

North Korean crisis: fallout for verification

Questions have surrounded North Korea's commitment to nuclear nonproliferation for some time. Apparent progress in convincing it not to acquire a nuclear weapons capability has been offset by disquiet over its adherence to nonproliferation agreements, such as the 1968 Nuclear Non-Proliferation Treaty (NPT) and the 1994 US–North Korea Agreed Framework. North Korea has been in non-compliance with the NPT since 1993, having failed to address concerns resulting from International Atomic Energy Agency (IAEA) inspections and having continued to resist the application of safeguards, despite its obligations under the Agreed Framework.

The latest crisis was precipitated in October 2002, when the US confronted North Korea with allegations that it was still trying to obtain fissile material. While it remains unclear whether Pyongyang admitted the existence of a uranium enrichment programme, or whether it only asserted its 'entitlement' to nuclear weapons, it has again defied the international community over its nuclear programme. North Korea has declared the Agreed Framework invalid and announced its withdrawal from the NPT. In addition, it has expelled IAEA monitors and disabled seals and surveillance equipment at nuclear facilities.

The predicament is a critical test of the global nonproliferation regime. A successful resolution will strengthen the regime, not least in terms of developing modalities for dealing with near-nuclear states. Failure to bring North Korea into full compliance with the NPT, however, will undermine nonproliferation at a time when it is being challenged by the emergence of new nuclear suppliers.

Returning North Korea to a state of compliance with the NPT will necessitate securing its agreement to terminate any enrichment programme it may have and negotiating and implementing strengthened safeguards based on the model provided by the IAEA's Additional Protocols. This would place the country's entire nuclear programme under comprehensive safeguards for the first time. The IAEA, the US and many of North Korea's neighbours will not be satisfied with a return to the nominal controls and verification that existed prior to the present crisis. They are insisting, therefore, on provisions for the effective verification of the country's nuclear infrastructure. US Secretary of State Colin Powell has demanded 'a new arrangement and not just go back to the existing framework'. The IAEA has also called for a verifiable conclusion to the nuclear programme. Obtaining North Korean consent, however, will be very difficult. Verification matters have proven to be a major stumbling block: North Korea apparently regards comprehensive verification measures as resulting in unacceptable vulnerabilities.

In this issue . . .

Kenneth Boutin assesses the nuclear crisis in North Korea and its consequences for the global nonproliferation regime, while Alex Wood analyses UNMOVIC's potential for success in Iraq. Plus a review of the *Yearbook on International Co-operation on Environment and Development 2002/2003* and 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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The Verification Research, Training
and Information Centre (VERTIC)

Baird House
15–17 St. Cross Street
London EC1N 8JW
United Kingdom

tel +44 (0)20 7440 6960
fax +44 (0)20 7242 3266
e-mail info@vertic.org
website www.vertic.org

Options and dilemmas

There are inherent difficulties in dealing with North Korea. Its decision-making processes are not transparent and its relative political and economic isolation renders it highly resistant to many traditional policy instruments. Furthermore, the country has tended to adopt a confrontational approach to interstate disputes, reflected in inflammatory statements and instances of brinkmanship. What North Korea seeks to accomplish through its present action and how it can be redirected towards a less destabilising policy remain unclear. It has rejected efforts to clarify its nuclear status and continues to send vague and sometimes contradictory messages.

North Korea has consistently been intransigent when confronted with other states' efforts to coerce it. There are indications that it will respond to what it perceives as threats in this case in a similar manner. Earlier this year, for example, it declared that sanctions would be seen as a 'declaration of war'. North Korea is vulnerable to sanctions due to its energy and food shortages, but it has demonstrated remarkable resilience in the face of even severe deficiency. It is also unlikely that support from a sufficient number of states could be secured to make sanctions effective.

An alternative approach involves offering inducements in return for North Korean acceptance of controls and verification of its nuclear programme. A number of initiatives have been launched that involve providing security guarantees and aid in exchange for the country's return to the nonproliferation fold. There are indications that Pyongyang may be receptive to such offers. One unidentified diplomat stated that North Korea was prepared to 'reconsider' its withdrawal from the NPT in return for a resumption of fuel oil deliveries, for instance. The apparent failure of the Agreed Framework means that some states may have reservations about this approach, particularly if the cost is judged too high. Thus, while the US has dropped its opposition to providing further assistance in exchange for a verifiable end to North Korea's nuclear weapons programme, it has balked at the latter's call for a bilateral non-aggression treaty.

The dilemma of who should deal with North Korea is another impediment. Key actors' patchy past record of engagement on nuclear issues limits their capacity to work with the country again. North Korea also has a weak record in regard to engaging multilateral organisations like the IAEA. It has refused repeated requests by the IAEA—describing it as the 'cat's paw' of the US—to clarify its position and to discuss safeguards issues. It has also threatened to end its self-imposed moratorium on ballistic missile testing if the crisis is brought before the United Nations (UN) Security Council. This leaves little scope for these bodies and

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other institutions, such as the Korean Peninsula Energy Development Organisation (KEDO)—established to implement the Agreed Framework's assistance provisions—to contribute to a solution. North Korea has sought to deal with the US alone in resolving this matter. This has proven problematic, however, because of its strained relationship with Washington. The US prefers a multilateral solution, and has directed its efforts at persuading North Korea to deal with the IAEA.

Resolving the North Korean nuclear crisis will not be easy. Significant differences separate the country from the international community: North Korea is challenging the terms of its nonproliferation responsibilities, while other interested parties are prepared to discuss only the terms under which North Korea will meet its responsibilities. Verification will, however, have to be addressed as part of any solution. This may occur in the context of a broader arrangement that would take into account North Korea's security concerns, in which case credible verification may prove more acceptable to Pyongyang than has been the case in the past. Recent North Korean statements have suggested its willingness to consider verification provided its concerns were met. The manner in which the verification issues brought to the fore by this crisis are tackled will send an important message to other states.

Kenneth Boutin

Senior Arms Control and Disarmament Researcher, VERTIC

For a useful discussion of the background to the present crisis, see Leon Sigal, 'Verifying a Missile Accord with North Korea', in Trevor Findlay and Oliver Meier (eds), *Verification Yearbook 2002*, London, VERTIC, 2002.

UNMOVIC: quality time in Iraq

As the United Nations Monitoring, Verification and Inspection Commission (UNMOVIC) strives to verify Iraqi compliance with relevant UN Security Council resolutions, notably number 1441 of 8 November 2002, considerable attention has focused on its potential for success. While it is far too early to speculate whether UNMOVIC will succeed to the international community's satisfaction, some indication of its chances can be derived from its characteristics and record thus far. Careful analysis reveals quantitative growth and continuing qualitative improvement in inspections, while also illustrating the time and resource requirements of a mission of this magnitude.

Sources

Analysis of UNMOVIC is facilitated by a number of excellent information sources. VERTIC has been able to compile daily summaries based on UNMOVIC Executive Chairman Hans Blix's increasingly frequent reports to the UN Security Council, which are the most authoritative account available of the commission's actions. Another important source is the daily press briefing by UNMOVIC and the IAEA, which is conducting inspections in the nuclear field. For balance and because Iraq is an integral part of the process, data provided by UNMOVIC's official Iraqi interlocutor, the National Monitoring Directorate (NMD), has also been drawn on, as is information from other Iraqi sources, such as the ministry of foreign affairs. Monitoring various media provides a check on official statements and gives us an idea of how the inspection process is being reported publicly. Various academic assessments have also proved useful.

Inspections intensify

UNMOVIC appears to have been managed in such a way as to allow for a gradual quantitative and qualitative intensification of inspections. Its presence in Iraq has expanded from an initial 17 inspectors plus support staff on 27 November 2002 to 256 personnel, including aircrew, on 25 January 2003. Inspections have focused on verifying the country's 12,000-page declaration to the UN Security Council of 7 December 2002, as well as on developing a complete appraisal of its biological, chemical, nuclear and ballistic missile capabilities. This has been a huge undertaking, beginning in the Baghdad area and fanning out throughout Iraq during the first two months of operations. Of the 364 inspections conducted up to 23 January 2003, 118

focused on nuclear weapons, 56 on chemical weapons, 63 on biological weapons, 61 on missiles, and 45 were multipurpose.

Various facilities are being inspected, including 'declared'—those previously declared to UNMOVIC's predecessor, the United Nations Special Commission (UNSCOM)—'newly declared'—those declared in Iraq's declaration of 7 December 2002—and 'undeclared' sites. They include privately owned and public sites, although the latter constitute some 95 percent of the facilities visited by UNMOVIC to date. The Military Industrialisation Commission (MIC) operates most of the public establishments, including the Ibn Sina Company, which conducts chemical research, the Karama Sumood Missile Facility, which produces missile components, and the Um Al Marrik Company, which manufactures tools. Private sector sites encompass breweries, engineering firms, import/export companies and recently a private residence. Inspections are carried out by teams of between two and more than 30 people; six is the most common size. The fact that UNMOVIC is still recruiting and training both inspectors and support staff suggests a need to increase its capacity to inspect different types of sites. It has set up an office in the northern city of Mosul (and reportedly plans to open another in Basra) and has recently begun to employ helicopters, after a delay caused by difficulties establishing a communications system and Iraqi demands to accompany flights. Iraq has yet to agree to overflights by UNMOVIC's US-supplied U-2 aircraft, which proved so useful to UNSCOM.

UNMOVIC has conducted intrusive inspections, disregarding the previous exemption granted to presidential places, despite Iraqi complaints. Inspections of the Sijoud presidential palace and NMD headquarters took place without prior notification and the sites were 'frozen' in accordance with resolution 1441. In contrast to UNSCOM's experience, Iraq has not prevented entry to any site that UNMOVIC has sought to visit and delays in gaining access have been minimal.

UNMOVIC has used a variety of techniques, including air, chemical and radiological sampling, equipment tagging, document collection and interviews with technical personnel and scientists (although not without their Iraqi minders). A mobile laboratory operated by UNMOVIC in Iraq and the IAEA laboratory in Austria are used to analyse samples taken during inspections. There are many reports of UNMOVIC exploiting new technologies, such as portable detectors to identify special-

Peace Missions Monitor

NGO monitoring for Aceh

An unusual monitoring arrangement has been agreed for the peace accord signed by the Indonesian government and the rebel Free Aceh Movement in Geneva on 9 December 2002. The agreement calls for a ceasefire throughout Aceh, which is on the island of Sumatra, and the holding of elections to end one of the world's longest-running internal conflicts. A 144-strong monitoring team is to be made up of representatives of the two sides to the conflict, and is to be led by a senior third party military officer. A Joint Security Committee (JSC), comprising representatives of the two parties and of the Henry Dunant Centre for Humanitarian Dialogue (HDC), a Geneva-based non-governmental organisation that helped mediate the agreement, will supervise the monitoring. The JSC began work, ahead of schedule, on 24 December 2002. Major-General Tanongsuk Tuvunun of Thailand has been appointed as the JSC's senior envoy.

Prevlaka mission accomplished

The United Nations Mission of Observers in Prevlaka (UNMOP) was withdrawn in December 2002 after Croatia and Yugoslavia reached an interim agreement that leaves the strategic Prevlaka peninsula in Croatian hands. Montenegro, the only remaining republic in the Yugoslav federation besides Serbia, is to have control over the adjoining waters. Joint police units will patrol these waters in boats bearing no state insignia, only a simple police sign, while the land area will remain demilitarised. The 27 UN observers had been present since 1996 to help ensure that the peninsula was demilitarised and that armed conflict did not recur.

Loyalist body cuts ties with Decommissioning Commission

The Loyalist Ulster Volunteer Force (UVF) has suspended all contact with the International Commission on Decommissioning, which is supposed to verify decommissioning of all paramilitary weapons in Northern Ireland following the 1998 Good Friday Agreement. In October 2002 the Irish Republican Army (IRA) took the same step. Unlike the IRA, though, the UVF has never undertaken any acts of verified decommissioning.

Source 'Cessation of Hostilities Framework Agreement between Government of the Republic of Indonesia and the Free Aceh Movement', Geneva, 9 December 2002; 'Indonesia and Aceh rebels sign landmark peace deal', Reuters, 9 December 2002; www.hdcentre.org/Programmes/aceh.htm; 'Croatia, Yugoslavia fix border conflict', Associated Press, 16 January 2003; UN Security Council resolution 1437, 11 October 2002; 'UVF pulls out of weapons talks', BBC News, 17 January 2003.

ised alloys used in nuclear weapon applications, as well as hand-held biological agent detectors and digital monitoring cameras.

Impact and implications

UNMOVIC has been thorough in visiting many types and a large number of declared and suspect sites—including those off limits to UNSCOM—some on multiple occasions. To the extent that one can tell, it has done so professionally and vigorously. It has not found the elusive 'smoking gun', yet it has achieved some notable successes, such as discovering undeclared chemical warheads and nuclear-related documents. It is gradually putting together the pieces of a verification-based judgement on Iraqi compliance with its legal obligation to declare and destroy its weapons of mass destruction and related capabilities, but the number of sites of interest probably number more than 900,

and the complexity of the verification task makes it unrealistic to expect UNMOVIC to fulfil its mandate in a couple of months. Additional time and resources will be required. Furthermore, as Blix noted in his report to the UN Security Council on 27 January 2003, UNMOVIC's assignment would be vastly facilitated by the pro-active Iraqi co-operation that resolution 1441 demands of it.

US Secretary of State Colin Powell provided evidence to the Security Council on 5 February that the Iraqis are, as expected, mounting a campaign of 'deception and denial' against UNMOVIC that complicates its work. Powell also made public new intelligence on Iraqi weapons holdings that UNMOVIC will need to try to corroborate as soon as possible.

Alex Wood, VERTIC Intern



New missile nonproliferation instrument

An important new instrument to prevent ballistic missile proliferation was launched at a meeting in The Hague, Netherlands, on 25 November 2002. The Hague Code of Conduct (formerly known as The International Code of Conduct Against Ballistic Missile Proliferation) is the first multilateral agreement to deal with the production, development, testing and transfer of ballistic missiles. While it does not prohibit missile development, calling only on states to 'exercise maximum possible restraint', and is not legally binding, it complements the export-oriented 1987 Missile Technology Control Regime (MTCR). The code will promote transparency by requiring annual declarations on ballistic missile policies and launches, space launch vehicle policies, launches and launch sites, and pre-launch notifications of ballistic missile and space launch vehicle launches.

The immediate priorities for the 93 countries that have signed the code are to work out the details of its implementation and to encourage other states to join. There is growth potential in this initiative, as some countries support the idea of it serving as an initial step towards a legally binding ballistic missile treaty.

Source Mike Nartker, 'International response: missile code of conduct launches in The Hague', *Global Security Newswire*, 26 November 2002, www.nti.org; Mark Smith, 'Stuck on the launch pad? The ballistic missile code of conduct opens for business', *Disarmament Diplomacy*, no. 68, December 2002/January 2003; Paul Kerr, 'Code of conduct aims to stop ballistic missile proliferation', *Arms Control Today*, January/February 2003, www.armscontrol.org/act/2003_01-02/icoc_janfebo3.asp.

Kyoto edges closer to action

A number of important ratifications of the 1997 Kyoto Protocol to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) occurred in December 2002. To enter into force, the protocol must be ratified by at least 55 countries, including the industrialised nations listed in Annex I that were responsible for at least 55 percent of greenhouse gas (GHG) emissions in 1990. Ratifications by Poland, Canada and New Zealand contribute 3, 3.3 and 0.2 percent respectively to the emissions requirement, taking the total to 44.5 percent. Only Russia (17.4 percent) needs to submit its instrument of ratification for the protocol to enter into force. This is expected in 2003.

Canada's ratification flew in the face of strong domestic opposition from the provinces of Quebec and Alberta, home of the country's oil producers. Critics claim that Canadian businesses will suffer in a global market where the US—which has indicated that it will not ratify the Kyoto Protocol—is not subject to a GHG emissions cap. Some provincial governments are expected to mount Supreme Court challenges to Ottawa's right to implement the treaty, which commits it to a 2012 emissions figure that is six percent below 1990 levels. However, Prime Minister Jean Chrétien's decision to ratify—on the basis that 'it is good for future generations'—reinforces multilateral efforts to mitigate climate change and further isolates Australia and the US. Australian Prime Minister John Howard has said that his country will not ratify, yet it still intends to meet its emissions reduction target under the agreement.

In the US, meanwhile, a battle is looming between Congress and the administration of President George W. Bush. Senators John McCain (Republican) and Joe Lieberman (Democrat) unveiled new legislation to set emissions targets for US power plants and industries. The bi-partisan proposal calls for a nationwide cut in GHG emissions to 2000 levels by 2010, and to 1990 levels by 2016. The proposal would permit emissions trading, whereby companies that exceeded their emissions allowances could buy credits from more efficient firms. McCain, incoming chairman of the Senate Committee on Commerce, Science and Transportation, intends to send the legislation to the Senate floor later this year. This is likely to put him in conflict with the White House and the Committee on Environment and Public Works, which are known to favour voluntary schemes.

Source Emma Young, 'Canada ratifies Kyoto Protocol', *New Scientist Online*, 17 December 2002, www.newscientist.com; 'Canada's ratification puts Kyoto in Russia's hands', *UNWire*, 17 December 2002, www.unwire.org; Eric Pianin, 'Reductions sought in greenhouse gases', *Washington Post*, 9 January 2003, www.washingtonpost.com; 'New US Congress makes global warming an issue', *UN Wire*, 9 January 2003.

Keeping track of biological agents

New US regulations aimed at improving controls on selected biological agents to prevent them falling into terrorist hands are due to enter into force on 7 February 2003. This is despite concerns that they may prove inadequate and notwithstanding

a negative report on the performance of the oversight body charged with verifying compliance with existing rules.

The new regulations mandated by federal legislation (the Public Health Security and Bioterrorism Preparedness Act 2002 and the USA Patriot Act 2001) were prompted by the 2001 anthrax incidents in the US. They require all laboratories handling certain hazardous biological materials, or 'selected agents', to register with the Centers for Disease Control and Prevention (CDC). The number of selected agents has been increased and laboratories must limit access to those with a 'bona fide' research purpose. Laboratories must report on their security arrangements, training programmes and employees. In addition, researchers must undergo a 'risk assessment' by the Department of Justice before the CDC may authorise a transfer of selected agents. The CDC is responsible for verifying the new controls, including through unannounced inspections of laboratories and by maintaining a database that tracks the transfer of agents.

A 2002 General Accounting Office (GAO) report, though, was critical of CDC oversight of the existing regulations and cited an insufficient number of inspections and inaccurate accounting of transfers. The CDC has since taken steps to rectify these problems, increasing its meagre pool of 13 inspectors and increasing funding of its database.

These steps might not prove adequate to track agents effectively, however. Many in the scientific community claim that, by allowing individual laboratories to decide their own security and monitoring arrangements, the new regulations still do not ensure control of dangerous agents. It is also argued that such agents may still be obtained from other sources, while the new regulations simply create a mountain of paperwork for those conducting legitimate research.

Source Laura Meckler 'CDC monitoring of dangerous pathogens fraught with trouble', *Associated Press*, 25 November 2002; Erika Check, 'Pathogen-tracking questioned', *Nature*, vol. 420, 5 December 2002; Diana Jean Schemo, 'After 9/11, universities are destroying biological agents', *New York Times*, 17 December 2002, www.nytimes.com; David Ruppe, 'US response: new science regulations receive mixed reviews', *Global Security Newswire*, 12 December 2002, www.nti.org; David Ruppe, 'US response: scientists readying for new laboratory regulations', *Global Security Newswire*, 4 December 2002; 'US response: CDC issues new laboratory guidelines', *Global Security Newswire*, 6 December 2002.

Waste treaty cleans up its verification act

Parties to the 1989 Basel Convention on the movement and disposal of hazardous waste agreed a new compliance mechanism for the 1999 Basel Protocol at the Sixth Conference of the Parties (COP6) in Geneva, Switzerland, on 9–14 December

2002. The protocol, which has not yet entered into force, addresses issues of liability and compensation for damage resulting from the movement of hazardous waste across national boundaries. It also requires parties to implement national legislation to monitor and prevent illegal traffic of toxic waste. Under the new provisions, a compliance committee, consisting of 15 members that represent the five UN regional groupings, will assist parties in resolving non-compliance issues.

Compliance mechanisms will be triggered by an accusation by another party, or by a submission from the secretariat or the party itself. Where a party is found to be in non-compliance, the committee is tasked with assisting it to develop and implement a voluntary plan to rectify the situation. In addition, the committee can make recommendations to the COP aimed at improving a party's implementation and encouraging it to return to compliance. These measures could include issuing a formal statement of concern or, more seriously, the suspension of a party's rights and privileges.

Currently, reporting under the convention is voluntary and consequently poor—only 89 out of 151 parties had submitted their annual reports for 1999 by the end of 2001. COP6 requested that parties complete a questionnaire designed to simplify reporting and to increase the number of submissions. Furthermore, the secretariat is asked to provide assistance to countries, particularly developing nations, in meeting their reporting obligations through the Basel Convention Regional Centres (BCRC). The secretariat negotiates contracts with each centre to define their role in the region and to assist them with their work plans.

The BCRCs are also the focus of efforts to build a wider network to monitor the illegal trafficking of hazardous waste. COP6 asked the secretariat to increase co-operation at the international level with organisations like the Organisation for Economic Co-operation and Development (OECD), the United Nations Environment Programme (UNEP), the World Customs Organisation (WCO) and the World Health Organisation (WHO). They were also asked to develop closer partnerships with environmental non-governmental organisations (NGOs), industry and business groups. Anybody can report cases of illegal trafficking of hazardous waste to the secretariat by letter or via the convention's website. A copy is forwarded to the implicated parties, which are obliged to investigate the incident and to respond to the secretariat.

Source 'Summary of the Sixth Conference of the Parties to the Basel Convention: 9–14 December 2002', *Earth Negotiations Bulletin*, 16 December 2002, www.iisd.ca.

EU trawls for fish deal that can be monitored

On 20 December 2002, European Union (EU) fisheries ministers agreed interim measures for protecting threatened fish stocks in specific EU maritime zones. The compromise deal, reached over five days of talks, reduces quotas for the most threatened species of fish, including cod and haddock.

The interim regulations, which came into force on 1 January 2003, set out Total Allowable Catch (TAC) limits for each species by geographical area and time of year. These quotas are then sub-divided between EU members in accordance with the Common Fisheries Policy (CFP), which was first adopted in 1993 and has been regularly amended. Additional controls to those contained in the CFP have been introduced in order to enforce the new regulations. They prescribe technical specifications for tackle and nets, set out 'no-fishing' seasons and zones, and make provision for supplemental recording and reporting of information for the purposes of monitoring fishing activities. Vessels flying an EU member state's flag will be required to record minimum fish sizes, catch volumes, fishing methods and the location, date and time of hauls covered by the decision. In addition, the annexes to the decision specify how this information should be reported (electronically) to relevant authorities. It will be used to check that quotas are not being infringed and to monitor the number of days that vessels spend at sea and their position. Each member state is required to enforce the new regulations and to report catch information to the European Commission on a daily, weekly and annual basis.

Source 'Fixing for 2003 the fishing opportunities and associated conditions for certain fish stocks and groups of fish stocks, applicable in community waters and, for community vessels, in waters where catching limitations are required', Council Regulation (EC) 2341/2002, 20 December 2002, www.europa.eu.int; 'On the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy', Council Regulation (EC) 2371/2002, 20 December 2002, www.europa.eu.int; 'Agriculture and fisheries', Council of Europe press release 15636/02 (presse 399), www.ue.eu.int; 'Franz Fischler: today marks an historic milestone in the European Union's policy on fisheries', press release, 20 December 2002, www.europa.eu.int.

MOP leaves holes in ozone treaty

Illegal trade in ozone depleting substances (ODS) was on the agenda of the Fourteenth Meeting of the Parties (MOP14) to the 1987 Montreal Protocol in Rome, Italy, on 25–29 November 2002. Under the treaty, parties are required to phase out—and eventually eliminate—the use of ODS in order to protect the ozone layer. The use of many ODS is already prohibited in developed countries; developing nations are committed to a slower phase out. This two-speed policy encourages illegal

traffic of ODS from developed to developing countries. While no one knows its true extent, the International Environment Investigations Agency (EIA) estimates that hundreds of tonnes of chemicals are being smuggled into India each year. Many parties are concerned that this type of activity threatens the protocol's success.

At MOP13 in Montreal, Canada, in July 2002, parties requested that the secretariat prepare a paper setting out options for the monitoring and prevention of illegal trade under the protocol. A prominent option was the establishment of an Enforcement Assistance Unit (EAU), similar to that operating under the 1973 Convention on the International Trade in Endangered Species (CITES). The proposed unit would be responsible for collecting and analysing illegal trade data, cross-checking information to highlight discrepancies, identifying trends, collaborating with international organisations (such as Interpol and the WCO) and providing technical support and training to national experts and officials. The idea of an EAU was supported by the EIA and taken up by Poland, which prepared a draft decision to elaborate further its responsibilities and work programme. Unfortunately, the US opposed the idea, claiming that enforcement was the responsibility of national authorities. Despite the US commitment to domestic enforcement, it was unprepared to finance a unit to tackle problems on a wider scale. EU attempts to salvage some elements of the Polish proposal failed.

The final outcome of the discussions was a severely watered-down approach to tackling illegal trade in ODS. Parties agreed to finance regional centres in Africa, Asia and Latin America, which will operate under UNEP's Compliance and Assistance Programme. While this will lack the teeth of an EAU, some opportunities remain to develop enforcement and compliance strategies that will support the protocol's implementation.

Source 'Summary of the Fourteenth Meeting of the Parties to the Montreal and the Sixth Conference of the Parties to the Vienna Convention: 25–29 November 2002', *Earth Negotiations Bulletin*, 2 December 2002, www.iisd.ca; Ezra Clark and Julian Newman, 'Curbing illegal trade in ODS: why the Montreal Protocol needs an enforcement assistance unit', 18 July 2002, www.eia-international.org; 'Study on monitoring of international trade and prevention of illegal trade in ozone-depleting substances, mixtures and products containing ozone-depleting substances (decision XIII/12)', UNEP/OzL.Pro/WG.I/22/4, 23 April 2002, www.unep.ch/ozone.

US bullies its way to further ICC exemption

Following the Bush administration's renunciation on 7 May 2002 of its signature of the 1998 Rome Treaty that established the International Criminal Court (ICC) (see *Trust and Verify* no. 102), the US has sought bilateral deals with treaty parties to ensure

that US citizens are beyond the court's jurisdiction over war crimes. The impetus for the speedy conclusion of such agreements is the imminent expiration of the temporary exemption granted by the UN Security Council in July 2002 to US personnel involved in UN peace operations. The US fears that its nationals may be the targets of politically motivated accusations, despite the inclusion of treaty safeguards to prevent spurious allegations, which have satisfied the concerns of other countries.

On 30 September 2002, the 15 EU nations agreed to allow individual members to reach bilateral agreements with the US to exempt American soldiers and government officials from prosecution for war crimes at the ICC. The EU concession requires any such deals to apply only to US soldiers and officials and to guarantee that any US citizen accused of war crimes will be tried in a US court. It specifically excludes similar arrangements for EU nationals. Both Italy and the UK have indicated that they will consider signing bilateral agreements with the US. NGOs, including Human Rights Watch, have criticised the imprecision of the EU guidelines, while European Commission legal experts argue that, in signing such deals, EU members are contravening the treaty's purpose and helping the US to undermine it further.

Beyond the EU, it has been reported that 12 states, many of them developing nations, have signed bilateral agreements with the US to date. Washington has apparently exerted considerable diplomatic pressure to conclude these deals, including threats to suspend military aid.

Source 'EU gives US troops immunity', *BBC News World Edition*, 30 September 2002, www.news.bbc.co.uk; Paul Meller, 'Europeans to exempt us from war court', *New York Times*, 30 September 2002, www.nytimes.com; Jacky Rowland, 'us accused of ICC bullying', *BBC News World Edition*, 14 August 2002; 'us rejects EU criminal court guidelines' *BBC News World Edition*, 2 October 2002; 'India-us deal to boycott court', *BBC News World Edition*, 26 December 2002.

Concern over 'dirty bombs'

Concern is growing over 'dirty bombs', radiological weapons or 'radiological dispersion devices' (RDDs), as they are now known. These weapons are designed to cause casualties by dispersing radioactive materials. The apparent interest of groups such as al-Qaeda, for instance, in acquiring them is focusing attention on the threat that they pose. A ban on RDDs would be particularly difficult to verify. They can be easily constructed and their components are relatively easy to obtain due to poor security and the wide distribution of sites where radioactive material is used. Radioactive sources have many medical and industrial functions.

Verification Quotes

We do not take 'no' for an answer. We have to verify a 'no' is actually a 'no'.

Mohamed El Baradei, speaking on Iraq, quoted in 'Arms inspectors arrive in Iraq', *BBC News*, 18 November 2002, <http://news.bbc.co.uk>.

Weapons inspection is not a precise science but it does rely on scientific principles and techniques.

'Give science a chance', *New Scientist*, 30 November 2002, p. 3.

It is for the UN inspectors to discover, verify and report the truth.

Iraqi General Amer Al Sa'adi, quoted in Rageh Omaar, 'Analysis: US sets tripwire for Iraqi action', *BBC News*, 23 December 2002, <http://news.bbc.co.uk>.

We do not seek to humiliate, harass or provoke. We want effective, professional inspection. It is for us to determine what is humiliating, harassing or provoking.

Hans Blix on inspections in Iraq, quoted by Bill Nichols, 'Chief inspector's style: be thorough, but fair', *USA Today*, 14 November 2002, www.usatoday.com.

There are weapons inspectors for Iraq. Why not food inspectors for North Korea?

Norbert Vollertsen, German doctor, speaking on the verification of food deliveries in North Korea, quoted in James Brooke, 'North Korea bites the hands that try to feed it', *International Herald Tribune*, 6 December 2002, p. 9.

If the Iraqis can produce 13,000 pages, they have got one helluva bullshit machine.

Unnamed Western diplomat, speaking of the Iraqi declaration to the UN of December 2002, quoted in James Bone, 'Saddam lays out his clean sheet—in 13,000 pages', *The Times*, 6 December 2002, p. 19.

Such concern has prompted efforts to improve the security of radiological materials in the former Soviet Union and in countries like the Democratic Republic of the Congo and Yugoslavia. At the same time, the US has begun monitoring shipping containers that might be used to transport RDDs. Washington is the driving force behind attempts to develop long-term approaches to the problem. Along with Russia and the IAEA, the US will co-sponsor a conference in March 2003 that will examine how IAEA safeguards can be extended to encompass 'lower grade nuclear materials'.

Source US Department of State, 'us, Russia, IAEA to host "dirty bomb" conference in 2003', 18 November 2002, usinfo.state.gov; Louis Charbonneau, 'UN worried about nuclear "dirty bomb" material', *The Philadelphia Enquirer*, 5 September 2002, www.philly.com; Bryan Bender, 'us response: Abraham outlines 10 principles for nuclear, radiological security', *Global Security Newswire*, 15 November 2002; www.nti.org; Mike Nartker, 'Radiological weapons', *Global Security Newswire*, 18 November 2002.



Lasers spotlight weapons

The US army is developing a laser technique to detect chemical and biological agents and explosives from safe distances. Scientists at the Aberdeen Proving Ground in Maryland have used laser-induced breakdown spectroscopy (LIBS) to identify the chemical signatures of TNT and three strains of anthrax.

At the Los Alamos National Laboratory in New Mexico, US, another team has employed LIBS to detect airborne pesticides, uranium in liquid solutions and chromium pollution in soil. The technique uses laser pulses to heat tiny samples (billionth of a gram) of the material to 43,000 degrees Fahrenheit. At this temperature, the material radiates a characteristic electromagnetic signature, which can be recorded and analysed by a 'broadband' spectroscope. LIBS has a number of advantages over existing methods. No special preparation of samples is required, analysis occurs at computer speeds and tiny concentrations of materials can be detected at distances of up to 40 metres.

Further development of the technology is necessary, however, to make it sensitive to the extremely low concentrations of anthrax that are known to be harmful to humans. The research team is confident, though, that, within a year, they will be able to produce a portable device based on LIBS, costing around US \$20,000, which could be used to monitor the air in public places, such as train stations and airports, and to warn of biological or chemical weapon attacks. Weapon inspectors in the field could also use such a device to provide on the spot analysis of suspicious materials. In the longer term, LIBS could be developed to detect and to destroy chemical agents. This would help to meet the demand for effective means of detecting terrorist attacks in a timely manner.

Source Dan Vergano, 'Laser "breakdown" technique focuses on terrorist weapons', *USA Today*, 16 September 2002; 'US response II: army developing portable chemical sensor', *Global Security Newswire*, 17 September 2002, www.nti.org.

Detecting coral reef bombers

Blast fishing is causing damage to coral reefs in many parts of Southeast Asia and along Africa's eastern coast. Although the use of explosives to increase catch sizes is illegal, explosions often go unnoticed by authorities because of poor monitoring and detection.

However, prevention efforts will be given a boost by the results of an underwater listening project at the Hong Kong University of Science. Researchers are using hydrophones (underwater microphones) to pick up noise signals in combination with new software that can isolate an explosion from a cacophony of background sounds. The computer algorithms use the different energy signatures to separate the claw-clicking contributions of 'pistol' shrimp, which live on the reefs, and the roar of an outboard motor from an explosion signal. The detection range for each hydrophone is 30 kilometres; using triangulation techniques the scientists can pinpoint an explosion to within 30 meters from a distance of 10 kilometres. During a survey in Tunku Abdul Rahman National Park, Malaysia, the team tested their system, using a single hydrophone, and detected 15 blasts over ten days. The hydrophones are an example of a scientific use for a technology that is currently being installed worldwide by the Comprehensive Nuclear Test Ban Treaty Organisation to detect underwater nuclear explosions.

Source Michelle Knott, 'The net is closing on coral reef bombers', *New Scientist*, 11 January 2003, www.newscientist.com.

The neutron test

In an effort to prevent smuggling of nuclear materials, US scientists have developed a device to detect fissile material even when sealed in lead containers that would foil alternative detection methods. The new scanning system uses high-energy x-rays to penetrate external shielding and to induce fission (splitting of nuclei) in any uranium or plutonium contained inside. Neutron counters then collect neutrons emitted during the fission process to register the presence of the radioactive material.

Research teams based at the Idaho National Engineering and Environmental Laboratory (INEEL) and the Lawrence Livermore National Laboratory are collaborating on the project with the California-based imaging firm, ARACOR. The group has developed a US\$3.5m prototype, which is likely to go into mass production before the end of 2003. However, the system is not foolproof. Materials with high hydrogen content—like some plastics—would still act as effective shielding for fissile material.

Source Nicola Jones, 'Nuclear smugglers face neutron test', *New Scientist*, 8 January 2003, www.newscientist.com.

Middle East project

VERTIC is joining the Lester B. Pearson Canadian International Peacekeeping Training Centre, based in Nova Scotia, Canada, and the Jerusalem-based Israel–Palestine Center for Research and Information (IPCRI) in a Middle East verification project. Funded by the UK Foreign and Commonwealth Office (FCO), the project aims to devise workable monitoring and verification options for future peace arrangements between the Israelis and Palestinians. Five workshops, all involving representatives from the two sides and the participating organisations, are planned. The first meeting was held in Nicosia, Cyprus, from 30 January to 2 February 2003.

Verification Yearbook 2002 launched

VERTIC launched the *Verification Yearbook 2002* at a combined launch and Christmas party at the Hatton Conference Centre in London on 13 December. The volume is the tenth to be

produced by VERTIC. It contains 14 chapters, including, for the first time, one on electoral monitoring. Joke Waller-Hunter, Executive Secretary of the UNFCCC secretariat in Bonn, Germany, wrote the foreword. The yearbook may be ordered direct from VERTIC by telephone or e-mail or by filling in the form at www.vertic.org. Most previous volumes can also be ordered. Planning has commenced for the 2003 edition.

New interns

VERTIC has two new interns. Alex Wood, who joined the centre in December for a two-month internship, is compiling a record of UNMOVIC inspections in Iraq and writing a paper on the subject, as well as researching the verification provisions of the Central Asian Nuclear Weapon-Free Zone. Alex has a BA (Hons) in international relations from Keele University. Marita Kivilahti, of Finland, joined VERTIC in mid-January for a three-month internship. She has a BA (Hons) in European studies from Wolverhampton University, an MA in English translation and interpretation from Joensuu University in Finland and an M. Litt in management, economics and international relations from the University of St Andrews. She will be helping to produce a VERTIC pamphlet on verification of multilateral environmental agreements and will assist with other projects.

Board changes

Owen Greene, the Chair of VERTIC's Board for the past five years, has stepped down. The new Chair, elected at the Board's Annual General Meeting on 27 January, is Susan Willett. VERTIC is grateful to Dr Greene for his contribution as Chair during a critical period of the organisation's life and is pleased that he is staying on as a member of the Board.

Staff news

MOLLY ANDERSON met with Clare Perry of the EIA and her colleagues on 18 December to discuss possible future collaboration. She has been tracking new environmental issues for the Climate Action Network, including the development of standards for GHG emissions under the International Standards Organisation and a new code of conduct for NGOs being developed by the UNFCCC secretariat. She is also carrying out research on verification under the new GHG emission

Verification Yearbook 2002

VERTIC's annual survey of global verification developments, featuring:

- arms control and disarmament
- the environment
- election monitoring
- generic verification & compliance issues

With a preface by Joke Waller-Hunter, Executive Secretary of the UN Framework Convention on Climate Change.

Also contributing to this year's volume:

Nikolai Sokov Verifying nuclear arms control

Leon Sigal North Korea: verifying a possible missile accord

Hartwig Spitzer and Ernst Britting The Open Skies Treaty

Molly Anderson Verifying the Kyoto Protocol

Bill Gray and Therese Laneela Election monitoring

David Kelly The Trilateral Initiative on Biological Weapons

Michael Krepon, President Emeritus

Henry L. Stimson Center, Washington, DC

trading regimes in preparation for a presentation at the Central European University in February. In addition, Molly is continuing to work on funding proposals for the environment programme.

KENNETH BOUTIN attended a meeting of the Nuclear Issues Working Group on 16 December and a seminar on the North Korean nuclear dispute by Ambassador Charles Kartman,

Executive Director of KEDO, at the International Institute for Strategic Studies (IISS) on 22 January. On 17 January he joined Trevor Findlay and John Russell in meeting with Peggy Mason, an external faculty member of the Pearson Peacekeeping Centre in Canada to co-ordinate contributions to the first IPCRI Verification Working Group workshop. Kenneth participated in this meeting, which was held in Nicosia, Cyprus, from 31 January to 2 February.

Book Review *Yearbook of International Co-operation on Environment and Development 2002/2003*, Olav Schram Stokke and Øystein B. Thommessen (eds) Earthscan, London, 2002, pp. 334, £60.00 (hardcover), ISBN 1-85383-929-9

The scope and detail of multilateral environment and development agreements has become so great that unless you are one of those people with an extraordinary capacity to memorise facts and figures you need a reliable and comprehensive source at your fingertips. This yearbook—now in its tenth edition and launched at the World Summit on Sustainable Development (WSSD) in Johannesburg, South Africa, in 2002—is never far from mine. The main body of the book contains reference material, including information on agreements and lists of inter-governmental organisations and NGOs. This is preceded by six short papers by independent authors, which provide an up-to-date assessment of international co-operation on key environment and development issues.

It is perhaps unsurprising that, in the year of the WSSD, the first essay, by Gill Seyfang and Andrew Jordon, asks: how effective are environmental mega-conferences in global governance? There was widespread criticism in the lead-up to, and during, the WSSD, with much of the British press highlighting the cost of bringing together so many national dignitaries and the lavish entertainment that was part of a process designed to restrict consumerism and to provide the world's poor with food, water and energy. Like much in the debate on sustainable development, the answer appears to be mixed and intangible. However, the authors point out that mega-conferences are an established part of environmental governance. They analyse their function under six headings: setting global agendas; 'joining up' problems; endorsing common principles; providing leadership; capacity building; and fostering inclusiveness and legitimacy. They point out that these conferences are an important source of 'soft law', a half way stage in the development of binding obligations. In order to streamline their growing agenda, though, they conclude that policymakers need to become better at identifying topics that can genuinely be debated and resolved by leaders meeting at the global level.

The largest segment of the yearbook is its reference section. The first part summarises 54 international agreements under the headings of objectives, scope, time and place of establishment, status of participation, affiliated instruments and organisations, major activities, secretariat, finance, rules and standards of monitoring and implementation, decision-making bodies and key publications. This consistent format makes it easy to compare agreements across categories. Certainly, the descriptions of parties' reporting obligations and processes for assessing compliance with each treaty have proved invaluable to VERTIC. The reference material also contains a list of international organisations—again in a consistent format. It sets out the responsibilities of each international organisation and is useful for plotting how these institutions with either environmental or developmental objectives relate to each other. The information on NGOs is less comprehensive and it is not clear at times why one organisation is listed in preference to another. Nonetheless, it is an excellent starting point for studying international NGOs.

In summary, the yearbook contains a wealth of up-to-date reference data relevant to environmental policymakers and researchers, which is presented in a concise and user-friendly way. This is combined with a series of short, thought-provoking papers that set the drier reference material in context and give the publication an analytical flavour.

Molly Anderson, Environmental Researcher, VERTIC

TREVOR FINDLAY attended a seminar by US Under-Secretary of State Paul Wolfowitz at the IISS on 2 December. On 17 December he gave a presentation at the Swedish National Defence College in Stockholm to mark the launch of his book, *The Use of Force in UN Peace Operations* (Oxford University Press, Oxford, 2002), for the Stockholm International Peace Research Institute (SIPRI). On 18 December he had a lunchtime meeting with Gary Samore and Kristina Zettelund of the IISS on possible co-operation with VERTIC. From 31 January to 2 February, he participated in the first workshop of the IPCRI Verification Working Group in Cyprus.

BEN HANDLEY continued to handle VERTIC's administration. He prepared a financial report for the Annual General Meeting of the VERTIC Board, and helped with arranging the *Verification Yearbook 2002* launch. He also attended a Macromedia Dreamweaver course to learn how to manage the VERTIC website, which is in the process of being redesigned.

JOHN RUSSELL conducted research on verification and monitoring in the Middle East as part of VERTIC's involvement in the IPCRI project. He also helped with preparations for the first IPCRI workshop, and has been promoting and organising distribution of the *Verification Yearbook 2002*.

ANGELA WOODWARD represented VERTIC at the Annual General Meeting of Landmine Action UK on 14 December. Along with Trevor Findlay, she met with Melissa Hersh of the London School of Hygiene and Tropical Medicine on 9 January to discuss their respective biological weapons projects. On 13 January, Angela participated in the UK Ministry of Defence/Joint Arms Control Implementation Group (JACIG)'s Arms Control Seminar at RAF Henlow. Along with Molly Anderson, she attended the New Year function of the Foundation for International Environmental Law and Development (FIELD) on 16 January. The next day she met with Peggy Mason to discuss implementation of small arms agreements.



VERTIC is the Verification Research, Training and Information Centre, an independent, non-profit making, non-governmental organisation. 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.

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EDITORS Kenneth Boutin and Trevor Findlay **DESIGN, PRODUCTION & SUB-EDITING** Richard Jones.

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Baird House

15-17 St. Cross Street
London EC1N 8UW
United Kingdom

tel +44 (0)20 7440 6960

fax +44 (0)20 7242 3266

e-mail info@vertic.org

website www.vertic.org