

# NPT at the crossroads?

The biggest meeting on the 2005 arms control and disarmament calendar will begin in New York on 2 May. States parties to the 1968 Nuclear Non-Proliferation Treaty (NPT) are to convene for one month to review the convention's operation over the past five years and to chart its course for the next five years. The changes that have occurred to the international security landscape since the last conference, held between 24 April and 22 May 2000, were almost impossible to imagine at that time, yet their effect on the 2005 Review Conference is palpable. The 2005 Review Conference will have to address threats to the nonproliferation regime that have arisen, or become worse, since the meeting of 2000. Its outcome will likely mark a turning point for the NPT.

There are many issues putting the treaty under considerable stress, such as the evaluation of progress on nuclear disarmament, North Korea's unprecedented withdrawal and concerns about non-compliance. Furthermore, the Review Conference faces the complicated task of trying to preserve the balance between the NPT's three pillars: nuclear nonproliferation; peaceful uses of nuclear energy; and nuclear weapons disarmament.

Recent events in Iran and North Korea have led some parties to call for stricter interpretation of the NPT provisions under which non-nuclear weapon states (NNWS) are extended the right to develop, research and use nuclear power for peaceful purposes, arguing that these countries must first demonstrate firm compliance with the treaty. Nations driving this issue, which see the steady rise in the number of nuclear suppliers as a clear threat to nuclear nonproliferation, do not believe that a right to develop a complete nuclear fuel cycle—with its associated risk of horizontal or vertical nuclear proliferation—is inherent in the right to develop nuclear power. Unsurprisingly, many developing countries view such plans with suspicion, as they increasingly regard nuclear power as a cheap, clean and safe means of meeting their growing energy demands. They also argue that such a reinterpretation would skew the treaty's equilibrium by removing an important right and leaving them with virtually nothing but obligations. They draw attention to their claim that the nuclear weapon states (NWS) have made little progress with regard to nuclear disarmament and that the 'thirteen steps' towards that goal, which were agreed with great difficulty at the 2000 Review Conference, are on the verge of being completely abandoned.

Although it is vital to evaluate the operation of the treaty holistically, it is equally important to review its segments. Most, if not all, NPT parties, for instance, agree that the treaty's verification regime needs to be sound, effective and efficient. While current assertions of possible non-compliance by some states parties will probably overshadow concerns about the verification system itself, this article assesses some of the key issues facing the NPT's verification regime on the eve of the Review Conference.

## In this issue . . .

Andreas Persbo looks towards the 2005 NPT Review Conference, while Oliver Meier examines the use of test ban monitoring data by tsunami warning organizations. Plus all of the usual features: Verification Watch, Science and Technology Scan, Peace Missions Monitor, Verification Quotes and VERTIC News and Events.

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## Reviewing the safeguards system

Thirty-five years after entry into force, the coverage of the NPT verification regime is still not absolute. Thirty-nine NNWS parties are yet to conclude a comprehensive safeguards agreement (CSA) with the International Atomic Energy Agency (IAEA). Most are developing nations of little proliferation significance, but doubts linger with respect to other states not under safeguards, such as Saudi Arabia, which has been suspected of involvement in the nuclear weapons programmes of both Iraq and Pakistan. This gap in the geographical scope of the safeguards system needs to be filled, so that all nuclear materials on the territory of these countries are subject to material accountancy controls.

Even if these states adopt a CSA, however, it is not possible for the IAEA to conclude that they have declared all nuclear materials present on their territory. The discovery of Iraq's clandestine, albeit largely undeveloped, nuclear weapons programme in the early 1990s highlighted the weaknesses of a safeguards system based largely on declarations and material accountancy. The CSA proved effective in verifying that no diversion of nuclear material was occurring from the stocks and plants that Iraq had declared to the IAEA, but it could not detect its undeclared nuclear activities. Coupled with the nuclear activities of North Korea and South Africa, these events prompted the IAEA Board of Governors to initiate, in 1993, a radical review of the safeguards system. The appraisal concluded in 1997 with the decision to strengthen the safeguards system extensively, expanding its reach and the level of intrusiveness. Indeed, recent IAEA verification activities in Egypt, Iran and South Korea have pointed up the weaknesses of the old system. For example, past Egyptian experiments were detected only after the IAEA reviewed some Egyptian academic papers, while undeclared South Korean trials were reported in connection with its initial declaration pursuant to its Additional Protocol.

The in-depth declaration and the Additional Protocol's rigid inspection rules have been quite effective. So far, though, only 65 nations have an Additional Protocol in force. Many more states need to sign an Additional Protocol to their CSA to bolster the strengthened safeguards system as a whole. The Review Conference, therefore, should view the Additional Protocol as the new safeguards standard, and the ultimate aim should be to make it a prerequisite for the supply of nuclear fuel.

Without doubt, the Additional Protocol is an effective safeguards measure. But, as with any verification mechanism, its effectiveness should be continuously assessed. The IAEA's mandate is still insufficient to enable it to draw a conclusion about the conduct or state of any nuclear weapons research in any country,

yet this is what many parties expect. Even where the agency finds evidence of diversion, this alone is not conclusive proof that such materials are being employed in a nuclear weapons programme. Lessons learned from Iraq show that, although the production of weapons-grade heavy metal is the greatest challenge facing the proliferator, weaponization itself constitutes a significant technological hurdle. (Recent reports on the A.Q. Kahn nuclear smuggling network, however, indicate that weapons blueprints can be purchased on the nuclear black market.)

## Crossing the threshold

Presently, a NNWS acting in bad faith can move very close to the nuclear weapons threshold with little fear of detection, by legally developing the necessary fuel cycle capacity and simultaneously conducting clandestine research on weaponization. Since Article X (1) of the NPT permits states to withdraw from the treaty with a mere three months' notice, it is possible that a NNWS that is complying with its safeguards agreement could be a dormant nuclear weapon state. Consequently, the IAEA needs to be endowed with the political, legal, financial and technical tools necessary to detect attempts to weaponize nuclear materials. The agency has accumulated the necessary expertise for this task through the Iraq Nuclear Verification Office (INVO), which is proficient in the areas of the nuclear fuel cycle, weaponization, radiation detection and measurement, analytical chemistry, data analysis and electronics.

The case of verification in Iran illustrates this point. If the IAEA concludes that Iran has returned to compliance with its safeguards commitments and Iran subsequently develops nuclear weapons and withdraws from the NPT, the IAEA safeguards system will likely suffer the worst confidence crisis since the 1990–91 Gulf War. Even worse, it could trigger further nuclear proliferation through a 'domino effect'.

Those looking for a scapegoat would overlook whether or not the IAEA has the technical means and legal authority to detect and report on a weapons programme. A quick way to resolve this dilemma could be to endorse the recommendation of the United Nations (UN) High Level Panel on Threats, Challenges and Change that the IAEA report biannually to the UN Security Council (UNSC) on 'any serious concern that they have which might fall short of an actual breach' of the NPT. Another recommendation is that the IAEA Board of Governors makes better use of its authority under Article III (B) (4) of the IAEA Statute, which calls for the submission of a report to the Security Council if questions arising from agency activities fall within the UNSC's area of competence. Steps should also

be taken to prevent the accused state from participating in the deliberations of the Board of Governors on its case.

In the long term, however, an in-depth review of the operation of the Additional Protocol should be conducted to identify strengths and weaknesses. This evaluation would form the basis for discussions on an even stronger safeguards system.

### Resource challenges for verification

Following many years of zero growth, the IAEA safeguards budget has enjoyed a modest increase, from US\$88 million in 2003 to US\$102m in 2004, amounting to almost 40 per cent of the agency's US\$268.5m regular budget. While a further rise in the agency's budget is envisaged, with most of the new money going to safeguards, it must be recognized that increased reliance on nuclear power will put additional strain on IAEA resources (since there would be more material to account for and more facilities to inspect). Costs could be cut through further development and implementation of integrated safeguards, such as the installation of remote, real-time monitoring equipment and on-site laboratories, aimed at reducing expensive inspections in states not engaged in undeclared nuclear activities.

Policies that restrict or control the development of uranium enrichment and plutonium reprocessing capabilities could also decrease verification expenses, although they would need to address the concerns of some states about the reliability of nuclear material supplies. The United Kingdom has suggested that nations in breach of their safeguards commitments should forfeit the right to develop a nuclear fuel cycle, particularly the enrichment and reprocessing capabilities that are highly proliferation sensitive. Instead, nuclear power facilities in those countries could continue to operate using fuel supplied by countries that honour their safeguards obligations. The United States has proposed that no nations—other than those that already have a fuel cycle—should be allowed to develop a fuel cycle, receiving in return an assured supply of nuclear fuel. The most promising suggestion to date, however, is to 'multilateralize' control of the fuel cycle. The IAEA has prepared a report on multilateral approaches to the nuclear fuel cycle, which identifies a range of practical policy options, including IAEA oversight of a consortium of private sector suppliers. This report could usefully inform further discussions on this topic.

### Reviewing verifiable nuclear disarmament

If nuclear disarmament is realized, it too will have to be verified. The transition from a few hundred warheads to zero will present a real verification challenge. To achieve a nuclear weapon-free

world, all NWS, irrespective of their legal status under the NPT, need to consider mechanisms for verifying nuclear disarmament. Most of these already exist in one form or another and could be combined comparably quickly to create an effective verification system.

Verification-related scientific and technical research is being conducted in nuclear weapon states, but others are paying it little attention (see *Trust & Verify*, no. 101). For instance, Russia and the US have discussed concepts for monitoring and verifying nuclear warhead destruction, following proposals for a third Strategic Arms Reduction Treaty (START III). The UK's Atomic Weapons Establishment (AWE) has taken the lead on the issue by studying practical verification measures, summarizing its findings in three working papers. To its credit, the UK intends to present the AWE's final report to the NPT Review Conference in May.

Once a model for multilateral and transparent verification of nuclear disarmament is identified, efforts could be made to attract the support of the de facto NWS (India, Israel, North Korea and Pakistan). It must be cautioned, however, that, as a rule, 100 per cent verifiability is not achievable. The key question is whether the verification system has a reasonable chance of detecting a militarily significant violation in time for appropriate action to be taken. Hence, continued research on disarmament verification systems, not just verification methods, should remain a priority.

### Conclusion

Many writers and policymakers have expressed the opinion that the upcoming Review Conference is 'critical' for the NPT's viability and that it constitutes a 'turning point' for the nuclear nonproliferation regime as a whole. Others have asserted that the treaty will survive even if the meeting ends in disarray. The IAEA has been working ceaselessly to improve the NPT's verification regime, while state parties have been debating the precise meaning of 'peaceful uses' of nuclear energy and 'nuclear disarmament'. With the advent of the strengthened safeguards system, it is becoming more difficult for states to cheat on their nonproliferation obligations. Effective verification of compliance with the NPT is even more important at a time when the treaty is under considerable stress, since it mitigates tensions between states parties and reinforces trust in what is an extremely significant arms control and disarmament regime.

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# Test ban monitoring data for tsunami warning

Last December's deadly tsunami in the Indian Ocean might inspire an additional mission for the international organization tasked with eventually verifying the 1996 Comprehensive Nuclear Test Ban Treaty (CTBT).

On 4 March 2005, the Preparatory Commission (PrepCom) for the Comprehensive Nuclear Test Ban Treaty Organization (CTBTO), situated in Vienna, Austria, decided to explore options for releasing data from its International Monitoring System (IMS) to tsunami warning organizations. On a trial basis, the Provisional Technical Secretariat (PTS) of the CTBTO was given a mandate to share immediately data from its seismic and hydroacoustic stations with any tsunami warning organization recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

The goal is to identify how the PTS might best contribute to a tsunami warning system for the Indian Ocean. Based on the results of the test, states parties will decide, later this year, whether and to what extent the CTBTO will share IMS data with a tsunami warning system.

## IMS data: revisiting civilian applications

The earthquake of 26 December 2004 that triggered the tsunami provided clear evidence that IMS data can contribute to existing and future tsunami warning systems. The earthquake was detected by 78 IMS stations. The information was transmitted in near real time to those countries that have signed the CTBT and subscribe to the data service of its International Data Centre (IDC), located in Vienna. Among those nations afflicted by the tsunami, Australia, Indonesia, Kenya, Malawi, Oman, South Africa and Thailand have data receiving centres and obtain information from the IDC. Under current procedures, however, India, one of the states badly affected by the tsunami, cannot procure IMS data because its government has refused to sign the CTBT.

The PrepCom's decision represents a milestone after years of nearly fruitless discussions on the possible utilization of IMS data for scientific, humanitarian and disaster relief tasks. It marks the first time that the CTBTO will share near real-time data with recipients outside of the circle of state signatories. In 2002, the PrepCom decided to release IMS seismological data to the International Seismological Centre, a British non-govern-

mental organization (NGO). This action, though, involved only old monitoring information.

Although the release of data is strictly limited to tsunami early warning, it could, in the long run, pave the way for much wider application of nuclear test ban monitoring data for non-test ban purposes. Several scientific and humanitarian relief entities have expressed an interest in acquiring IMS data.

Workshops in Berlin, Germany, London, UK, and Sopron, Hungary, organized by member states and with PTS support, have examined some options for wider data sharing. Among the scenarios discussed were the use of infrasound data to warn civil aviation authorities about volcanic eruptions and the use of seismic data to improve the targeting of post-earthquake humanitarian relief. These talks, though, did not advance far before the tsunami struck. The humanitarian catastrophe that followed, claiming hundreds of thousands of lives, has compelled states to overcome obstacles to agreement.

## Fears about IMS data sharing

Signatory states raised several concerns before deciding to release IMS data for tsunami early warning. Some CTBTO members were anxious that the new arrangement would compromise (monitoring data) confidentiality. They called for a narrow reading of the treaty text, which obliges the PTS 'to make available all data, both raw and processed, and any reporting products, to all states-parties'. Opponents of a wider release of IMS data argue that this confidentiality clause excludes the distribution of IMS data to recipients other than national governments in CTBT signatory states. Others, including the US, maintain that the CTBT does not explicitly prohibit the dissemination of the information to external actors.

Still, in the run-up to the PrepCom session on 4 March, countries like China and Israel, which have previously taken a conservative stance on confidentiality, did not oppose the release of IMS data for tsunami early warning. Signatory states did insist, however, that data only be used for humanitarian endeavours and that recipients be clearly identified. In the final agreement, they agreed that confidentiality concerns must be redressed and that the PTS will examine possible implications of the release of IMS data for 'matters related to confidentiality'.

As noted above, signatory states also limited the distribution of data to international tsunami warning organizations recognized by UNESCO. It will be up to these institutions to request data that they might find useful. Technical tests will then be carried out to address ‘the nature, quality, quantity, timeliness, and usefulness of information provided’.

The PTS was given permission to begin sharing some data immediately, on a trial basis, with the Intergovernmental Oceanographic Commission (IOC) of UNESCO. The data will be sent to the IOC’s tsunami warning centre for the Pacific Ocean, which is serving as an interim warning body for the Indian Ocean until a planned Regional Tsunami Warning and Mitigation System for the area is up and running. In principle, data from all 50 primary seismic and 11 hydroacoustic stations around the world could be delivered to the IOC.

Signatories also drew attention to the possibility of mission creep, emphasizing that the CTBTO might devolve into a natural disaster warning system. As the CTBT has still not secured the 44 ratifications needed to trigger its entry into force, some states parties want the CTBTO to remain solely focused on its primary mission. Acknowledging this apprehension, the 4 March decision stipulates that: ‘the contribution must not divert or change the task of the [PrepCom] of establishing, provisionally operating, testing and evaluating the verification system’.

Signatories also pointed out that the new initiative might affect the status of the CTBTO itself. Officially, until the treaty enters into force, the PTS will continue to construct the IMS and test its verification capabilities. Involvement in tsunami early warning, however, will move the verification system closer to operational status, since it is required to provide data services on a continuous basis.

Behind this argument lie diplomatic and political concerns. During the recent session, some states, notably Argentina and Brazil, cautioned against a release of IMS data for tsunami early warning. They underlined that increased availability of IMS data would remove an incentive for the US to ratify the CTBT.

The Senate voted against CTBT ratification in 1999, and the administration of President George W. Bush has said that it does not support the accord. Still, the US is one of the largest beneficiaries of IMS data, providing the country with a critical monitoring capability beyond the means of its national intelligence network. Argentina and Brazil contended that supplying IMS data on a constant basis before entry into force would allow the US to enjoy the best of both worlds: a 24-hour IMS data flow without treaty ratification. This argument, though, did not hold water with many other signatories. As one Western diplomat



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told *Arms Control Today* on 15 March: ‘This is the wrong issue to play politics with’.

## The future

At its next regular meeting on 27–30 June or, more likely, at a working group gathering at the end of August, the PrepCom is expected to evaluate the results of the test and to make a final decision on the CTBTO contribution to a tsunami warning centre. At this point, finance will become a factor. According to a confidential PTS options paper, it will cost a minimum of US\$250,000 annually to distribute raw data from some stations. The bulk of the resources would be used to make software adjustments at the International Data Centre—expenses related to the procurement of additional personnel or hardware are not covered. Providing extra services, such as timely information on pre-selected events, will further raise the price tag. Most of the money will be spent during the initial start-up phase. Some hope that an international fund, established to finance the new warning centre for the Indian Ocean, will take care of at least part of the bill.

Yet, the new costs could coincide with a reduction in the funds that the CTBTO receives from state signatories. The Bush administration, for instance, has asked Congress to appropriate US\$14.35m for the CTBTO in Fiscal Year 2006. The figure falls short of the assessed US contribution for the coming year (2006) by approximately US\$4m. The 2005 annual budget of the CTBTO is US\$105m.

Most observers in Vienna questioned whether the decision to release IMS data for tsunami early warning would serve as a precedent, informing future deliberations on scientific, humanitarian and disaster relief mission requests. Nevertheless, according to Bernhard Wrabetz, Special Assistant to CTBTO Executive Secretary Wolfgang Hoffmann, ‘the decision taken by the PrepCom has certainly made the discussion more dynamic . . . The debate is not over yet’.

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### Diplomatic standoffs overshadow good progress on IAEA safeguards

North Korea's official announcement on 10 February 2005 that it had manufactured nuclear weapons confirmed long-held suspicions about its nuclear capabilities. Fears in this regard had already been bolstered by the country's withdrawal from the NPT in January 2003 and repeated assertions by national officials that the state possessed a nuclear arsenal. Moreover, tests carried out at the Oak Ridge National Laboratory in Tennessee, US, on 2 February indicated that processed uranium found in Libya originated in North Korea. If correct, these tests confirm that North Korea possesses an indigenous uranium enrichment capability (see *Trust & Verify*, no. 105). However, independent experts have criticized the results of these tests, believing them to be inconclusive, and the manner in which they were publicized. Independent tests by the IAEA are still to determine the origin of the uranium.

On 3 March 2005, the IAEA Board of Governors expressed serious concern about North Korea's declaration. Pyongyang has blocked IAEA verification activities since December 2002 (denying access) and has said that it will indefinitely suspend its participation in the six-party talks aimed at resolving the North Korean nuclear issue. Seeking recognition of its nuclear weapons capability, North Korea underlined that any future talks should parallel nuclear arms reduction negotiations.

At the same time, Iran's nuclear energy programme continued to generate controversy. At its meeting on 28 February–8 March 2005, the IAEA Board of Governors discussed ongoing verification efforts in the country. At the end of the meeting, IAEA Director General Mohamed ElBaradei said that the agency was 'making good progress' in verifying Iran's nuclear programme but called for full Iranian transparency. Tehran contends, though, that the verification measures contained in its Additional Protocol are sufficient to prove its compliance and that it is under no obligation to cooperate further. How Iranian centrifuge components came to be contaminated with high-enriched uranium (HEU) is still unconfirmed, although it is widely assumed that the hardware was purchased through the A.Q. Kahn nuclear smuggling network. Pakistani Foreign Minister Khurshid Kasuri stated on 1 April 2005 that Pakistan would send old centrifuge parts to the IAEA for analysis. This move, anticipated for some time, should finally resolve the contamination question. Meanwhile, the European Union (EU), the EU-3 (France,

Germany and the UK) and Iran will continue the negotiations mandated by the Paris Agreement of 15 November 2004. The next round of discussions is scheduled to begin on 10 April 2005.

By contrast, IAEA verification efforts in Egypt have been progressing smoothly. While the agency has identified a number of reporting failures—some nuclear experiments carried out between 15 and 40 years ago were only recently declared—Egypt has taken quick and comprehensive corrective action. Egypt has also indicated that it will conduct more in-depth reporting in future. The country has yet to negotiate an Additional Protocol with the IAEA.

On 3 February 2005, Niger announced that it had ratified its Additional Protocol. Niger produces an estimated 3,700 tonnes of uranium oxide per year, placing it among the top five global producers. The central African state is now obliged to provide the IAEA with information on the location, operational status and estimated annual production capacity of its uranium mines. At the request of the IAEA, Niger will also have to reveal the current annual rate of production at specific mines.

In February 2005, the Additional Protocols of Nicaragua, Switzerland and Tanzania also entered into force, taking the total number in force to 65, as of 1 March 2005.

**Sources** 'Scientific tests indicate North Korea sold processed uranium to Libya, US officials say', Global Security Newswire, 2 February 2005, [www.nti.org](http://www.nti.org); 'US tests on Libyan nuclear material inconclusive on link to North Korea, some experts say', Global Security Newswire, 3 February 2005, [www.nti.org](http://www.nti.org); 'Niger ratifies IAEA additional protocol', Global Security Newswire, 4 February 2005, [www.nti.org](http://www.nti.org); 'North Korea says it has nuclear weapons', RFE/RL, 10 February 2005, [www.rferl.org](http://www.rferl.org); 'Safeguards in Iran: IAEA chief stresses need for more transparency', IAEA Staff Report, 2 March 2005, [www.iaea.org](http://www.iaea.org); 'US concealed Pakistan's role in North Korea uranium exports, officials say', Global Security Newswire, 21 March 2005, [www.nti.org](http://www.nti.org); 'Disputed US intelligence on North Korea uranium exports anger some in South Korea', Global Security Newswire, 24 March 2005, [www.nti.org](http://www.nti.org); 'North Korea wants nuclear arms reduction talks', Global Security Newswire, 31 March 2005, [www.nti.org](http://www.nti.org); 'Pakistan decides to send centrifuges to IAEA', Xinhuanet News Agency, 1 April 2005, [news.xinhuanet.com](http://news.xinhuanet.com).

### Nuclear safeguards in Saudi Arabia

On 14 February 2005, Saudi Arabia's Cabinet instructed Foreign Minister Prince Saud Al-Faisal to negotiate and conclude a comprehensive safeguards agreement with the IAEA. Saudi Arabia has been under an obligation to finalize this accord since

acceding to the NPT on 10 March 1988. In the past, Saudi Arabia has been suspected of supporting nuclear research in Iraq and Pakistan. While it has no known nuclear facilities and little extractable uranium ore, agency inspectors have been unable to enter the country to verify that all (if any) significant quantities of nuclear materials are accounted for. The Saudi decision, therefore, is a welcome development.

The government has also decided to create an independent commission in order to buttress the state's nuclear nonproliferation commitments and to coordinate its WMD prevention strategies. The commission will be responsible for ensuring nonproliferation of nuclear, chemical and biological weapons. The national committees set up in 1995 to oversee these policies will be assimilated into this new body.

**Sources** 'Summary of Saudi cabinet meeting on 14 February 2005', Saudi Arabia Information Resource, [www.saudinf.com](http://www.saudinf.com); 'Saudi Arabia to create nonproliferation commission', Global Security Newswire, 7 March 2005, [www.nti.org](http://www.nti.org).

### **IMS construction progresses . . .**

On 22 March 2005, Russia signed a facility agreement with the CTBTO. It gives the organization's Provisional Technical Secretariat the legal authority to begin constructing IMS facilities on Russian territory. According to Annex 1 of the CTBT, Russia will host six primary and 13 auxiliary seismic stations, four infrasound stations, eight radionuclide stations and one radionuclide laboratory. Most of Russia's primary seismic stations are scheduled for completion by mid-2006, while construction of all infrasound stations should be concluded by mid-2007. All Russian stations are expected to be operational by mid-2009. The CTBTO has now finalized 32 facility agreements with states hosting IMS facilities.

### **. . . despite potential CTBTO budget cut**

On 8 February 2005, President Bush submitted his 2006 fiscal budget request to Congress. If adopted, it would reduce the US annual contribution to the CTBTO from the 2005 level of US\$19m to US\$14.35m in 2006. The proposed cut came as a surprise to some observers. While there is little likelihood of the US ratifying the CTBT anytime soon, the administration has repeatedly expressed its appreciation of the data provided by the IMS. The House of Representatives and the Senate budget committees are currently drafting the budget resolution, a process that should be completed by mid-April 2005. It will then be submitted to the two houses of Congress for consideration and adoption, probably during October 2005. If the administration's request passes through the legislature unamended, Japan will

replace the US as the largest single contributor to the CTBTO budget.

**Sources** 'Bush seeks to cut test ban treaty funding', Global Security Newswire, 8 February 2005, [www.nti.org](http://www.nti.org); 'Russian Federation signs facility agreement', CTBTO Press Release, 22 March 2005, [www.ctbto.org](http://www.ctbto.org).

### **Bolton nomination**

Under-Secretary of State for Arms Control and International Security John R. Bolton has been nominated to replace John Danforth as US Ambassador to the UN. The move has outraged many, since Bolton has been a vocal critic of the world body. Most famously, he once said that 'the secretariat building in New York has 38 stories. If we lost ten stories today, it wouldn't make a bit of difference'. Instead of negotiated, multilateral approaches to arms control, he favours enforced disarmament, through UN Security Council resolutions, backed by flexible 'coalitions of the willing'. Bolton was a driving force behind the Proliferation Security Initiative, which aims to curb international transfers of WMD and related materials. Robert Joseph, Senior Scholar and Director of Studies at the National Institute for Public Policy, US, has been nominated as his successor.

**Sources** 'Senate likely to confirm Bolton for UN slot, lawmakers say; international analysts react', Global Security Newswire, 9 March 2005, [www.nti.org](http://www.nti.org); 'Personnel announcement', White House Office of the Press Secretary, 11 March 2005, [www.whitehouse.gov](http://www.whitehouse.gov).

### **Security Council considers UNMOVIC's fate**

On 1 February 2005, Iraqi Ambassador to the UN Samir Sumaida'ie told journalists that there was no longer any need for the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) to operate in Iraq. The Office of the Iraq Programme, Oil-for-Food currently funds UNMOVIC. Sumaida'ie stated that it was time to stop using the money to 'fund a bureaucracy'. UNMOVIC inspectors withdrew from Iraq on 18 March 2003 and have subsequently been trying to observe their verification target from afar. The US-led Iraq Survey Group (ISG) carried out its own inspections in Iraq from July 2003–December 2005 and has now concluded its in-country verification activities (see *Trust & Verify*, no. 109 and no. 118).

The Iraqi statement has triggered informal consultations in the UN Security Council on the verification body's future. The US wants to decommission UNMOVIC, while France and the UK would prefer to retain this cadre of experienced verification practitioners in some way. The UNSC may consider UNMOVIC's future as early as May.

**Sources** Robert McMahon, 'Ambassador urges phase-out of UN weapons mission', RFE/RL, 2 February 2004, [www.rferl.org](http://www.rferl.org); 'US begins discussions on

## Verification Quotes

*'It makes no sense to protect the peace monitors while the population is ignored and left to die.'*

Rwanda's President Paul Kagame speaking to Rwandan troops before their deployment to the war-torn region of Darfur, western Sudan, quoted in 'Sudan: foreign troops run gauntlet of government displeasure', 17 August 2004, [www.allafrica.com](http://www.allafrica.com).

*'The Syrians told me they would be happy if we go and verify whatever we need to verify. . . . But we haven't gotten any piece of information on why we should be concerned about Syria.'*

IAEA Director General Mohamed ElBaradei, quoted in 'Syria open to international inspections: ElBaradei', Global Security Newswire, 28 June 2004, [www.nti.org](http://www.nti.org).

*'The organization was successfully updated/verified.'*

Computer-generated message seen by VERTIC staff when creating and editing more than 500 entries for the Verification Organizations Directory, the centre's latest online database.

*'As far as America is concerned, we said: Ms Rice, are you prepared to shut down two of your power plants if we supply you with pistachios? We said that we would supply them with a three year stock of pistachios. However, we will supply their pistachios lorry by lorry because they said things would have to be taken step by step and when we see any progress, we will reward them with more pistachios. This is how ridiculous the situation is.'*

Iranian negotiator Sirus Naseri on Iranian state television, mocking incentives offered in negotiations over its nuclear enrichment activities, 15 March 2005.

ending UNMOVIC', Global Security Newswire, 4 March 2004, [www.nti.org](http://www.nti.org); Trevor Findlay, 'Preserving UNMOVIC: the institutional possibilities', *Disarmament Diplomacy*, No. 76, March–April 2004, [www.acronym.org](http://www.acronym.org).

## The Kyoto Protocol lives!

The Kyoto Protocol finally entered into force on 16 February 2005, 90 days after Russia submitted its instrument of ratification (see *Trust & Verify*, no. 118). The protocol has a novel 'double trigger' mechanism. First, at least 55 parties to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) must ratify the accord. Second, these parties must account for at least 55 per cent of the total carbon dioxide emissions in 1990 of those states listed in Annex I (developed countries) to the UNFCCC. While the first requirement was met in 2002, the withdrawal of the US from the Kyoto Protocol in 2001 meant that only Russia's ratification could take the percentage of Annex I emissions across the threshold.

The first Meeting of the Parties to the Kyoto Protocol will be held in conjunction with the eleventh session of the Conference of Parties to the Climate Change Convention (COP/MOPI) in Montreal, Canada, on 28 November–9 December 2005.

Source 1998 Kyoto Protocol to the UNFCCC, [www.unfccc.int/resource/docs/convkp/kpeng.pdf](http://www.unfccc.int/resource/docs/convkp/kpeng.pdf); 'Canada to host annual climate change conference', UNFCCC Press Release, 16 February 2005, [www.unfccc.int](http://www.unfccc.int).

## The EU rules

The EU has taken another step towards meeting its climate change obligations with the release of monitoring and reporting rules for greenhouse gas emissions and for implementation of the Kyoto Protocol by EU member states (European Commission (EC) Decision of 10 February 2005, 2005/166/EC). The new rules augment general monitoring regulations released earlier last year, and should facilitate reporting by member states.

Sources UNFCCC website, [www.unfccc.int](http://www.unfccc.int); 'Commission Decision of 10 February 2005, 2005/166/EC', [www.europa.eu.int](http://www.europa.eu.int); 'Detailed EU climate gas reporting rules issued', *ENDS Environment Daily*, Issue 1,832, 2 March 2005, [www.environmentdaily.com](http://www.environmentdaily.com).

## Tobacco goes up in smoke

The World Health Organization (WHO)'s Framework Convention on Tobacco Control (FCTC) came into force on 27 February. It is the first global health treaty negotiated under the auspices of the WHO, and includes provisions relating to the supply of, and the demand for, tobacco. In particular, it requires parties to restrict tobacco advertising and to ensure that health warnings are displayed on tobacco packaging. States parties must implement or promote measures to protect people from smoke in indoor places and they must strengthen anti-smuggling legislation, requiring that they develop an appropriate national implementation capacity. The WHO will provide some guidelines and materials to support parties' implementation efforts.

Compliance is assessed via a reporting system. Parties are obligated to submit, through the FCTC Secretariat, periodic reports to the COP to the FCTC on their national measures to implement the treaty. They must file their first report within two years of acceding to the accord. The agreement also encourages parties to establish and maintain, in cooperation with relevant international organizations, a global system for collecting and disseminating information on tobacco production and the activities of the tobacco industry that impact on the FCTC. The COP is charged with reviewing and promoting implementation of the convention. To date, the FCTC has been ratified by 61 of the WHO's 192 member states.

Sources 'WHO Framework Convention on Tobacco Control', WHO, 2003, [www.who.int](http://www.who.int); 'An international treaty for tobacco control', WHO Feature Story, 12 August 2003, [www.who.int](http://www.who.int); 'Treaty triumphs against tobacco', *Nature*, 25 February 2005, [www.nature.com](http://www.nature.com).



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### Nuclear weapon detection made easier

Detecting nuclear weapons in transit, for instance at a border control point, is a difficult task, as it is possible to shield the low level of radiation emitted by weapons-grade plutonium and uranium. However, US-based Nuclear Solutions Inc. is developing a cheap portable detection system that measures gravitational signatures. Since gravitational force cannot be shielded and the measurement system has a high level of accuracy, this technology may be effective in weapons detection. Although the system is not yet fully developed, the US Defense Nuclear Agency has sponsored research that has already validated the principle of using gravitational signatures for this purpose.

**Sources** 'Nuclear solutions developing advanced portable nuclear weapons detection technology', CNET News.com, 12 March 2004, [www.cnet.com](http://www.cnet.com); 'Nuclear solutions technology update: application feasibility of gravity based detection for shielded nuclear weapons validated by US government sponsored research', Primezone Media Network, 21 December 2004, [www.primezone.com](http://www.primezone.com).

### Identifying biological agents pre-attack . . .

An international workshop sponsored by Australia's Defence Science and Technology Organisation (DSTO) and attended by scientists from Australia, Asia, Europe and the US was held in Adelaide from 16–17 December 2004 to share information on terahertz rays (t-rays)—emissions that lie between microwaves and infra-red. These rays can pass through substances such as clothing and packing (including those that are hermetically sealed) and can be used to detect biological agents. Unlike x-rays, t-rays are safe due to their low energy.

### . . . and post-attack

The Institute for Integrative Biosystems Research and Education (VIIBRE) at Vanderbilt University in Tennessee, US, and Pria Diagnostics LLC, an American company, are developing a portable device capable of rapidly detecting whether biological agents have affected someone. In addition, the Lawrence Livermore National Laboratory (LLNL) in California has developed a monitoring instrument, called the Autonomous Pathogen Detection System (APDS), which can identify bacteria, viruses and toxins. The instrument is capable of continuous air monitoring, and could cover large areas like airports and sports arenas.

**Sources** 'Terahertz rays could be used to detect weapons of mass destruction, expert says', Global Security Newswire, 14 December 2004, [www.nti.org](http://www.nti.org); 'T-rays for terrorists', *Science Alert*, 14 December 2004, [www.sciencealert.com.au](http://www.sciencealert.com.au); 'Science turns t-rays on terrorists', University of Adelaide media release, 16

December 2004, [www.adelaide.edu.au](http://www.adelaide.edu.au); 'Researchers develop new tool to detect agents of bioterrorism', American Chemical Society, 5 January 2005, [www.center.acs.org](http://www.center.acs.org); 'Development of portable infectious disease detector', *Medical News Today*, 11 January 2005, [www.medicalnewstoday.com](http://www.medicalnewstoday.com); 'Vanderbilt University, private company jointly develop biological agent detector', Global Security Newswire, 11 January 2005, [www.nti.org](http://www.nti.org).

### Flexible verification tool

An electrical engineer, Takao Someya, and his colleagues at Tokyo University in Japan have developed a flexible and lightweight sheet image scanner, which is also shock resistant. The prototype is only five square millimetres in size and half a millimetre thick. It is used with a mobile phone, which acts as both power supply and viewer. At the moment, the scanner's resolution is only 36 dots per inch, but, in future, when more advanced models become available, the scanner may prove useful in inspections where rapid photocopying of documents is required, such as challenge inspections to clarify alleged violations of arms control and disarmament agreements.

**Source** Celeste Biever, 'The scanner you can take anywhere', *New Scientist*, 25 December 2005, p. 11.

### New explosives trace portal developed

Smiths Detection, a US security company, has developed a new walk-through explosives trace portal. The device automatically screens airline passengers (in keeping with the 1971 Convention for the Suppression of Unlawful Acts against the Safety of Aviation) and visitors at high-security locations for explosives. The upgraded portal, dubbed the Sentinel, is similar in design to a metal detector. It has already passed tests by the Transportation Security Administration and is undergoing trials at John F. Kennedy Airport, New York, Jacksonville International Airport, Florida, and Baltimore/Washington International Airport, Maryland. The device is non-invasive and works by passing air over a person's body, releasing particles that are naturally absorbed by, or stick to, clothes or the body. These particles are then reabsorbed by the machine for analysis. The portal can screen more than 400 people per hour.

**Sources** 'Smiths Detection installs explosive detection walk-through portal at Baltimore–Washington International Airport', Smiths Detection, 8 February 2005, [www.webwire.com/ViewPressRel.asp?SESSIONID=&aId=1358](http://www.webwire.com/ViewPressRel.asp?SESSIONID=&aId=1358); 'Smiths Detection introduces upgraded walk-through explosives trace portal', Smiths Detection North America, 9 February 2005, [www.spacewar.com/news/2005/milplex-021005-0945-09.html](http://www.spacewar.com/news/2005/milplex-021005-0945-09.html).

## Peace Missions Monitor

### UN sends blue helmets to Sudan

On 24 March 2005, the United Nations Security Council unanimously approved resolution 1590, establishing the United Nations Mission in Sudan (UNMIS) for an initial period of six months. The mission will consist of up to 10,000 military personnel from 38 states, as well as a sizeable civilian component of 715 civilian police from eight nations and approximately 3,600 national and international civilian personnel. If its mandate is extended beyond 24 September 2005, it is expected to have an annual budget of some US\$1 billion.

The prime task of UNMIS is to support implementation of the Comprehensive Peace Agreement—signed on 9 January 2005 by the northern Arab government and the southern Sudan People's Liberation Movement (see *Trust & Verify*, no. 118)—through a combination of peacekeeping and peace enforcement. The peacekeeping element will comprise traditional activities: monitoring and observing armed groups and forces, and investigating alleged ceasefire violations. The mission will help to establish the necessary security conditions for coordinating humanitarian assistance and the return of refugees and internally displaced persons. To facilitate this, a peace-enforcement element is built into the mandate. UNMIS is authorized to use force not only in self-defence and to protect humanitarian workers, but also to protect civilians 'under imminent threat of physical violence'.

The African Union Mission in Sudan (AMIS) is currently trying to monitor the fragile peace, with 1,500 peacekeepers patrolling a region roughly the size of France. During the next six months, UNMIS is to work closely with AMIS. Moreover, the UN will take over existing monitoring missions, namely the Verification Monitoring Team, the Joint Monitoring Mission and the Civilian Protection Monitoring Team.

**Sources** '10,000-strong UN peacekeeping mission authorized for southern Sudan', UN News Centre, 24 March 2005, [www.un.org/news](http://www.un.org/news); UN Security Council resolution 1590, 24 March 2005, [www.un.org/Docs/sc/](http://www.un.org/Docs/sc/); 'Report of the Secretary-General on the Sudan', S/2005/140, 4 March 2005, [www.un.org/Docs/sc/](http://www.un.org/Docs/sc/).

### Mandates extended

#### Ethiopia and Eritrea

On 14 March, the UN Security Council extended the mandate of the United Nations Mission in Ethiopia and Eritrea (UNMEE) until 15 September 2004, as the two states have still not agreed on a mutual border. A ceasefire agreement was signed in June 2000 to end an incredibly bloody bout of violence following a border dispute. In cooperation with the African Union (formerly the Organization of African Unity), the UN established UNMEE on 31 July 2000 to monitor the ceasefire and demarcation of the border. It called on Ethiopia and Eritrea to normalize relations and to create a definitive boundary between them, as delineated by the Eritrea–Ethiopia Boundary Commission. However, the humanitarian situation continues to deteriorate, which could jeopardize the peace process.

#### Georgia

On 28 January 2005, the UNSC extended the mandate of the United Nations Observer Mission in Georgia (UNOMIG) until 31 July 2005. The mission was set up in 1993 to observe the 1992 ceasefire agreement between the Georgian government and the Abkhaz authorities in Georgia. Ceasefire agreements have repeatedly broken down in Georgia, resulting in an expansion of UNOMIG's mandate to include verification of the 1994 Agreement on a Ceasefire and Separation of Forces. The extension was necessary due to stalled talks between the parties and renewed tensions in the conflict zone. The mission is intended to promote stability and to help the parties reach a political settlement. UN Secretary-General Kofi Annan reaffirmed the UN's commitment to assisting the parties to conclude an agreement that will preserve Georgia's territorial integrity.

#### Lebanon

The United Nations Interim Force in Lebanon (UNIFIL) was established in 1978 to monitor the extrication of Israeli troops from southern Lebanon, to promote international peace and to help the Lebanese government to regain its authority. Following Israel's reoccupation of Lebanon from 1982–2000, Israeli forces withdrew to a demarcated border known as the Blue Line. On 28 January 2005, the UNSC extended UNIFIL's mandate until 31 July 2005 due to ongoing conflict and border violations. It also re-emphasized the need for a Middle East peace agreement among all states in the region. The UN restated its commitment to the territorial integrity, sovereignty and independence of Lebanon.

**Sources** 'Security Council extends mandate of UN peacekeepers in Eritrea and Ethiopia', UN News Centre, 14 March 2005, [www.un.org/apps/news](http://www.un.org/apps/news); UN Security Council resolution 1582, 28 January 2005, [www.un.org/depts/dpko/missions/unomig/mandate.html](http://www.un.org/depts/dpko/missions/unomig/mandate.html); 'Security Council extends UN mission in Georgia for a further six months', UN News Centre, 28 January 2005, [www.un.org/apps/news](http://www.un.org/apps/news); UN Security Council resolution 1583, 28 January 2005, [www.un.org/depts/dpko/missions/unifil/mandate.html](http://www.un.org/depts/dpko/missions/unifil/mandate.html); 'Mandate of UN force in southern Lebanon extended until July', UN News Service, 28 January 2005, [www.un.org/apps/news](http://www.un.org/apps/news).

### New Executive Director appointed

The VERTIC Board is delighted to announce the appointment of Michael Crowley as the new Executive Director of the centre. Michael, currently Senior Research Associate with the Omega Foundation (UK), has a wealth of NGO experience. Previously he was Manager of the Arms Trade Treaty (ATT) Project at the Arias Foundation in San José, Costa Rica, and Senior Arms Trade Analyst at the British American Security Information Council (BASIC) in London. Between 1991 and 2000, he held several posts at Amnesty International, both in the International Secretariat and the International UK Section. VERTIC looks forward to welcoming Michael when he takes up the post in late June.

### VERTIC submits SALW study to UNIDIR

In April VERTIC submitted its study on monitoring EU and UN arms embargoes to the United Nations Institute for Disarmament Research (UNIDIR). The study is part of a larger UNIDIR project for the European Commission on 'European Action on Small Arms and Light Weapons (SALW) and Explosive Remnants of War'. The paper, written by VERTIC consultant Vanessa Shields, is available on the centre's website at [www.vertic.org](http://www.vertic.org).

### BWC workshop looks toward 2006 Review Conference

Participants at VERTIC's 4 March roundtable on 'The road to 2006: objectives for the BWC Sixth Review Conference' discussed possible outcomes of the 1972 Biological Weapons Convention (BWC) intercessional meetings between 2003 and 2005. In addition, they considered how these results might feed into the BWC Sixth Review Conference in 2006. A report on objectives for the Review Conference is available on VERTIC's website at [www.vertic.org](http://www.vertic.org).

### New intern

Lindsay Ritz joined VERTIC in March for a two-month internship. Lindsay is currently in her third year at Boston University, Massachusetts, US, where she is studying international relations and history. At VERTIC she is researching enforcement of states' national laws prohibiting biological, chemical and nuclear weapons. She is also helping to update VERTIC's treaty database, maintain the Verification Organizations Directory (VOD) and reorganize VERTIC's archives.

### Staff news

ANGELA WOODWARD attended the 'First Interpol global conference to strengthen law enforcement preparedness and develop effective police training' in Lyon, France, on 1–2 March. She chaired VERTIC's roundtable on 'The road to 2006: objectives for the BWC Sixth Review Conference' on 4 March and attended a Chatham House seminar entitled 'Lawless world: the US, UK and the making and breaking of global rules' on 9 March. She and Andreas Persbo briefed David Ruppe of Global Security Newswire on VERTIC's current projects on 18 March. Angela met with VERTIC Board member, Duncan Brack, on 23 March to discuss potential new projects for the centre's Environment Programme. In addition to carrying out her duties as Acting Director, Angela wrote a chapter on UN Security Council resolution 1540 and biological weapons nonproliferation for a book on the impact of resolution 1540 on global nonproliferation, which is to be co-published by Brookings Institution Press, Chatham House and the Netherlands Institute of International Relations (Clingendael). During the period, Angela also edited VERTIC's submission to the UNIDIR project on SALW and two forthcoming VERTIC Briefs.

JANE AWFORD and Angela Woodward attended a talk on 'UNSCOM, UNMOVIC, and Examples of Hands-on Verification' by Robert Kelley, Senior Inspector at the IAEA, at King's College London on 24 February. Afterwards they attended a Pugwash UK meeting on 'The Future of the NPT in relation to the NPT Review Conference May 2005', at which Canadian Senator Douglas Roche, Chairman of the Middle Powers Initiative, and Alyn Ware, Global Coordinator, Parliamentary Network for Nuclear Disarmament, gave presentations. Jane coordinated the administrative arrangements for the BWC seminar on 4 March at Development House.

BEN HANDLEY continued to manage the administration of VERTIC, as well as to compile financial statements for its funders and Board members. Ben also coordinated the recruitment process for the new Executive Director. On 15 February, he attended a Microsoft Technical Roadshow on Active Directory.

LARRY MACFAUL met with Jia Xu of the Royal United Services Institute (RUSI) on 15 March, along with Angela Woodward and Andreas Persbo, to discuss the verification aspects of RUSI's

project on European space policy. Larry continued to work on papers on verification issues associated with the climate change regime for the International Institute for Applied Systems Analysis (IIASA) and the European Safeguards Research and Development Association (ESARDA).

**ANDREAS PERSBO** met with BBC security correspondent Gordon Corra on 4 February to discuss VERTIC's current research. On 24 February, he visited the Stockholm International Peace Research Institute (SIPRI), where he met with Deputy Director Christer Ahlström, and attended a seminar chaired by Hua Han on Chinese nonproliferation policies. He was present at the Swedish Peace and Arbitration Society (SPAS) international conference on 'Reaching nuclear disarmament: new challenges and possibilities' on 25–27 February, giving a speech on verification challenges facing the 2005 NPT Review Conference. Andreas also chaired a workshop on ways to ensure compliance with the NPT, with special emphasis on Iran. On 28 February, he met with representatives of the Stockholm-based Weapons

of Mass Destruction Commission (the Blix Commission), and on 3 March with Oliver Meier, currently affiliated with the Arms Control Association. On 4 March, he participated in the VERTIC BWC roundtable. On 15 March, he attended a presentation by Greg Mello of the Los Alamos Study Group (LASG) to the Nuclear Issues Working Group on the LASG's view of current activities at US nuclear weapons research laboratories. Andreas, along with Angela Woodward, represented VERTIC at the IAEA's 'International Conference on Nuclear Security: Global Directions for the Future' in London from 16–18 March. He visited Vienna from 20–22 March, where he met with CTBTO and IAEA representatives.

Andreas is currently editing a VERTIC Brief by Malika Goonasekera on the verifiability of a fissile material cut-off treaty (FMCT) and is preparing for an informal seminar on verification measures in 'countries of concern' in May 2005. He is also writing a paper with Angela Woodward on 'Enhancing national capacity to implement national measures against WMD' for the Blix Commission.

## building trust through verification

VERTIC is the Verification Research, Training and Information Centre, an independent, non-profit making, non-governmental organization. Its mission is to promote effective and efficient verification as a means of ensuring confidence in the implementation of international agreements and intra-national agreements with international involvement. VERTIC aims to achieve its mission through research, training, dissemination of information, and interaction with the relevant political, diplomatic, technical, scientific and non-governmental communities.

**PERSONNEL** Angela Woodward BA (HONS), LLB, LLM, *Acting Director and Arms Control and Disarmament Researcher (Chemical and Biological)*; Jane Awford BA (HONS), MA, MA, *Information Officer and Networker*; Ben Handley, *Administrator*; Larry MacFaul, BA (HONS), MSc, *Environment Researcher*; Andreas Persbo, LL.M., *Arms Control and Disarmament Researcher (Nuclear)*; Lindsay Ritz, *Intern*.

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