportedly put General Ali Hassan al-Majid in command of Iraqi forces in the south of the country where they will be amongst the first to encounter UK and US troops if military action takes place. Al-Majid is better known as "Chemical Ali" for his role overseeing the Anfal campaign against the Kurds in the 1980s [see 2 Nov 00].

16 March In the Azores, US President George W Bush, UK Prime Minister Tony Blair, Portuguese Prime Minister Jose Barroso and Spanish Prime Minister Jose Maria Aznar meet for a summit to discuss Iraq and diplomatic developments in the UN Security Council where a draft resolution on Iraq submitted by the three of the countries is still under consideration [see 7 Mar]. The British, Spanish and US leaders adopt a joint statement which includes the following: "If Saddam refuses even now to cooperate fully with the United Nations, he brings on himself the serious consequences foreseen in UNSCR 1441 and previous resolutions."

At a press conference following the summit, President Bush announces that the following day will be "a moment of truth for the world" a final chance for countries to "demonstrate that commitment to peace and security in the only effective way, by supporting the immediate and unconditional disarmament of Saddam Hussein."

16 March The *New York Times* reports that the biological weapons declaration submitted to the UN by Iraq [see 7 Dec 02] reveals that all the samples of biological agents obtained from abroad and used in the Iraqi biological weapons programme were supplied by the American Type Culture Collection in Virginia and the Pasteur Institute in Paris. The Iraqi declaration

shows that the US and French suppliers shipped 17 types of biological agent to Iraq in the 1980s, including *Bacillus anthracis*, *Francisella tularensis*, *Clostridium perfringens*, *Clostridium botulinum* and *Bacillus cereus*. The newspaper has obtained a copy of the Iraqi declaration via Gary Pitts, a Houston lawyer who is representing sick US servicemen in a lawsuit [see 9 Sep 95] claiming that their illnesses are related to exposure to chemical and biological weapons during the Gulf War. The ATCC is a defendant in the lawsuit.

17 March The Iranian-backed Iraqi opposition group, the Supreme Council of the Islamic Revolution in Iraq, claims that 70 people had been killed in Abi-Rimamah in southern Iraq during a recent operation to transfer and conceal chemical weapons from UNMOVIC inspectors. According to a report in the Iraqi Kurdish newspaper *Jamawar* the incident happened when a large quantity of poison gas escaped from one of the regime's special vehicles. To conceal the incident, the Iraqi government immediately announced that the people had died from an unknown influenza and started a broad vaccination campaign.

17 March From Denmark, Danish police announce that the former head of the Iraqi army, Nizar al Khazraji, went missing from his house arrest two days earlier. Al-Khazraji was being held under house arrest [see 19 Nov 02] while being investigated as a possible war criminal for his role in chemical weapons attacks on Iraqi Kurds in the 1980s. Two days later, an Iraqi opposition group claims that al-Khazraji is now at US Central Command headquarters in Qatar. Citing a leaked report by the former head of the CIA counter-terrorism department, the Copenhagen *Politiken* later reports that al-Khazraji was secretly extracted from Denmark to the Persian Gulf by the CIA in order to assist US planning for an invasion of Iraq. The newspaper reports that al-Khazraji is the CIA's preferred choice to replace Saddam Hussein as Iraqi president, a view which is not shared by the Department of Defense, according to the newspaper.

17 March In Paris, traces of ricin are found in a locker at the Gare de Lyon railway station during a routine search as part of heightened security measures, so the French Interior Ministry announces three days later. The locker contains "two vials with a powder, a bottle filled with a liquid and two smaller bottles also containing a liquid", says the ministry in a statement. The two smaller bottles contained "traces of ricin in a mix that turned out to be a very toxic poison," the ministry adds. The following day, French Interior Minister Nicolas Sarkozy tells French radio that the quantity of ricin found was "non-lethal" but that also discovered were ethanol and acetone which when mixed with ricin can produce an "extremely nasty poison" according to the minister.

Sarkozy also postulates a link between the discovery, Islamic militants and the ricin discovered recently in London [see 5 Jan]: "One can make a connection even if we do not possess the proofs [*sic*] today." Media reports focus on the so-called "Chechen network" of Islamic extremists who, according to a leaked French security service report quoted in the London *Sunday Telegraph*, are "veterans of the Chechen and Afghan conflicts who had returned to the European scene ... who are thought to be working on a project to fabricate and acquire toxic materials in preparation for a chemical or biological attack." The newspaper cites British police as having said that there was evidence that some ricin had been removed from the flat in London and that two of the suspects had been to France the week before they were arrested. The newspaper also quotes a French investigator as follows: "There was evidence from the London raids that the equivalent of two small pots of ricin were missing. Clearly we have to look at the link between the Islamic extremists in Britain and those in France, who certainly knew each other." An unidentified official from the French security

service is quoted as saying: "Although no trace of ricin has been found on French territory before, the discovery of it at the Gare de Lyon seems to indicate that al-Qaeda specialists in chemical attacks are still in France — or were here only a few days ago."

However, three weeks later more complex tests in French defence laboratories find that the two smaller bottles actually contained a harmless mix of ground barley and wheat germ. The barley and wheat germ have certain chemical similarities to ricin and produced misleading initial test results.

17 March In the UK, BBC 2 television broadcasts a documentary on *Israel's Secret Weapon*. The programme, primarily describing Israel's undeclared nuclear weapons programme, also alleged that Israeli forces used "an illegal incapacitating gas" against Palestinians in Gaza two years ago [see 12 Feb 01], according to the London *Independent*. The decision to screen the programme is criticised by British Jewish groups, and Israel is considering lodging a "vehement protest".

17 March At UN headquarters, Spain, the UK and the US decide to withdraw from Security Council consideration the joint resolution on Iraqi disarmament they had introduced earlier in the month [see 7 Mar] as it has proved impossible to achieve consensus among the Council's 15 members.

17 March At UN headquarters, UNMOVIC Executive Chairman Hans Blix submits to the Security Council the Commission's draft work programme as required by resolution 1284 [see 17 Dec 99]. The 83-page work programme identifies twelve "key disarmament tasks" from the clusters in the earlier unresolved disarmament issues document [see 6 Mar]: Scud missiles and associated biological and chemical warheads; SA-2 missile technology; research and development on missiles capable of proscribed ranges; munitions for chemical and biological agent fill; spray devices and remotely piloted vehicles/unmanned aerial vehicles; VX and its precursors; mustard gas and its precursors; sarin, cyclosarin and their precursors; anthrax and its drying; botulinum toxin; undeclared agents, including smallpox; and any proscribed activities post 1998. The work programme notes that: "Iraq has the primary duty to help resolve the key remaining disarmament tasks: to present proscribed items, to provide documents and other evidence, to present witnesses for interviews, etc. At the same time, UNMOVIC will use all its resources to verify Iraq's declarations and the evidence presented. It will thus contribute actively to the resolution of unresolved disarmament issues as well as the key remaining disarmament tasks of Iraq." The work programme also describes the "reinforced system of ongoing monitoring and verification" through which UNMOVIC will combine the monitoring and disarmament objectives which had been carried out separately under UNSCOM.

17 March From UN headquarters, Secretary-General Kofi Annan orders the withdrawal of all remaining UN personnel from Iraq. In a statement issued by his press spokesman the Secretary-General says: "The Secretary-General today informed the Security Council that, based on information which he had received from the United Kingdom and United States authorities regarding the continued safety and security of United Nations personnel, he had authorized the withdrawal of all remaining United Nations system personnel from Iraq."

The following day, UNMOVIC inspectors begin leaving Iraq. Many had already left in what was described as a normal rotation of staff. About 80 of the 134 inspectors and support staff deployed in Iraq depart from Baghdad and land in Larnaca, Cyprus. UNMOVIC spokesman Hiro Ueki tells reporters: "It is unfortunate, but we have to leave. It was a high-level decision. There is a sense of sadness that the job we came to complete was not completed. It is a decision beyond our control."

17 March In an address to the nation from the White House, US President George W Bush issues a 48-hour ultimatum for Saddam Hussein and his sons to leave Iraq, adding: "Their refusal to do so will result in military conflict commenced at a time of our choosing." Explaining his decision, Bush states: "Intelligence gathered by this and other governments leaves no doubt that the Iraq regime continues to possess and conceal some of the most lethal weapons ever devised. This regime has already used weapons of mass destruction against Iraq's neighbors and against Iraq's people." He goes on: "The regime has a history of reckless aggression in the Middle East. It has a deep hatred of America and our friends. And it has aided, trained and harbored terrorists, including operatives of al Qaeda. The danger is clear: using chemical, biological or, one day, nuclear weapons, obtained with the help of Iraq, the terrorists could fulfill their stated ambitions and kill thousands or hundreds of thousands of innocent people in our country, or any other."

The speech is broadcast direct to the Iraqi people and armed forces. President Bush tells them: "It is too late for Saddam Hussein to remain in power. It is not too late for the Iraqi military to act with honor and protect your country by permitting the peaceful entry of coalition forces to eliminate weapons of mass destruction. ... And all Iraqi military and civilian personnel should listen carefully to this warning. In any conflict, your fate will depend on your action. Do not destroy oil wells, a source of wealth that belongs to the Iraqi people. Do not obey any command to use weapons of mass destruction against anyone, including the Iraqi people. War crimes will be prosecuted. War criminals will be punished. And it will be no defense to say, 'I was just following orders.'"

18 March In Iran, Dr Abbas Foroutan of Baqiyatallah University of Medical Sciences in Tehran publishes on the internet an updated version of his *Medical Review of Iraqi Chemical Warfare*. The book is still in production but given the possibility of imminent military conflict in the Middle East, Dr Foroutan has published this preliminary electronic version.

18 March In Kurgan, Russia, US officials meet with the governor of the Kurgan region, which includes the construction site of the chemical weapons destruction facility at Shchuch'ye. At a briefing, Adolf Ernst, project manager for the Cooperative Threat Reduction programme, tells the region's leaders that the US will provide \$160.9 million towards construction of the facility in 2003. However, there is criticism from Russian experts of the US decision to destroy the stockpiled chemical weapons through incineration rather than using "Russian ecologically-safe technology".

In Moscow, officials of the Natural Resources Ministry, the Health Ministry and the Munitions Agency meet to discuss chemdemil operations. The Natural Resources Ministry press service says that the attendees at the meeting agreed that chemdemil processes should be studied in detail in the light of the experience gained at the Gorny chemical weapons destruction facility [see 3 Mar]. The meeting also focused on safety and environmental issues in the areas surrounding Russia's chemical weapons stockpiles. A press spokesman for the Federal Information Centre for Chemical Disarmament tells reporters that Russia will complete the destruction of one per cent of its chemical weapons stockpile by the end of April.

18 March In Oise, France, police detain two people allegedly linked to suspected terrorists arrested in December [see 24 Jan] for planning a chemical weapons attack in support of Chechen rebels. During the raid, police find a chemical/biological protection suit and empty gas canisters.

18 March In Washington, the French ambassador, Jean-David Levitte, announces that France would offer assistance to the UK

and US if Iraq was to use weapons of mass destruction against their forces. He is quoted as saying: "If Saddam Hussein were to use chemical and biological weapons, this would change the situation completely and immediately for the French government. We have equipment to fight in these circumstances." French president Jacques Chirac had reportedly made a similar assurance to UK Prime Minister Tony Blair in a telephone conversation a few days previously. The next week, French foreign minister Dominique de Villepin tells a French parliamentary committee: "In the event of chemical weapons being used against the US and British armies our country would offer assistance, without getting involved in a conflict that it opposes." On the possibility of Iraq using chemical weapons, Villepin says: "France has never stopped saying that the risk was real and that something should be done to put an end to it."

18 March In Washington, the Institute of Medicine publishes a report on *Microbial Threats to Health: Emergence, Detection and Response*. The report recommends that the US should take decisive steps to fortify its domestic public health system and that the US government should also play a significant role in building the capacity of poor countries to monitor, prevent and respond to disease outbreaks. At the launch of the report, Margaret Hamburg, co-chair of the committee responsible for drafting it and vice president for biological programs at the Nuclear Threat Initiative, says: "Infectious diseases cross national borders and require a global response, but the United States should help lead efforts to reverse the complacency in industrialized countries regarding this problem. On the whole, aggressively responding to microbial threats is in America's economic, humanitarian and security interests, and should be a national priority."

18–21 March At OPCW headquarters, the Executive Council reconvenes [see 10–12 Dec 02] for its thirty-second regular session.

19 March Aircraft of the US-led coalition against Iraq drop almost two million leaflets over Iraq. Some of the leaflets stress that Iraqi soldiers and civilians will be the main victims if Saddam Hussein orders the employment of chemical or biological weapons. It reads: "Coalition forces are prepared and well-equipped to defend themselves against chemical weapons attacks. Your comrades and innocent Iraqi people will be victims if Saddam uses chemical weapons." Other leaflets urge Iraqi soldiers not to use chemical weapons, and warns they will be prosecuted as war criminals if they do.

19 March In Larnaca, Cyprus, where UNMOVIC inspectors are resting and writing up their final reports after having been withdrawn from Baghdad [see 17 Mar], one of the inspectors accuses the US of providing UNMOVIC with wrong and misleading intelligence about Iraqi weapons programmes, in comments reported in the London *Guardian*. Jorn Siljeholm, a scientist at the Massachusetts Institute of Technology says: "None of their hot tips were ever confirmed. I don't know about a single decontamination truck that didn't turn out to be a fire engine or a water truck." The head of UNMOVIC's Baghdad headquarters, Miroslav Gregoric, is quoted as saying that progress was being made until they were evacuated: "[On Monday evening] we were conducting a private interview about biological weapons which went on for two and a half hours. It's sad to see unfinished business being completed by other means, not necessarily within the UN system."

19 March In Prague, Czech Television carries an interview with the commander of the Czech-Slovak chemical detection unit currently deployed in Kuwait. He says that his unit will only

intervene in Iraq if weapons of mass destruction are used. However, the unit's mandate is criticized by at least one veteran who says that its tasks should also include reconnaissance, detection and activation of early warning systems, not only evacuation of personnel from contaminated areas and decontamination. The next day, Czech defence minister Jaroslav Tvrdik tells journalists that the unit will not be engaged in direct combat operations as they are too valuable in the eyes of their commanders.

19 March At UN headquarters, UNMOVIC Executive Chairman Hans Blix briefs the Security Council on the work programme required under resolution 1284 which he had submitted to the Council two days earlier [see 17 Mar]. Addressing the withdrawal of inspectors from Baghdad, Blix says: "I naturally feel sadness that three and a half months of work carried out in Iraq have not brought the assurances needed about the absence of weapons of mass destruction or other proscribed items in Iraq, that no more time is available for our inspections and that armed action appears imminent." Blix notes that the draft work programme does not follow proposals to lay down specific timelines in which unresolved disarmament issues are to be tackled, but says that the Security Council can choose to adopt such a course. Blix also reports that since his last briefing [see 7 Mar], Iraq has submitted a number of letters on unresolved issues [see 14 Mar]. He says: "[T]he value of the information provided must be soberly judged. Our experts have found so far that in substance only limited new information has been provided that will help to resolve remaining questions." Blix finishes his introduction of the draft work programme as follows: "In its further deliberations I hope the Council will be aware that it has in UNMOVIC staff a unique body of international experts who owe their allegiance to the United Nations, and who are trained as inspectors in the field of weapons of mass destruction. While the International Atomic Energy Agency (IAEA) has a large department of skilled nuclear inspectors and the Organization for the Prohibition of Chemical Weapons (OPCW) has a large staff of skilled chemical weapons inspectors, no other international organizations have trained inspectors in the field of biological weapons and missiles. There is also in the secretariat of UNMOVIC staff familiar with and trained in the analysis, both of discipline specific issues and in the broad questions of proliferation of weapons of mass destruction. With increasing attention being devoted to the proliferation of these weapons this capability might be valuable to the Council."

Following Blix's presentation, the Security Council again debates the disarmament of Iraq. Foreign ministers from France, Germany and Russia participate, but not those from the US or UK. A US official is quoted as describing the meeting as "an unusual meeting we think is detached from reality".

19 March In the US Senate, the Committee on Foreign Relations convenes a hearing on *The Nonproliferation Programs of the Department of State*. Testifying are: John Wolf, Assistant Secretary of State for Nonproliferation; Rose Gottemoeller of the Carnegie Endowment for International Peace; Charles Curtis of the Nuclear Threat Initiative; and Amy Smithson of the Stimson Center.

The same day, the Terrorism, Unconventional Threats and Capabilities Subcommittee of the House Armed Services Committee convenes a hearing on *Countering the Threat of Weapons of Mass Destruction — Department of Defense Policy and Programs for Fiscal Year 2004*. Testifying before the Subcommittee are: Dale Klein, Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense); Brigadier General Stephen Goldfein, Director, Joint Requirements Office, Chemical, Biological, Radiological, and Nuclear Defense, Joint Staff; Anthony Tether, Director, Defense

Advanced Research Project Agency; Brigadier General Stephen Reeves, Joint Program Executive Officer, Chemical and Biological Defense Program; and Stephen Younger, Director, Defense Threat Reduction Agency.

20 March In Tokyo, at Kasumigaseki station, there is a ceremony to mark the eighth anniversary of the sarin attack by the Aum Shinrikyo cult [see 20 Mar 95]. After observing a minute's silence, station workers lay a wreath of lilies. Later, Hiroshi Araki, head of public relations at Aum (which renamed itself Aleph in 2000) also lays flowers at the station. He says: "At the time of the incident, we seemed to have been only thinking of ourselves. I am pained and can find no words."

20 March From Pakistan, the *Khabrain* newspaper reports that the Afghan and Arab Mojahedin fighting against US and coalition forces in Afghanistan have jointly developed a new 16km range missile, the Pamir, which is equipped for chemical and biological warfare.

20 March At 0234 GMT, shortly after the expiry of President Bush's 48-hour ultimatum [see 17 Mar], US and allied forces begin Operation *Iraqi Freedom* to remove the Iraqi regime from power and disarm it of its weapons of mass destruction. The campaign opens a day earlier than planned, not with the expected "shock and awe" bombardment, but with an opportunistic air strike on an Iraqi leadership target in Baghdad. Allied ground troops cross into Iraq shortly afterwards.

The immediate Iraqi response includes the firing of a number of surface-to-surface missiles from southern Iraq into Kuwait causing much panic but no casualties. It is widely reported initially that at least two of the missiles are Scuds, of which Iraq had said it possessed none, but doubts are later cast on these claims. A day later, the commander of the Czech-Slovak chemical detection unit deployed in Kuwait [see 19 Mar] informs reporters that his troops have so far found no trace of chemical warfare agents on the missile debris. Six days later, another missile falls on Kuwait City and initial tests by the Czech-Slovak unit do not rule out the presence of a biological agent. However, further analysis reveals a harmless bacterium.

20 March From Ankara, the Turkish government has requested other NATO member states to provide it with equipment and materials to protect against possible chemical and biological attacks by Iraq, so it is reported [see also 3 Mar]. Turkey has reportedly asked for 10,000 smallpox vaccines from Denmark, 1,500 smallpox vaccines from Hungary, protection supplies and equipment worth EUR650,000 from Norway, 150,000 medical supply units providing protection against anthrax from Canada and 14,000 protection materials from Poland.

On 24 March, the civil defence director in the south-eastern Turkish province of Diyarbakir says that four containers holding equipment for protection against nuclear, chemical and biological weapons had arrived from Norway. A team of four Norwegian experts accompany the equipment in order to train Turkish personnel in its use.

20 March In Moscow, the State Commission on Chemical Disarmament announces that 151.5 million roubles has been assigned from the federal budget for the demilitarization of a former chemical weapons production facility at Novocheboksarsk. Of the total amount, 125 million is to be spent on clean-up efforts, 25.3 million on maintaining security and 1.2 million on preparations for OPCW inspections. A total of \$6.2 million is expected in donations from foreign countries.

20 March In Kiev, the Ukrainian parliament votes by 258 votes to 121 votes to approve the deployment of the No 19 Radiological, Chemical and Biological Warfare Protection

Battalion to the Persian Gulf. The parliament also approves an agreement with Kuwait under which the battalion will stay on deployment for six months. The bilateral agreement stresses that the battalion can participate “only” in the protection of the civilian population. The cost of transporting the battalion and its equipment to and from Kuwait and its operating costs while in Kuwait are to be borne by the US. A 15-strong advance party arrives in Kuwait City two days later.

20 March From Geneva, the International Committee of the Red Cross urges all sides in the conflict in Iraq “to abide strictly by the rules and principles of international humanitarian law.” The ICRC statement includes the following: “The right to choose methods or means of warfare is not unlimited. Weapons having indiscriminate effects and/or causing superfluous injury or unnecessary suffering are forbidden by international humanitarian law, as are chemical and biological weapons.” [See also 4 Mar.]

On the same day, the International Commission of Jurists issues a press release condemning “the illegal invasion of Iraq in the clear absence of Security Council authority”. The press release also addresses the types of weapons which cannot be used in the war: “The ICJ would like to stress that all States must scrupulously observe the rules prohibiting or limiting the use of certain weapons. No weapon that is excessively cruel or by nature indiscriminate may be used, even if it is not the object of a treaty prohibition. The ICJ is particularly concerned about reports that some parties may be contemplating using chemical agents. For those States party to the Chemical Weapons Convention, a strict interpretation is indispensable. In addition, the 1925 Geneva Protocol and customary law absolutely prohibit the use of chemical weapons.”

20 March From the US, the *Washington Post* carries details of *Operation Imminent Horizon* under which US and allied intelligence services have spent the past few days contacting Iraqi operatives in foreign capitals to urge them to either “turn” and provide information or be expelled back to Iraq to face an uncertain future. According to two unidentified US officials cited in the newspaper, the effort has provided potentially valuable new information on Iraq’s biological and chemical weapons programmes. Participating countries included Australia, Hungary, Romania and Sweden.

21 March In Bern, both chambers of the Swiss Federal Parliament approve a law on support for the disarmament and non-proliferation of chemical weapons. The law foresees the appropriation of CHF 17 million over five years to be spent primarily on assisting chemdemil operations in Russia. A decision has yet to be taken on whether the money will be spent on the construction of chemical weapons destruction facilities at Shchuch’ye or Kambarka. The money can only be spent on infrastructure projects and not on the actual destruction of chemical weapons.

21 March In the US, the *Proceedings of the National Academy of Sciences* publishes electronically details of a mathematical computer model used to predict the effects of the release of *Bacillus anthracis* spores over a city. The article is later published in the 1 April issue of the journal. The model assumes a point-release of 1kg of spores concentrated at a trillion spores per gram, from a height of 100 metres, in a city of 10 million inhabitants. It also takes into account various factors including the geographical dispersion of the aerosolized spores, the exposure to and age-dependent dose-response of inhabitants, the dynamics of anthrax disease progression and the timing and organization of medical intervention. The conclusions drawn from computer simulations of the model show that even in the base case with a relatively efficient post-attack response more

than 100,000 people die. Slower post-attack responses increase the death toll considerably but even a detection delay of only six hours (as opposed to the 48 hours in the base case) still results in approximately 70,000 deaths.

21 March In Vancouver, at the University of British Columbia, there begins a two-day conference on *Preventing Crimes Against Humanity: Lessons from the Asia Pacific War (1931–1945)*. There is a plenary session on “Japan’s Biological Warfare in the Asia Pacific War” at which Professor Stephen Endicott of York University, Xu Jiaxie a Chinese survivor of Japanese biological warfare, and Professor Martin Furmanski of the University of California speak. The plenary session is followed by a workshop on “Resolving the Aftermath of Japan’s Biological Warfare in China” in which the three plenary speakers participate along with Wang Xuan, victims’ representative of the germ warfare lawsuit against the Japanese government [see 27 Aug 02], Professor Michael Franzblau, of the University of California and Yang Dafang, a surviving family member of Japan’s biological warfare and representative of the germ warfare lawsuit against the Japanese government.

A paper by John Price, associate professor of Japanese history at the University of Victoria, addresses the question of whether Canadian officials had access, via US military officials, to captured Japanese information on BW experiments on Chinese prisoners. Price’s paper concludes: “scientists employed by the [Canadian] Defence Research Board probably had access to and made use of the information obtained from the experimentation on humans in China.”

22 March France has deployed a 39-man nuclear, chemical and biological defence unit and two armoured detection vehicles to Qatar, an unidentified French official tells CNN. The deployment follows a Qatari request under a bilateral agreement between the two countries.

22 March In the US, the *Washington Times* carries an interview with Brian Hayes of the US Defense Threat Reduction Agency who led efforts [see 19 Nov 02] to decontaminate the site on Vozrozhdeniye Island in the Aral Sea where stocks of Soviet anthrax spores had been buried in 1988. According to Hayes, “the purpose of the expedition was to prevent potential adversaries from acquiring biochemical materials that could pose a significant risk and danger to Uzbekistan and the United States.” The *Washington Times* article says that Russia has refused to say how much anthrax was transported to the island and Hayes says it is hard to guess. The newspaper cites estimates of between 100 and 200 tons which were buried at a depth of five to eight feet, according to Hayes. The US team brought with them laboratory equipment with which they were able to detect live anthrax spores in the soil. Decontamination was undertaken using calcium hydrochloride and by covering the contaminated soil with water for six days. Following further laboratory tests to confirm the absence of live spores, the soil was reburied.

23 March Near Najaf in Iraq, troops from the US 3rd Infantry Division capture a large facility apparently used to produce chemical weapons, so the *Jerusalem Post* reports. According to the newspaper which has a correspondent embedded with the division, the facility is adjacent to a military barracks and is camouflaged to prevent detection from the air. Approximately 30 Iraqi soldiers, including a general, are also captured at the site. The newspaper, quotes Lt-Gen John Abizaid of US Central Command as saying: “I’m not going to confirm that report, but we have one or two general officers [*sic*] who are providing us with information.” In a statement, Central Command says that troops are examining “sites of interest” and that reports describing the Najaf site as a chemical weapons facility are “premature”.

UNMOVIC spokesman Ewen Buchanan is cited as saying that the Commission was not aware of any large-scale chemical sites which could be used to make chemical weapons in Najaf; UNMOVIC inspectors had earlier visited a cement factory in Najaf but did not report finding anything. The following day, the *Financial Times* cites US Department of Defense officials as saying that no evidence of chemical weapons production has been found at the Najaf site and that the facility had probably been abandoned some time ago. According to an unidentified "senior western intelligence officer" quoted in the newspaper: "It's been in the interests of the Israelis to play up a whole range of issues. A degree of healthy scepticism is very necessary." Three days later, the *New York Times* reports that experts from the 75th Exploitation Task Force equipped with advanced chemical and biological detectors and laboratory equipment have also failed to find any traces of chemical or biological agents at the facility. However, officials are cited by the newspaper as saying that the site remains suspicious as there are indications that chemical or biological weapons may have been made or stored there.

23 March Al Qaeda has reached the threshold of production for some chemical and biological agents and may have already manufactured others, according to the *Washington Post*. The newspaper bases its report on interviews with three unidentified US government officials with access to written reports. Much of the information appears to come from handwritten documents and computer hard drives seized during the arrest on 1 March of Khalid Sheik Mohammed, considered by some to be al-Qaeda's most important operational planner and the principal author of the 11 September attacks, and from more recent interrogations of Mohammed. According to the newspaper, the evidence shows that al-Qaeda completed plans and obtained the materials required to manufacture botulinum toxin, salmonella and cyanide and that the group is close to a feasible production plan for anthrax. According to one unidentified official quoted by the *Post*, Mohammed "was involved in anthrax production, and [knew] quite a bit about it." However, the newspaper notes that the evidence also demonstrates that al-Qaeda has no knowledge of advanced techniques used in the most efficient biological weapons and that the anthrax strain mentioned in the documents is not amongst the most virulent. The evidence uncovered in Pakistan has also led two of the officials cited by the newspaper to reassess the significance of the earlier discovery of an abandoned laboratory near Khandahar in Afghanistan [see 22 Mar 02] with one of them quoted as saying "there is obviously a connection".

24 March In Oklahoma, the US Army and the Environmental Protection Agency begin a three-week trial as part of the Remote Chemical and Biological Agent Vapor Detection System [see 15 May 02]. The trial involves a crop-duster spraying a mixture of grain alcohol, clay dust and water and polyethylene glycol simulating the dispersal of a biological agent to see whether the state's advanced weather radar system can detect the aerosol cloud. The test is the first of 261 planned runs, of which 27 will be blind trials with the pilot not telling radar operators whether he sprayed any material or not. If successful, the Army plans to install new detection software in 150 radar stations across the US.

25 March In Kuwait, a consignment of 5,000 gas masks from the Czech Republic is found to be unusable, so it is reported. The consignment, which was the first in a series to supply up to one million gas masks, were to have been distributed to Kuwaiti civilians and soldiers to protect against chemical and biological attacks from Iraq. Czech Defence Minister Jaroslav Tvrdik is quoted as saying: "The masks that arrived in Kuwait are a cause for shame. I am extremely angry. ... The result is the collapse of

the project, and shame for the Czech Republic." The Czech company supplying the masks, Gumarny Zubri, has blamed the Czech Interior Ministry from which it had borrowed an older model of gas mask in order to fulfil the contract before the outbreak of hostilities in Iraq. Although some initial press reports state that the company has lost the contract, a later report says that a newer model of the mask is being delivered.

26 March In Iraq, US forces uncover 3,000 Iraqi chemical protection suits at An Nasiriyah, according to Brigadier General Vincent Brooks speaking at a Central Command press briefing. The suits had been found along with gas masks and nerve agent antidote autoinjectors in a hospital which Iraqi militia had reportedly been using as a base from which to conduct attacks. In comments which receive wide media reporting, Brooks says that "what we have found at the hospital reinforces our concern" about Iraqi possession of chemical weapons.

The next day, British forces in the Rumaylah oilfields uncover more than 100 protective suits. At a press conference, UK Secretary of Defence Geoff Hoon says that the discovery shows "categorically that Iraqi troops are prepared for the use of such horrific weapons". However, at the same press conference the Chief of the Defence Staff, Admiral Sir Michael Boyce says: "There is no evidence so far in what we found there, they ought to be defensive for protection suits and respirators and so forth, but as I said, we found other bits of equipment and documentation which we are still analysing and that may point us in other directions. But so far we didn't find anything there which was offensive, no." Four days later, more extensive press reporting follows the discovery of NBC training equipment, gas masks and protective suits by British forces near Basra.

26 March In the US House of Representatives, the Committee on Science convenes a hearing on *Dealing with Foreign Students and Scholars in an Age of Terrorism: Visa Backlogs and Tracking Systems*. Testifying are Janice Jacobs, Deputy Assistant Secretary of State for Visa Services; Shirley Tilghman, president of Princeton University; and David Ward, president of the American Council on Education.

27 March In Iraq, state television broadcasts a video of an apparently recent meeting between Saddam Hussein and a number of officials amongst whom is Huda Salih Mahdi Ammash who is believed by US intelligence to have helped rebuild the Iraqi biological warfare programme in the mid-1990s. Ammash gained her first degree at the University of Texas and her doctorate in microbiology at the University of Missouri in 1983.

27 March In London, the UK Secretary of State for Defence, Geoff Hoon, is asked at a press conference about reports of US planning to use non-lethal chemical weapons in Iraq. Hoon responds as follows: "[N]on-lethal chemical weapons are permitted for dealing with riot control, the United Kingdom is fully signed up to the Chemical Weapons Convention and they would not be used by the United Kingdom in any military operations or on any battlefield." He is later asked whether an attack on the Baath Party headquarters in Basra was carried out using CS gas. He responds: "Can I make clear that the attack on the Baath Party headquarters in Basrah was done from the air and was not done in that way that would require forces to be on the ground and in close proximity. I made clear that the United Kingdom is fully signed up to the Chemical Weapons Convention and that would seem to me to preclude the use of chemicals in those circumstances." The questioner then repeats: "CS gas is precluded?" to which Hoon replies: "That would be my understanding, yes."

27 March In the US House of Representatives, the Subcommittee on Health of the Committee on Energy And

Commerce convenes a hearing on *Furthering Public Health Security: Project Bioshield*. Testifying in the first panel is Secretary of Health and Human Services Tommy Thompson. In the second panel, the witnesses are: Leighton Read of Alloy Ventures representing the Biotechnology Industry Organization; Michael Friedman, Chief Medical Officer for Biomedical Preparedness of PhRMA; James Baker, of the Center for Biological Nanotechnology; and Gary Noble, Vice President of Medical and Public Affairs at Johnson and Johnson.

27 March In the US, the *New York Times* reports new research which investigates why different strains of *Bacillus anthracis* differ so much in virulence. The study, undertaken by scientists at Louisiana State University, the Lawrence Livermore National Laboratory and the US Army Medical Research Institute of Infectious Diseases (USAMRIID) is published in the current *Journal of Clinical Microbiology*. The paper states that each anthrax bacterium carries many copies of the two plasmids within the genome and that the more copies of the second plasmid, known as pX02, that are present, the more virulent the strain will be. While the research, if validated, may benefit studies into new anthrax vaccines, it could also be used in the creation of more virulent strains of *B. anthracis*. A debate did occur on whether to publish the research, but it was decided that the benefits of publication outweighed the risks.

28 March In Wellington, New Zealand, on the day that had been described as a "demonstration of capability" in recent terror threats [see 4 Mar], the Ministry of Health is evacuated and a bomb threat causes public buildings in Lower Hutt to be evacuated. A man had walked into the Ministry of Health, dropped a bag which he said contained a toxic substance and fled. The contents of the bag later turn out not to be hazardous and police say that there is nothing to connect the package to the recent threats.

28 March In Iraq, orders have been issued for Iraqi troops to use chemical weapons when forces of the US-led coalition cross pre-selected "trigger lines" on routes into Baghdad, according to Brigadier General Vincent Brooks speaking at a Central Command press briefing. Brooks says: "We have seen indications through a variety of sources and reporting means that, first, orders have been given that at a certain point chemical weapons may be used. We've seen chemical protective equipment in a number of areas south of where we thought that red line might be." [see 26 Mar]. Brooks adds that no specific order from Iraqi high command has been seen but says: "We know that the capability does indeed exist. We know that the will exists. And we take it very, very seriously at this point and we'll prepare ourselves accordingly." The *New York Times* reports that statements from Iraqi prisoners of war and signals intelligence indicate that chemical weapons have been moved to the Medina Division of the Republican Guard which is deployed to defend Baghdad. Citing officials with the US Army V Corps headquarters in Kuwait, the newspaper says that intelligence information points to 155mm shells being provided to artillery units. A Czech liaison officer at US Central Command headquarters in Qatar is quoted as saying: "From today, a division commander of the Republican Guard, if faced with the worse, can use chemical weapons, which is no pleasant matter."

28 March In northern Iraq, US special forces and Kurdish militia begin an assault on the camp of Ansar al-Islam near Halabja. The group had earlier been accused of manufacturing the toxin ricin at the camp [see 6 Feb] and had been linked by US and UK government officials to al-Qaeda and to the Iraqi regime. Following three days fighting, the camp is overrun and US special forces scour it for signs of chemical weapons production. However, no evidence is found and the building

where the ricin was allegedly manufactured is reported to belong to another group. Chairman of the US Joint Chiefs of Staff General Richard Myers tells CNN that: "It's from this site where people were trained and where poisons were developed that migrated into Europe." He elaborates further that the site is "probably where the ricin that was found in London probably came from" or at least "the operatives and maybe some of the formulas came from this site."

28 March At OPCW headquarters, the Executive Council reconvenes for a specially-scheduled meeting to discuss the implementation of the tenure policy for staff members of the Technical Secretariat.

28 March At the Tooele Chemical Agent Disposal Facility in Utah, operations to destroy the VX stockpile stored at the Deseret Chemical Depot begin. Chemdemil operations at the facility had been halted since the earlier exposure of a worker to sarin [see 15 Jul 02]. The VX operations are scheduled to be completed in 2004.

28 March In the US, the Advisory Committee on Immunization Practices convenes by conference call for an emergency meeting at which it revises its recommendations on who should receive smallpox vaccinations. The meeting was called after the Centers for Disease Control and Prevention took the precautionary measure of recommending that people suffering from heart disease not be vaccinated. The decision follows the deaths of three people after being given the vaccine. All three had a history of heart disease and, although no direct link has been drawn, the Committee is now recommending that people with heart disease or those with three or more risk factors for it, such as diabetes, should not be vaccinated. As many as 6 per cent of healthcare workers could now be excluded and as much as 10 per cent of the general public.

31 March In Jerusalem, the head of the Israeli military intelligence research unit tells the Knesset's Foreign Affairs and Defence Committee that Iraqi chemical and biological weapons may be hidden in Syria. General Yossi Kupperwasser tells the committee that "it is possible Iraq transferred missiles and weapons of mass destruction into Syria." He says that this could explain why US-led forces in Iraq have not yet found any prohibited weapons.

31 March In Geneva, UNIDIR hosts the launch of *Project Coast: Apartheid's Chemical and Biological Warfare Programme* by Chandre Gould and Peter Folb of the Centre for Conflict Resolution in Cape Town.

31 March In Canada, researchers at the University of Victoria have found that a liquid biological agent can be effectively disseminated on a large-scale using crop-dusting planes. The researchers have studied a 1999 campaign in Victoria to eradicate the European gypsy moth which involved the spraying of an insecticide containing *Bacillus thuringiensis* spores. The eradication campaign was accompanied by an extensive study of the short-term health effects on the local population, both before and after the spraying. This study showed that the spraying produced droplets small enough (2 to 7 microns in size) to penetrate houses and to contaminate the nasal passages of residents inside their homes. The research is published in the new journal *Biosecurity and Bioterrorism: Biodefense Strategy, Practice and Science*. The authors conclude: "The study of the *B. thuringiensis* spray in Canada in 1999 provides data that refutes arguments asserting that there are technological barriers that would prevent all but major military programs from using *B. anthracis* as an aerosol disseminated bioweapon. These findings should be understood by those with responsibility for preventing or responding to the consequences of bioterrorist

attacks. These data provide evidence that it is technologically feasible to disseminate biological agents from aircraft (or backpack sprayers, or truck-mounted foggers).”

April The US Department of Defense transmits to Congress its annual report on the Chemical and Biological Defense Program (CBDP). It is the tenth such report [see also 18 Apr 02] submitted in accordance with Section 1703 of Public Law 103-160, the FY 94 National Defense Authorization Act. The report states that its purpose now is to assess “(1) the overall readiness of the Armed Forces to fight in a chemical-biological warfare environment and steps taken and planned to be taken to improve such readiness; and (2) requirements for the chemical and biological warfare defense program, including requirements for training, detection and protective equipment, for medical prophylaxis, and for treatment of casualties resulting from use of chemical and biological weapons”. The 434-page report is in two volumes — *Annual Report to Congress* and *FY2002-2004 Performance Plan* — that together present much detail on the current organization and composition of US military preparedness for CBW, including newly fielded equipments, international collaborations and research & development activities. There is reference to a growing threat and to the emergence of “new threats” as consequences not only of proliferation and the evident interest of terrorist groups in chemical, biological, radiological and nuclear weapons but also of technological change. In the latter regard, however, the report is notably non-specific, its passages on, for example, medical chemical defence countermeasures referring only in the most general terms to “non-traditional agents” and “FGA” (fourth generation agents), there being no mention of ‘novichoks’. “Current medical regimens used for protection against the conventional nerve agents are being evaluated as countermeasures for non-traditional agents”, the report says in its account of the work of the Joint Medical Chemical Defense Research Program during 1991/92. There is a chapter on the “Status of DoD Efforts to Implement the Chemical Weapons Convention”, which includes particulars of OPCW inspections of DoD facilities and notes that the primary goal of the research & development work done by DoD on CWC-related arms-control technology is “to protect DoD equities and minimize the threat to national security interests posed by US involvement in CW arms control activities”. There is no express mention in the report of any association between the CBDP and the Joint Non-Lethal Weapons Directorate.

1 April In Moscow, a ceremony at the British Embassy marks the completion — in February — of the UK-sponsored project to construct a £2 million water supply system at the Russian Shchuch'ye chemdemil facility [see 12 Jun 02]. UK Armed Forces Minister Adam Ingram — speaking from London — says: “This is a landmark in UK–Russian cooperation, and I look forward to further success in our work together”.

1 April In Shefar'am, Israel, two elderly women are found dead — believed suffocated — in their one-room apartment after having sealed their windows with plastic sheeting. “They died in the war”, says Chief Superintendent Ya'akov Bilton.

1 April At UN headquarters, Secretary-General Kofi Annan says to reporters: “The work of the [UN weapons] inspectors has merely been suspended. If and when they can resume their work they should go back to Iraq. If anything were to be found, they should go back to test it. I hope the time will come when they will be able to do that.”

2 April In the UK House of Commons, Parliamentary Under-Secretary of State for Foreign and Commonwealth Affairs Mike O'Brien says: “We have no clear evidence that Cuba is

engaged in a programme to develop WMD [see also 1 and 25 Nov 02], although we do have some concerns about the scale of their pharmaceutical production capacity”.

3 April The US Department of Defense confirms that it has issued tear gas to US troops currently deployed in Iraq [see 2 Mar], following the granting of a presidential waiver [see 5 Feb]. According to Pentagon spokesperson Lieutenant Colonel Dave Lapan: “Riot-control agents, such as CS, better known as tear gas, are nonlethal and may be used by US forces only when authorized by the president and only under specific, well-defined circumstances. Use of the agents for defensive purposes to save lives would be consistent with the Chemical Weapons Convention, which prohibits the use of riot control agents as a method of warfare”. Meanwhile, in the UK House of Commons, Parliamentary Under-Secretary of State for Foreign and Commonwealth Affairs Mike O'Brien says that he has not received any notification that US forces plan to deploy CS gas to the Gulf. He also says that he has not made any representations to the US Administration with respect to the deployment of either CS or pepper spray to the Gulf [see also 25 Feb].

4 April Iraqi Information Minister Mohammed Saeed al-Sahhaf denies that Iraq is planning to use weapons of mass destruction, but threatens the use of “non-conventional” methods to attack US forces. The next day, al-Sahhaf says: “The criminals will be humiliated ... to hurt the enemy more, raise the level of your attacks”; and two days thereafter he says: “The infidels are committing suicide by the hundreds on the gates of Baghdad ... Be assured, Baghdad is safe, protected”.

4 April In Liberec, Czech Republic, an official launch marks the formation of the first fully professional chemical battalion. It will be based at Liberec and will comprise 520 professional soldiers — 200 of which are currently stationed in Kuwait [see 19 Mar]. Czech Deputy Defence Minister Jaroslav Skopek says the reform of the battalion is an important step on the path towards converting the entire military into a professional entity by 2006.

4 April The US Centers for Disease Control and Prevention (CDC) issue *Supplemental Recommendations for Using Smallpox Vaccine in a Pre-Event Vaccination Program* [see 22 Jun 01]. The recommendations detail the procedure for administering the smallpox vaccine, and set out guidance vis-à-vis persons to whom the vaccine should not be administered, as well as precautionary measures to be followed generally. For example, vaccinating persons under the age of eighteen and pregnant women is not recommended; deferral of vaccination is recommended for persons with e.g., inflammatory eye diseases.

In a separate paper, the CDC reports that ten ‘cardiac adverse events’ — two of which resulted in fatalities — have been reported among the approx. 30,000 civilian health-care and public health care workers vaccinated against smallpox between 24 January and 30 March. Around 365,000 military personnel have been vaccinated thus far during the said period. The fourteen cases of ‘cardiac adverse events’ — which include one fatality — reported among military personnel all occurred among the approx. 250,000 who received the vaccine for the first time. With each fatality, the deceased had been suffering from a pre-existing circulatory disorder. Release of the report follows a recent decision [see 28 Mar] not to administer the smallpox vaccine to persons suffering from heart disease.

5 April UK Home Secretary David Blunkett says, during a radio interview, that it is possible that no chemical, biological or nuclear weapons may be found in Iraq. Two days later in the House of Commons, Prime Secretary of State for Defence Geoff Hoon

55 Years Ago

9 April 1948 The United States Army Chemical Corps proposes to the Army General Staff that the following radio message be sent to overseas theatre commanders: "This precautionary message is to remind you that standing instructions prohibiting the employment of gas in the conduct of warfare, unless expressly authorized by this Department, applies equally to tear gas and other irritant gas munitions. Such non-lethal gas munitions in the discretion of the theater commander are authorized for use of troops in quelling civil disorders, but their use is limited to police type operations and it is imperative that they be not used in any situation where such use might be interpreted as a gas attack on the uniformed military forces of another nation." The Marine Corps has concurred, the Navy recommending that the message be dispatched, not by the Army, but as a directive of the Joint Chiefs of Staff.

says, with regard to the Blunkett statement: "I do not share that view. [The Iraqi regime has sought] to hide [the weapons] in more remote parts of the country as well as to keep them mobile. I have no doubt that those weapons of mass destruction will be found".

7 April In Bangladesh, president of the Bangladesh Democratic Party Nazim Habib-uz-Zaman and secretary-general of the same party Sarder Shahadat Hossain issue a joint statement claiming that US and UK forces are using sophisticated germ warfare against the Iraqi people to lower their morale.

7 April In Basra, Iraq, local Iraqi police confirm that a body found amongst the rubble of a three-storey building is that of Ali Hassan al-Majid. UK Air Marshal Brian Burridge says: "[P]ositive identification is ongoing. But I have to say that open sources locally in Basra say that's the man". According to Burridge, al-Majid was killed two days ago in an air strike after he was seen entering the building where he was to hold a meeting with other senior Ba'ath Party officials. A first cousin of Saddam Hussein, al-Majid, is said to have ordered *inter alia* the chemical attacks on the Kurdish population in northern Iraq in 1988.

8 April In Vienna, IAEA Director-General Mohammad ElBaradei says: "Any weapons of mass destruction found in Iraq will have to be verified by the United Nations verification organisations in order to generate the required credibility". In an interview with the German *Bild am Sonntag*, run five days later, ElBaradei says: "So far, no evidence has been provided that Iraq still has weapons of mass destruction ... It is not enough when suspicious substances that have been discovered are tested in US laboratories. The results must be checked by the UN weapons inspectors. This is the only way to make credible statements about weapons of mass destruction which possibly still exist ... If prohibited weapons are found, only the United Nations has the authority to destroy them — and not the United States".

8 April The US General Accounting Office releases its *FY 2003 Annual Report on the Cooperative Threat Reduction Program*. The report states: "The Department of Defense [...] submitted its CTR annual report for fiscal year 2003 to Congress on January 8, 2003, more than 11 months after the submission date mandated by law ... In reviewing the CTR annual report submitted for fiscal year 2002, we found that it (1) did not clearly set forth the amount of CTR funding to be provided over the

5-year term of its plan, (2) did not include key federal strategic planning elements in the 5-year plan, (3) described the procedures CTR officials used to account for the assistance provided but in some instances asserted a more rigorous methodology than what was actually used, and (4) incorporated some but not all prior GAO recommendations".

8 April In Spokane, USA, on the opening day of the trial of Kenneth Olsen — who had already been charged with violating the US Biological Weapons Anti-Terrorism Act 1989 for allegedly producing ricin to poison his wife [see 19 Jun 02] — the US Attorney's Office lodges an additional charge of his having violated the US Chemical Weapons Convention Implementation Act 1998. Under the latter Statute it is a criminal offence simply to be in possession of a 'chemical weapon', however, under the former statute — at the time of commission of the alleged offence — the prosecution would additionally have to prove that Olsen intended to use the ricin as a weapon.

9 April The Spanish *El Pais* runs an interview with UNMOVIC Executive Chairman Hans Blix, in which Blix says, "There is evidence that this war [against Iraq] was planned well in advance. Sometimes this raises doubts about their attitude to the (weapons) inspections ... I now believe that finding weapons of mass destruction has been relegated, I would say to fourth place, which is why the United States and Britain are waging war on Iraq. Today the main aim is to change the dictatorial regime of Saddam Hussein".

10 April The US Central Intelligence Agency releases its *Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions for the period 1 January to 30 June 2002* [see 7 Jan], in accordance with the FY 97 Intelligence Authorization Act. The Agency is obliged to submit a report to Congress every six months in which it reports on activities in the preceding six months. The report excludes reference to "countries that already have substantial WMD programs, such as China and Russia, as well as countries that demonstrated little WMD acquisition activity of concern". The report states:

"Iran is a party to the Chemical Weapons Convention (CWC). Nevertheless [...] it continued to seek chemicals, production technology, training, and expertise from Chinese entities that could further Tehran's efforts at achieving an indigenous capability to produce nerve agents. Iran already has stockpiled blister, blood, and choking agents — and the bombs and artillery shells to deliver them — which it previously has manufactured. It probably also has made some nerve agents ... Tehran probably maintains an offensive BW program. Foreign dual-use biotechnical materials, equipment, and expertise — primarily, but not exclusively, from Eastern Europe — continued to feature prominently in Iran's procurement efforts ... It is likely that Iran has capabilities to produce small quantities of BW agents, but has a limited ability to weaponize them".

"Iraq has attempted to purchase numerous dual-use items for, or under the guise of, legitimate civilian use ... Iraq appears to be installing or repairing dual-use equipment at CW-related facilities ... Some of these facilities could be converted fairly quickly for production of CW agents ... During this reporting period, Baghdad continued to pursue a BW program ... In addition, Iraq has continued dual-use research that could improve BW agent R&D capabilities. In light of Iraq's growing industrial self-sufficiency and the availability of mobile or possible covert facilities, we are concerned that Iraq is again producing BW agents."

"[North Korea] has acquired dual-use chemicals that could potentially be used to support [its] long-standing chemical warfare program. North Korea's chemical warfare capabilities include the ability to produce bulk quantities of nerve, blister,

choking and blood agent, using its sizeable, although aging, chemical industry. During the last half of 2002, we believed that North Korea possessed a sizeable stockpile of these agents and weapons, which it could have employed in a variety of delivery means ... [North Korea] has acquired dual-use biotechnical equipment, supplies, and reagents that could be used to support North Korea's BW efforts. As of the last half of 2002, North Korea is believed to have possessed a munitions production infrastructure that would have allowed allow it to weaponize BW agents and may have such weapons available for use".

"Following the suspension of UN sanctions, [Libya] reestablished [*sic*] contacts with sources of expertise, parts, and precursor chemicals abroad, primarily in Western Europe. Tripoli still appeared to be working toward an offensive CW capability and eventual indigenous production. Evidence suggested that Libya also is seeking to acquire the capability to develop and produce BW agents".

"Syria sought CW-related precursors and expertise from foreign sources during the reporting period. [It] already held a stockpile of the nerve agent sarin, but apparently is trying to develop more toxic and persistent nerve agents. Syria remained dependent on foreign sources for key elements of its CW program, including precursor chemicals and key production equipment. It is highly probable that Syria also is continuing to develop an offensive BW capability."

"Sudan, a party to the CWC, has been seeking the capability to produce chemical weapons for many years. It historically has obtained help from foreign entities, principally in Iraq. Sudan may be interested in a BW program as well."

[Note: Although the CIA has reported acts by Iran and Sudan that violate the CWC to which they are both states parties, the US has not activated the non-compliance procedures of the Convention]

10 April In Texas, the head of infectious diseases at the Texas Tech University Health Science Center, Thomas Butler is charged *inter alia* with falsely reporting the disappearance of thirty vials of *Yersinia pestis*; smuggling the bacteria into the USA; and illegally transporting the bacteria within the country and overseas [see 15 Jan]. Butler is currently on paid leave.

11 April In Iraq, a number of prominent Iraqi scientists launch an appeal in which they seek the universal condemnation of the occupying forces in Iraq for encouraging looters to raid Iraqi scientific institutions, such as Mosul University, with a view to destroying as many scientific research papers as possible. The motivation behind this policy is, they say, to prevent any future Iraqi scientific renaissance.

12 April In Baghdad, Saddam Hussein's scientific advisor General Amir al-Saadi denies the presence of weapons of mass destruction in Iraq. He makes his comments, immediately prior to surrendering to US forces, in an interview with the German ZDF television channel, which also films his surrender minutes later. Asked whether Iraq possess weapons of mass destruction, al-Saadi says: "Nothing, nothing. I'm saying this for posterity, for history, not for defending the regime ... Time will bear me out. There will be no difference after the war is over ... I was knowledgeable about those programs, those past programs, and I was telling the truth, always the truth. We were finally approaching the point of getting everything accounted for, but things have turned out differently".

13 April US President George Bush says: "We believe there are chemical weapons in Syria. Each situation will require a different response". The next day, Defense Secretary Donald Rumsfeld says: "We have seen chemical weapons tests in Syria over the past 12, 15 months". A statement subsequently

released by the Syrian government condemns the Rumsfeld claim — and others — as "falsifications".

14 April In Luxembourg, EU External Relations Council discuss ways of formulating an EU strategy on the containment of WMD. It is the first occasion that EU foreign ministers have addressed the issue of WMD in the said Council. Secretary-General and High Representative of the Council of the European Union Javier Solano says that developing a long-term solution vis-à-vis WMD is an "urgent political need" for the EU. Means of improving the ratification and implementation of relevant treaty regimes, improving export controls, and boosting the role of UN and IAEA weapons inspectors, are discussed. The Council produces a set of conclusions instructing Solano and the Political and Security Committee to develop a WMD global threat assessment, a long-term strategy, and proposals on how to deal with the WMD threat. In a statement issued after the meeting, Greek Foreign Minister George Papandreou says that alternatives to the pre-emptive use of force against non-compliant countries had been discussed by ministers, including the boosting of "multilateral force" and "strengthening the monitoring of arms and other shipments". The London *Financial Times* meanwhile cites a six-page confidential EU document on the matter, which purportedly states that supporting treaty regimes is no longer a sufficient strategy, and that more emphasis should be placed on monitoring and information gathering.

16 April In Moscow, the Council of Federation of the Federal Assembly of the Russian Federation and the Center for Policy Studies in Russia host a workshop on 'International Terrorism with the use of WMD: Myth or Reality?' Participants identify, amongst others, the need to elaborate common standards of control over the chemical and biological facilities. In this regard they also agree that Russian officials should increase interaction with "respective European bodies" to facilitate the extradition of persons responsible for terrorist and criminal actions. To increase effective cooperation between law enforcement agencies, the participants highlight the need to expedite the signing of an agreement between Russia and Europol.

16 April The UK National Health Service is not, as a whole, well prepared to handle emerging threats from chemical, biological, radiological or nuclear incidents, according to a report released by the House of Commons Select Committee on Public Accounts. The Department of Health, it says "lacks a full picture of the risks involved across the country or means of ensuring that each region has plans, training and equipment in place consistent with those risks ... [It] could be more active in learning from events and plans in other countries ... The proposed new national major incident database is one way of sharing lessons and best practice across the country, and should be given priority." The inquiry was initiated following the release of a report by the National Audit Office last year [see 15 Nov 02] that highlighted similar shortcomings.

17 April In Rome, Italian Deputy Foreign Minister Roberto Antonione and Deputy Director-General of the Russian Munitions Agency Vyacheslav Kulebyakin sign a protocol to the agreement existing between Russia and Italy *vis-à-vis* Russian chemdemil. Under the protocol Italy will provide Russia with EUR 5 million — in two instalments in 2003 and 2004 — to fund the construction of the Shchuchye chemdemil facility's gas supply system.

17 April In the USA, a research team has concluded that the amount of herbicide sprayed by the US airforce during the Vietnam War was greater than had previously been estimated, and that the quantity of dioxin contaminant dispersed could have

been as much as four times greater than previously estimated. The previous estimates appeared in a 1974 — US Department of Defense commissioned — National Academy of Sciences (NAS) report *The Effects of Herbicides in South Vietnam*. Browsing the US military archives, lead researcher Jeanne Mager Stellman of Columbia University, discovered daily logs filed by pilots after their missions. “I realized that there were ‘project’ numbers on each of these reports, and that those numbers vaguely resembled a couple of columns that we have never put together before or used”, says Stellman. She continues: “We located more than 7 million more litres of spray, or about 10 percent more ... What makes these 10 percent particularly significant is that they were of the most heavily contaminated herbicides”. Containing details of the missions’ targets, the logs enabled the team to draw maps of spraying patterns in Vietnam, thus making it possible to establish the date of herbicide dispersal and the quantity dispersed over precise localized target zones. According to this latest research, the 1974 NAS estimate failed to account for the dispersal of 9,440,028 litres of herbicide. They also find that the HERBS files failed to account for around 200 missions flown prior to 1965. The team concludes, *inter alia*, that around 1.9 million previously unaccounted for litres of Agent Purple were dispersed over Viet Nam between 1962 and 1965. This agent, they claim, is likely to have had a dioxin content of as much as 45 parts per million; Agent Orange, they say, contained around 13 parts per million, revised upwards from the previous estimate of 3 parts per million.

21 April Russian Munitions Agency Director-General Zinoviy Pak is to be relieved of his duties on the grounds of having “reached the maximum age allowing a person to hold a post in the civil service”, according to unnamed Government Information Department officials. Pak’s employment will cease on 27 April, which is timed to coincide with the end of the first stage of Russia’s chemdemil. The Director-General post will now be assumed by head of the Russian Ministry of Defence RKhB Protection Troops Victor Kholstov.

22 April Pakistani Information Minister Sheikh Rashid Ahmad claims that India has an active chemical weapons programme, and is stockpiling chemical weapons in neighbouring countries. Ten days previously Ahmad had said that India was a “fit case” for a pre-emptive strike since it possessed chemical and biological weapons, and had been responsible for carnage in Ahmedabad, Gujarat, Kashmir and elsewhere. Indian Defence Minister George Fernandes has in the last few days dismissed Pakistan’s allegations that India possesses chemical and biological weapons, thus: “From the very beginning, the Pakistani leadership has the habit of telling lies. So there is no need to believe their claims”.

22 April At UN headquarters, UNMOVIC Executive Chairman Hans Blix briefs the Security Council on UNMOVIC’s readiness to resume operations in Iraq. It is his first meeting with the Security Council since the US-led invasion of Iraq. In his address, Blix says: “[I]t remains that finding the long sought truth about the suspected existence of weapons of mass destruction and other proscribed items in Iraq is an interest that is not limited to the governments that have pursued the war but is one which is shared by the whole international community ... UN resolutions [have thus far] required that any destruction of proscribed items should take place under international supervision. This would seem still advisable for international credibility ... [T]he long-term international monitoring programme envisaged by the resolutions may continue to be required to maintain a high-level of confidence in the region and the world that Iraq remain free of weapons of mass destruction”. In an interview prior to the meeting, Blix said that at the time

when UNMOVIC was undertaking verification activities in Iraq “the US was very eager to sway the votes in the Security Council”. He continues: “They felt that stories about [me withholding information from the Security Council about an Iraqi drone] would be useful to have and they let it out. In that way they tried to hurt us a bit and say that we had suppressed this ... It was not the case. It was a bit unfair to hurt us”. Blix adds: “I think there’s been a lot of disturbing elements that so much of the intelligence on which capitals built their cases seems to have been shaky”. He also says he found it “very, very disturbing” that US intelligence failed to identify as fakes documents suggesting Iraq tried to buy uranium from Niger [see 28 Jan].

24 April Russian Munitions Agency Director-General Zinoviy Pak [see 21 Apr] declares that Russia has completed the chemdemil of 1 percent — amounting to 400 metric tonnes — of its chemical weapons (Phase 1) five days ahead of the scheduled deadline. Two days later, an official ceremony in Gorny held to mark the occasion, is attended by top officials from a number of ministries concerned in Russia’s decommissioning of its chemical weapons stockpile.

24 April UK Secretary of State for Defence Geoff Hoon says that whilst the UK supports “independent verification” of any weapons of mass destruction discovered by coalition forces in Iraq, such verification need not necessarily be undertaken by the United Nations. “I am certainly saying that could be through the United Nations. I am equally saying it could be through some other objective source of information”, says Hoon. Last week Hoon said he “would very much welcome a Czech contribution because [the Czech chemical weapons unit] do such an excellent job”.

25 April In London, the European Agency for the Evaluation of Medicinal Products releases an *EMEA/CPMP Guidance Document on the Use of Medicinal Products for the Treatment of Patients Exposed to Terrorist Attacks with Chemical Agents*. The document — requested by the European Commission — is intended as “an update of current expert opinion and recommendations in selected cases ... not as encyclopaedia of chemical warfare agents and all possible treatment and/or prophylactic measures”.

25 April US President Bush says: “We are learning more as we interrogate or have discussions with Iraqi scientists and people within the Iraqi structure, that perhaps [Saddam Hussein] destroyed some [chemical and biological weapons], perhaps he dispersed some”.

25 April The US Department of Defense announces the creation of the Joint Program Executive Office for Chemical and Biological Defense to oversee the protection of military personnel against the use of chemical and biological weapons. The Office will also be responsible for research, development, acquisition, fielding, and life-cycle support for chemical and biological defence equipment and medical countermeasures.

26 April In Iraq, Nissar Hindawi — an Iraqi scientist who worked on Iraq’s biological warfare programme *circa* 1985–95 [see 24 Mar 98 and Dec 98] — says that during his time in the programme, Iraq was never able to produce dry anthrax despite having “produced high quantities” of liquid anthrax and botulinum toxin. Two days later, Hindawi says that after his team had failed in their bid to make dry anthrax in drying ovens, he alone had the knowledge to produce dry anthrax by a method not requiring the use of ovens, but never did so. He also says that economic sanctions imposed subsequent to the first Gulf War effectively discontinued Iraq’s biological warfare programme.

26–27 April In The Hague, the Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Conventions convenes for its 19th workshop, the theme of this one being 'The First CWC Review Conference and Beyond'. There are 46 participants — who are attending in their personal capacities — from 20 countries.

28 April In The Hague, the First Review Conference of the Chemical Weapons Convention commences. It is scheduled to last for two weeks.

28 April In The Hague, during the General Debate at the First Review Conference of the CWC, the head of the Swiss delegation says: "In light of recent experiences, it is appropriate to reiterate that chemical weapons are totally prohibited whether they are lethal or non-lethal and whether their precursors or components are listed in the schedules of the Convention or not ... A lack of transparency exists particularly in the grey areas of the Convention where the red line between activities not prohibited and those prohibited is difficult to discern. To shed more light on these areas, the Conference could ask the States Parties to declare not only chemical products they hold for riot control purposes but for law enforcement purposes in general. Certain chemical agents prohibited in war may be justified for domestic use, but that being the case, it is all the more important to assure other States Parties that the production of these products poses no threat to their security."

28 April In The Hague, during the General Debate at the First Review Conference of the CWC, Assistant US Secretary of State for Arms Control Stephen Rademaker says the USA believes "over a dozen" countries currently have or are actively seeking chemical weapons. In this regard, however, he only identifies Iran and Sudan (states parties); and Libya, North Korea and Syria (non-states parties) [see also 10 Apr]. According to Rademaker, Iran "continues to seek chemicals, production technology, training and expertise from abroad", and has stockpiled blister, blood, and choking agents and has some nerve agents. He also claims that North Korea has the capability to produce bulk quantities of nerve, blister, choking and blood agent and has a variety of means to deliver the weapons. Exercising Iran's right of reply, the Iranian delegation reply that such "comments and allegations [made] by a state party against another state party would definitely put the expected constructive and cooperative atmosphere of the 1st review conference in jeopardy [it being an attempt at] weakening [the] treaty." Iran accuses the USA of transferring "huge amounts of scheduled chemicals" to Israel, and being partially responsible

for 100,000 Iranian chemical weapons victims during the Iran-Iraq war. At a subsequent press conference, Rademaker justifies the USA's decision not to request a challenge inspection against Iran, on the grounds that it could prove ineffective against countries determined to hide illicit weapons. In this regard, he cites UN efforts to uncover alleged Iraqi weapons and Germany's post-World War I evasion of its disarmament requirements.

28 April In The Hague, during the General Debate at the First Review Conference of the CWC, Norwegian Ministry of Foreign Affairs Deputy Secretary General Johan Ludvik Løvald says: "The CWC includes provisions for challenge inspections. So far, this mechanism has never been used, but credible monitoring of compliance must include the use of challenge inspections when this is appropriate." On law enforcement, Løvald says: "Non-lethal weapons for domestic law enforcement must not be used in ways that contravene the convention ...[W]e should keep in mind the intentions of the convention and the aim we all agree on, that is the complete elimination of all chemical weapons."

28 April In the UK House of Commons UK Foreign Secretary Jack Straw says: "I am not certain where [the weapons of mass destruction are in Iraq] but I am absolutely certain that Iraq had illegal possessions [...], and recently. Therefore, there is every reason why they ought to be found, and that is the position of the Government."

The next day in the House of Commons UK Defence Secretary Geoff Hoon states: "No conclusive evidence of Iraqi weapons of mass destruction has yet been discovered, but investigations are at an early stage. We expect gathering and collating evidence from the various sources to be a long and complex task."

29 April In The Hague, during the General Debate at the First Review Conference of the CWC, the New Zealand Minister of Disarmament and Arms Control Marian Hobbs says: "We agreed to challenge inspections in 1992 because they were necessary. We mustn't be afraid to use them. Nor must we be afraid to receive them. And the Secretariat must be prepared and equipped to carry them out as a multilateral institution."

30 April In Moscow, Igor Trunov, a lawyer representing victims of the Moscow theatre siege [see 26 Oct 02], says that 40 people who initially survived the siege have since died as a result of having been exposed to the gas used to end the said siege. "Eighty per cent of the former hostages are suffering from

Forthcoming events

18– 29 August, Geneva — 'New Process' meeting of experts, states parties to the BWC

6–12 September, Dubrovnik, Croatia — CBRMTS – Industry III [World Congress on Chemical, Biological, Radiological Terrorism], details on www.asanltr.com

23–26 September, The Hague — Thirty-Fourth session, OPCW Executive

Council. Further session — EC-35: 2–5 December.

10–12 October, Wiston House, Sussex — Wilton Park conference on *Chemical and Biological Weapons: the Threats of Proliferation and Use*, details on www.wiltonpark.org.uk

20–24 October, The Hague — Eighth session, OPCW Conference of the States Parties

21–22 October, Geneva — International conference *Smallpox BioSecurity preventing the unthinkable*, details on www.smallpoxbiosecurity.org

8–9 November, Geneva — 20th workshop of the Pugwash Study Group on the Implementation of the CBW Conventions

10–14 November, Geneva — First 'New Process' meeting of states parties to the BWC

different illnesses directly connected to their exposure to the substance", says Trunov.

30 April In The Hague, the International Committee of the Red Cross (ICRC) announces its having been refused permission to address the First Review Conference of the Chemical Weapons Convention. ICRC official Robin Coupland says: "The ICRC knows that the content of our statement [being chemical incapacitants] was the reason the delivery of it was blocked. We are not aware of the country or countries responsible for the blocking ... We have international organization status at many other disarmament conferences, and we understood that we had the same here". According to *UN Wire*, an unnamed US official

says the USA and a few unidentified countries had opposed ICRC participation on procedural grounds, since allowing the ICRC to address the conference would open questions on where to draw the line barring other special organizations, such as the World Health Organization. An unnamed UK delegate says the UK did not oppose ICRC participation, the USA being the principal opponent.

This Chronology was compiled by Nicholas Dragffy and Daniel Feakes from information supplied through HSP's network of correspondents and literature scanners.

Recent Publications

Asculai, Ephraim. "The decline of WMD non-proliferation regimes", *Strategic Assessment* [Tel Aviv University: Jaffee Center for Strategic Studies], vol 6 no 1 (May 2003), 5 pp.

Bailey, Kathleen. "The Biological and Toxin Weapons Convention: recapping events of 2002", *Comparative Strategy*, vol 22 no 1 (January 2003), pp 29-44.

Baker, Glenn (editor). *Cuban Biotechnology: a First-Hand Report*, Washington DC: Center for Defense Information, May 2003 [an on-site inquiry stimulated by allegations of a Cuban BW programme].

Beck, Michael, and Seema Gahlaut. "Creating a new multilateral export control regime", *Arms Control Today*, vol 33 no 3 (April 2003), pp 13-18.

Beck, Volker. "Advances in life sciences and bioterrorism: risks, perspectives and responsibilities", *EMBO* [European Molecular Biology Organization] *Reports*, vol 4, (2003) Special Issue, pp S53-S56.

Ben Ouagrham, Sonia, and Kathleen Vogel. "Conversion at Stepnogorsk: what the future holds for former bioweapons facilities", *Cornell University Peace Studies Program Occasional Paper*, no 28 (February 2003), 132 pp.

Berger, Charles, Joel Johnson, and Eun-Ju Lee. "Antidotes for anthrax anecdotes: the role of rationality and base-rate data in assuaging apprehension", *Communication Research*, vol 30 no 2 (April 2003), pp 198-223.

Binder, Patrice, Olivier Attre, Jean Paul Boutin, Jean Didier Cavallo, Thierry Debord, Alain Jouan, and Dominique Vidal. "Medical management of biological warfare and bioterrorism: place of the immunoprevention and the immunotherapy", *Comparative Immunology, Microbiology and Infectious Diseases*, vol 26, 2003, pp 401-21.

Blancou, Jean, and James Pearson. "Bioterrorism and infectious animal diseases", *Comparative Immunology, Microbiology and Infectious Diseases*, vol 26, 2003, pp 431-43.

Blank, Susan, Linda Moskin, and Jane Zucker. "An ounce of prevention is a ton of work: mass antibiotic prophylaxis for anthrax, New York City, 2001", *Emerging Infectious Diseases*, vol 9 no 6 (June 2003), pp 615-22.

Dando, Malcolm. "The danger to the Chemical Weapons Convention from incapacitating chemicals", in Graham S Pearson and Malcolm R Dando (ed), *Strengthening the Chemical Weapons Convention: First CWC Review Conference Paper*, [University of Bradford, Department of Peace Studies], no 4, 2003, 18pp.

Davis, Jay. "The attribution of WMD events", *Journal of Homeland Security*, April 2003, 7 pp.

Dworkin, Mark, Xinfang Ma, and Roman Golash. "Fear of bioterrorism and implications for public health preparedness", *Emerging Infectious Diseases*, vol 9 no 4 (April 2003), pp 503-05.

Einhorn, Robert, and Michele Flournoy (ed). *Protecting Against the Spread of Nuclear, Biological, and Chemical Weapons*, 4 vols, Washington DC: Center for Strategic and International Studies (CSIS), 2003, 551 pp.

FitzPatrick, William, and Lee Zwanziger. "Defending against biochemical warfare: ethical issues involving the coercive use of investigational drugs and biologics in the military", *Journal of Philosophy, Science and Law*, vol 3, March 2003.

Futrell, Robert. "Framing processes, cognitive liberation, and NIMBY: protest in the US chemical-weapons disposal conflict", *Sociological Inquiry*, vol 73 no 3 (August 2003), pp 359-86.

Geissler, Erhard. "Anthrax and the inadequacy of the secret services", *The ASA Newsletter*, no 95 (18 April 2003), pp 1 & 12.

Gilman, Timothy. "Search, sentence, and (don't) sell: combating the threat of biological weapons through inspections, criminalization, and restrictions on equipment", *Journal of Transnational Law and Policy* [Florida State University], vol 12 (2003), pp 217-52.

Grabenstein, John, and William Windenwerder. "US military smallpox vaccination program experience", *JAMA: The Journal of the American Medical Association*, vol 289 no 24 (25 June 2003), pp 3278-82.

Grayson, ML. "The difference between biological warfare and bioterrorism: Australia finally makes a start towards real preparedness for bioterrorism", *Internal Medicine Journal*, vol 33 (May 2003), pp 213-14.

Guillemin, Jeanne. "The 1979 anthrax epidemic in the USSR: applied science and political controversy", *Proceedings of the American Philosophical Society*, vol 146 no 1 (March 2002), pp 18-36.

Hurley, MM, JB Wright, GH Lushington, and WE White. "Quantum mechanics and mixed quantum mechanics/molecular mechanics simulations of model nerve agents with acetylcholinesterase", *Theoretical Chemistry Accounts*, vol 109 (2003), pp 160-68.

Joseph, Robert. "Countering weapons of mass destruction in a new national security strategy", *The Monitor*, vol 9 no 1 (Winter/Spring 2003), pp 3-17.

- Kelle, Alexander, and Annette Schaper. "Terrorism using biological and nuclear weapons: a critical analysis of risks after 11 September 2001", *PRIF* [Peace Research Institute Frankfurt] *Report*, no 64 (April 2003), 33pp.
- Khateri, S, M Ghanei, MR Soroush, and D Haines. "Effects of mustard gas exposure on pediatric patients: long-term health status of mustard-exposed children, 14 years after chemical bombardment of Sardasht [Iran]", *Journal of Burns & Surgical Wound care*, vol 2 no 1 (8 May 2003), p 11ff.
- Khateri, Shahriar. *Victims of Chemical Weapons in Iran*, Tehran: Society for Chemical Weapons Victims Support, 2003, 30 pp.
- Korotenko, KA. "Chemical warfare munitions dumped in the Baltic Sea: modelling of pollutant transport due to possible leakage", *Oceanology*, vol 43 no 1 (2003), pp 16-29.
- Kraatz-Wadsack, Gabriele. "Die Verifikation biologischer Waffen: Abrüstung und Rüstungskontrolle in Irak", *Internationale Politik*, vol 57 no 12 (December 2002), pp 25-30.
- Krasno, Jean, and James Sutterlin. *The United Nations and Iraq: Defanging the Viper*, Westport Connecticut and London: Praeger, 2003, 238 pp [a close study of UNSCOM from the Yale-UN Oral History Project].
- Lane, Michael, and Joel Goldstein. "Evaluation of 21st-century risks of smallpox vaccination and policy options", *Annals of Internal Medicine*, vol 138 (18 March 2003), pp 488-93.
- Levy, Barry, and Victor Sidel (eds). *Terrorism and Public Health: A Balanced Approach to Strengthening Systems and Protecting People*, Oxford University Press, in cooperation with the American Public Health Association, 2003, 377 pp.
- Lindem, Karen, Timothy Heeren, Roberta White, Susan Proctor, Maxine Krengel, Jennifer Vasterling, Patricia Sutker, Jessica Wolfe, and Terence Keane. "Neuropsychological performance in Gulf War era veterans: traumatic stress symptomatology and exposure to chemical-biological warfare agents", *Journal of Psychopathology and Behavioral Assessment*, vol 25 no 2 (June 2003), pp 105-19.
- Luongo, Kenneth, and William Hoehn. "Reform and expansion of cooperative threat reduction", *Arms Control Today*, vol 33 no 5 (June 2003), pp 11-15.
- Marrs, Tim, and Bob Maynard. "Antidotes to chemical warfare agents", in Robert Flanagan and Alison Jones (ed), *Antidotes*, London and New York: Taylor & Francis, 2003, pp 247-67.
- Mayr, Anton. "Smallpox vaccination and bioterrorism with pox viruses", *Comparative Immunology, Microbiology and Infectious Diseases*, vol 26 (2003), pp 423-30.
- Mills, Pamela. "Report on the 17th Workshop of the Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Conventions: *The Impending First CWC Review*, Oegstgeest, The Netherlands, 15-16 June 2002", *Pugwash Newsletter*, vol 39 no 2 (December 2002), pp 52-63.
- Missiaen, T, and J-P Henriët (eds). *Chemical Munition Dump Sites in Coastal Environments*, Brussels: Federal Office for Scientific, Technical and Cultural Affairs, 2002, 167 pp.
- Moodie, Michael, and Isabelle Williams. "The CWC Review Conference: issues and opportunities", *CBACI Special Report*, no 6 (2003), 42 pp.
- Moreno, Jonathan D. "Bioethics after the terror", *American Journal of Bioethics*, vol 2 no 1 (Winter 2002), pp 60-64.
- Mughal, Mohamed Athher. "Biological terrorism: practical response strategies", *CB Quarterly* [US Army Soldier and Biological Chemical Command], no 40 (September 2002), pp 7-12.
- O'Neil, Andrew. "Terrorist use of weapons of mass destruction: how serious is the threat?" *Australian Journal of International Affairs*, vol 57 no 1 (2003), pp 99-112.
- Page, William. "Long-term health effects of exposure to sarin and other anticholinesterase chemical warfare agents", *Military Medicine*, vol 168 no 3 (March 2003), pp 239-45.
- Parachini, John. "Biological weapons terrorism after 9/11: the importance of the historical context", in *The Possible Use of Biological Weapons by Terrorist Groups: Scientific, Legal and International Implications. Proceedings of a conference in Rome at the Istituto Diplomatico Mario Toscano, 15 April 2002*, organized by the International Centre for Genetic Engineering and Biotechnology and the Landau Network, Trieste: ICGEB, 2003 (corrected edition), pp 15-27.
- Paul, J. "Bioterrorism and biodefence", *Journal of Infection*, vol 44 no 1 (2002), pp 59-66.
- Pearson, Graham. "Controlling chemical and biological weapons", *Science and Public Affairs* (March 2003), pp 22-23.
- Pearson, Graham. "National measures to establish and maintain the security and oversight of pathogenic microorganisms and toxins", in Graham S Pearson and Malcolm R Dando (eds), *Strengthening the Biological Weapons Convention Briefing Paper (Second Series) no 4*, [University of Bradford, Department of Peace Studies], 2003, 35 pp.
- Prados, John. "A necessary war?" *Bulletin of the Atomic Scientists*, vol 29 no 3 (May/June 2003), pp 26-33.
- Price, Phillip, Michael Sohn, Ashok Gadgil, William Delp, David Lorenzetti, Elizabeth Finalyson, Tracy Thatcher, Richard Sextro, Elisabeth Derby, and Sondra Jarvis. *Protecting Buildings from a Biological or Chemical Attack: Actions to Take Before or During a Release*, Berkeley CA: Lawrence Berkeley National Lab, 2003, 43 pp [updates at <http://SecureBuildings.lbl.gov>].
- Ramsay, Robin. "Lying about Iraq", *Lobster*, no 45 (Summer 2003), pp 3-8.
- Reddy, L R. *Bio-terrorism*, New Delhi: APH Publishing Corporation, 2002, 225 pp.
- Ripandelli, Decio, and Arturo Falaschi. "Fighting bioterrorism through scientific co-operation in biotechnology", in *The Possible Use of Biological Weapons by Terrorist Groups: Scientific, Legal and International Implications. Proceedings of a conference in Rome at the Istituto Diplomatico Mario Toscano, 15 April 2002*, organized by the International Centre for Genetic Engineering and Biotechnology and the Landau Network, Trieste: ICGEB, 2003 (corrected edition), pp 139-49.
- Roberts, Guy B. "Arms control without arms control: the failure of the Biological Weapons Convention Protocol and a new paradigm for fighting the threat of biological weapons", *INSS Occasional Paper*, no 49 (March 2003), 106 pp.
- Rosenberg, Barbara. "Defending against biodefence: the need for limits", *Disarmament Diplomacy* (February/March 2003), pp 17-22.
- Rubin, Elaine, Marian Osterwies, Lisa Lindeman (ed). *Emergency Preparedness: Bioterrorism and Beyond*, Washington DC: Association of Academic Health Centers, 2002, 105 pp.
- Scott, Douglas. "Logjam in the OPCW: time to limit consensus?" *CWC Special Paper* [Acronym Institute], no 1, 8pp [<http://www.acronym.org.uk/cwc/spec01.htm>].
- Siegel, David, Bradley Younggren, Brian Ness, and Valerie Kvoil. "Operation Castle Cascade: managing multiple casualties from a simulated chemical weapons attack", *Military Medicine*, vol 168 (May 2003), pp 351-54.
- Silverman, Ross, and Thomas May. "Terror and triage: prioritizing access to mass smallpox vaccination", *Creighton Law Review*, vol 36 (April 2003), pp 359-73.
- Sims, Nicholas. "Biological disarmament diplomacy in the doldrums; reflections after the BWC Fifth Review Conference", *Disarmament Diplomacy*, no 70 (April/May 2003), pp 11-18.

- Sims, Nicholas. "The importance of national implementing legislation for the Chemical Weapons Convention", in Graham S Pearson and Malcolm R Dando (eds), *Strengthening the Chemical Weapons Convention Briefing Paper*, [University of Bradford, Department of Peace Studies], no 5, 2003, 7 pp.
- Sprinkle, Robert. "The Biosecurity Trust", *BioScience*, vol 53 no 3 (March 2003), pp 270-77.
- Steinbruner, John, and Elisa Harris. "Controlling dangerous pathogens", *Issues in Science and Technology*, vol 19 no 3 (Spring 2003), pp 47-54.
- Stellman, Jeanne Mager, Steven Stellman, Richard Christian, Tracy Weber, and Carrie Tomasallo. "The extent and patterns of usage of Agent Orange and other herbicides in Vietnam", *Nature*, vol 422 (17 April 2003), pp 681-87.
- Stern, Jessica. "Dreaded risks and the control of biological weapons", *International Security*, vol 27 no 3 (Winter 2002/03), pp 89-123.
- Sternbach, George. "The history of anthrax", *Journal of Emergency Medicine*, vol 24 no 4 (2003), pp 463-67.
- Taylor, Eric. "Are our troops ready for biological and chemical attacks?" *Policy Analysis*, [Washington DC: Cato Institute], no 467 (5 February 2003), 15 pp.
- Tidwell, Natasha. "Soldiers of misfortune: the justiciability of injunctive relief actions in the Federal Courts and the US Military's mandatory anthrax inoculation program", *New England Law Review*, vol 37 (Winter 2003), pp 429-69.
- Treadwell, Tracee, Denise Koo, Kathleen Kuker, and Ali Khan. "Epidemiologic clues to bioterrorism", *Public Health Reports*, vol 118 (March/April 2003), pp 92-98.
- Tregonning, Fiona. "Report on the 18th Workshop of the Pugwash Study Group on the Implementation of the Chemical and Biological Weapons Conventions: *The Resumption of the Fifth BWC Review Conference 2002 and Beyond*, Geneva, Switzerland, 9-10 November 2002", *Pugwash Newsletter*, vol 39 no 2 (December 2002), pp 80-94.
- Tucker, Jonathan. "Preventing the misuse of pathogens: the need for global biosecurity standards", *Arms Control Today*, vol 33 no 5 (June 2003), pp 3-10.
- USA, Department of Justice, National Institute of Justice. *The Effectiveness and Safety of Pepper Spray*, Washington DC: Office of Justice Programs, April 2003, 14 pp.
- USA, Department of Health and Human Services. *Guidance for Filtration and Air-Cleaning Systems to Protect Building Environments from Airborne Chemical, Biological, or Radiological Attacks*, Washington DC: Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health, April 2003, 62 pp.
- USA, National Research Council of the National Academies, Committee on Biological Threats to Agricultural Plants and Animals. *Countering Agricultural Bioterrorism*, Washington DC: The National Academies Press, 2003, 169 pp.
- van Aken, Jan, and Edward Hammond. "Genetic engineering and biological weapons", *EMBO [European Molecular Biology Organization] Reports*, vol 4 (2003) special issue, pp S57-S60.
- Vollen, Laurie. "Fools rush in", *GeneWatch*, vol 16 no 2 (March/April 2003), pp 9-13. [about US spending on biodefense].
- Walker, John. "Strengthening the BTWC: the role of the Biological and Toxin Weapons Convention in combating natural and deliberate disease outbreaks", *EMBO [European Molecular Biology Organization] Reports*, vol 4 (2003) Special Issue, pp S61-S64.
- Wax, Paul, Charles Becker, and Steven Curry. "Unexpected "gas" casualties in Moscow: a medical toxicology perspective", *Annals of Emergency Medicine*, vol 41 no 5 (May 2003), pp 700-705.
- Weldon, Curt, and Chet Edwards. "The post-Hussein era: America, Russia, terrorism, and weapons of mass destruction", *Arms Control Today*, vol 33 no 5 (June 2003), pp 16-19.
- Wright, Susan. "Rethinking the biological warfare problem", *GeneWatch*, vol 16 no 2 (March/April 2003), pp 3-7.

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