

# Verifying the military aspects of peace accords

In a 1995 report to the United Nations (UN) – entitled *Verification in All its Aspects, Including the Role of the United Nations in the Field of Verification* – a group of experts noted that ‘it is only in recent years that verification per se has been recognised as a normal part of peace and security operations’. Five years later that statement still rings true. Relatively little research on the role of verification in peace missions has been conducted, even though verification has played an increasingly prominent role in high-profile UN operations.

During the Cold War the main, and sometimes only, purpose of these missions was to monitor an agreed cessation of hostilities. Monitoring and verification had only a limited connection to the political processes of negotiating and implementing peace deals or ceasefires. The general paradigm was that the ceasefire or peace accord would be put in place and the UN would then be asked to supervise it. In cases where the ceasefire was intended to pave the way for a more comprehensive peace agreement or a political solution, those discussions and efforts occurred quite separately from the monitoring operation.

Peace missions, and the verification tasks associated with them, underwent a distinct change when the Cold War ended. The extension of the superpower rivalry into regional wars was abruptly terminated, thus making possible the resolution of some conflicts. This was coupled with a willingness on the part of Russia and the US to involve the UN more actively and comprehensively in a greater number of conflict situations.

Although some missions continued to have the straightforward observation of ceasefires as their core function, the monitoring tasks assigned to new peace operations expanded, as did the complexity and scope of their overall mandates. The verification and monitoring tasks associated with the military aspects of the remit now extended well beyond observing a ceasefire to include, for example, monitoring and assisting with the disarmament and demobilisation of troops and with their reintegration into society. In addition, the entire peace process – from negotiating an accord to monitoring it – became increasingly integrated, and the UN became involved in all aspects, ranging from assisting in negotiations and overseeing implementation, to post-conflict peace building.

A further significant change in the international community's approach to peace accords was its willingness to authorise the use of force. For those monitoring and verifying the implementation of an agreement, the use of force by accompanying UN or UN-mandated forces complicates the environment tremendously. Military observers may be taken hostage or could come under attack. This has happened increasingly over the past 10 years, primarily because of the UN Security Council's greater willingness to authorise operations where the consent of the parties is uncertain.

Not only must verifiers undertake their responsibilities in complex and difficult political situations, but their undertakings may also be directly connected to controversies over the

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# Trust & Verify

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## Also in this issue ...

Michael Miggins on the Open Skies Treaty, Kyoto Verification Complexities, Peace Monitoring Developments, as well as Verification Watch and Science and Technology Scan.



## **VERTIC–Wilton Park Conference on the Monitoring and Verification of Peace Agreements**

A joint VERTIC–Wilton Park Conference on the Monitoring and Verification of Peace Agreements was held at Wilton Park, West Sussex, on 24–26 March, attracting more than 50 participants. The former head of the UN Mission in East Timor, Ian Martin, gave the keynote address, outlining the various challenges to his mission. Other speakers covered individual aspects of monitoring and verification in peace operations, including the military, civilian police, human rights and electoral dimensions. Case studies were presented on the Kosovo Verification Mission and the Military Observer Mission Ecuador/Peru.

Discussions revealed that it was often difficult to tease out the monitoring and verification aspects from other elements of complex, comprehensive peace missions. Yet the various monitoring activities had a common requirement: accurate, timely, unbiased information (or intelligence in non-UN parlance) to permit sound verification judgements to be made.

Unexpected debate occurred on the role of technology. Some participants argued that the technological revolution has yet to have a major impact on peace operations: the humble human on-site observer remains paramount. Other participants argued that, even when technology was available, it was not always useful or appropriate – like in monitoring human rights, or in operations in difficult terrain, such as mountainous and/or tree-canopied areas.

Nonetheless there were suggestions that remote monitoring equipment, advanced telecommunications and information technology (in particular data fusion techniques) could be the wave of the future for making peace missions more effective and efficient, particularly monitoring roles.

One concrete proposal that emerged was for a Verification Centre for UN missions, which would act as a repository for monitoring and verification experience, expertise and lessons-learned exercises. It would also provide a foundation for the future training of observers. Much of the discussion confirmed that there is still a great deal of research to be done in this field.

**For further details and a summary of the conference discussions see [www.wiltonpark.org.uk](http://www.wiltonpark.org.uk).**

use of force. This is because they are compiling information that will be used to make decisions about compliance or non-compliance of the parties. The outcome of the entire mission can depend on their success.

### **The role of technology**

While technology promises new ways of carrying out various monitoring tasks, so far there has not been any significant technological leap that has altered the fundamental nature of the process. Equipment has certainly been upgraded and improved, and some operations have incorporated technology, such as unmanned ground-based sensors, which minimises the level of intrusiveness. But the role of the human observer remains critical, and the basic framework of techniques used to monitor buffer zones, demilitarisation and the control of arms, remains the same.

Nonetheless, technological progress may, in future, make it possible to supplement, and, in some cases, to replace, the military observer with highly capable, 24-hour remote means of observation. Improvements in the speed and capabilities of information technology, combined with advancements in aerial and space surveillance, may enable the development of more capable, less intrusive means of mechanical (rather than human) monitoring in the near future.

### **Issues for further study**

The use of observers in situations in which force might be used – either by the mission or by the parties to the conflict – raises questions about whether the advantages gained by their presence still outweigh the potential disadvantages and dangers. The whole issue about the effect of the greater use of force on the role of observers needs more research.

It is an inherent feature of peace operations that they begin from scratch each time a new mission is created. This means that there is a limited transfer (from one operation to another) of experience and lessons learned. As operations have increased in complexity, and other organisations have become involved, the need and the possibilities for developing some form of centralised body becomes more compelling.

Such an organisation could be a verification agency, which could, for example, deal with information flows relating to verification. However this idea would inevitably raise traditional concerns about ‘intelligence gathering’ by the UN. The agency could also collect and interpret data from external sources and from other organisations involved in the mission and could act as a point of liaison with the Situation Centre at UN headquarters in New York. In addition it could serve as a centre for a verification lessons-learned process, which could



contribute to improving future operations, to the development of standard verification protocols or methodologies, and to the induction of new technologies

## Conclusion

The basic process of verifying peace accords has remained constant – at least in its core framework – while the context in which verification of these agreements is designed and implemented has changed significantly. This points to the durability of the verification model and to the central role that it plays in peace processes. A ceasefire and the military aspects of peace deals are at the heart of a commitment by the parties to end their fighting. Verification of compliance with these measures confirms the commitment, acting as a confidence-building measure.

Verification, therefore, is not only crucial to day-to-day implementation, but it has the potential to contribute to

political and societal transformation in the long term. This critical role is what makes the lack of study of this issue such an anomaly. As we enter the *post-post-Cold War* era, it is important that the international community recognises the importance of the verification process to peace accords and that it works to ensure that verification is supported and implemented as effectively and efficiently as possible.

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This article is an abridged version of the author's presentation at the VERTIC-Wilton Park Conference on the Monitoring and Verification of Peace Agreements and of her chapter in VERTIC's forthcoming *Verification Yearbook 2000*.

## Peace Monitoring Developments

Compiled by Douglas Dyer, VERTIC Intern

### Sierra Leone

On 7 February 2000 the UN Security Council doubled the size and strengthened the mandate of its existing mission in Sierra Leone in response to difficulties in implementing the July 1999 Lomé Peace Agreement. Although the UN Mission in Sierra Leone (UNAMSIL) monitored and supervised the disarmament and demobilisation of 22,500 combatants by 12 April, the situation deteriorated markedly by early May. Peacekeepers were killed, and hundreds of others were taken hostage by the rebel Revolutionary United Front (RUF), led by Foday Sankoh. The UN appealed for reinforcements to bring UNAMSIL up to its authorised strength of 11,100, which would make it the largest UN peacekeeping mission currently deployed, and to strengthen its rapid reaction capabilities. By mid-May the country was descending once more into chaos, and UNAMSIL was using force to defend itself and the capital, Freetown, against the RUF. Needless to say, monitoring of the peace deal had ceased.

Source *Jane's Defence Weekly*, 16 Feb. 2000, p. 32 and 10 May 2000, p. 6; *The Times*, 9 May 2000, p. 1; *International Herald Tribune*, 9 May 2000, pp. 1 & 4 and 10 May 2000, pp. 1 & 8. For updates see [www.un.org](http://www.un.org).

### Democratic Republic of the Congo

The 10 July 1999 Lusaka Agreement between the multiple parties involved in the Democratic Republic of the Congo (DRC)'s civil war has been unravelling almost since it was signed. Under the agreement a Joint Military Commission (JMC) was established – with its headquarters in Zambia – to supervise and monitor demilitarisation and compliance with the ceasefire. It was to comprise just 48 military observers from the Organisation of African Unity (OAU), as well as a representative from each party to the agreement. Due to renewed conflict the JMC has been unable to monitor effectively the movements, reinforcement and re-equipment of the belligerent forces, much less deter such activities through its presence. A new ceasefire agreement was signed on 8 April 2000 in Kampala, providing for buffer zones to prevent future ceasefire violations. This paves the way for the deployment of a 5,500-strong UN Mission to the Congo to help monitor and implement the latest accord.

Source *Small Arms Proliferation and Africa*, July–Sept. 1999, pp. 4–5; Helmoed-Römer, 'DRC's Tangled Web of War', *Jane's Defence Weekly*, 15 March, p. 18; *Jane's Defence Weekly*, 15 March, p. 14 and 18 April 2000, p. 16. For updates see [www.un.org](http://www.un.org).

### United Nations Civilian Police (CivPols) Crisis

The UN has informed member states that thousands more civilian police officers (CivPols) are needed for immediate deployment on missions in East Timor, the Balkans, Tajikistan, Guatemala, Cyprus and sub-Saharan Africa. CivPols are deployed as part of UN missions to monitor the behaviour of local police forces, to promote law and order and to help reconstruct police forces. In a small number of cases CivPols are also responsible for local law and order. Of the 8,500 CivPols authorised for current operations, there is a shortfall of around 3,300. In addition some of the 5,122 provided thus far have been sent home due to lack of training and qualifications.

Source *Jane's Defence Weekly*, 1 March 2000, p. 8.



# Kyoto verification complexities

At a 13–16 March workshop in Bonn, Germany, excellent progress was made towards developing the verification systems for the 1997 Kyoto Protocol to the 1992 UN Framework Convention on Climate Change (UNFCCC). The workshop was arranged at the request of the states parties to discuss a central review system and the methodological aspects of Articles 5, 7 and 8 of the Protocol that deal with national systems for monitoring and reporting compliance. Non-governmental organisations (NGOs) were allowed to participate fully in the workshop. VERTIC was one of three NGOs represented in Group B, which considered the central review system. The Group made commendable progress, but it is clear that many complex issues remain.

The Protocol states that expert teams will review information submitted by parties under Article 7 of the Convention. Group B debated what information will need to be assessed and when. The result is frighteningly ambitious.

## Details to be submitted under Article 7

- Base year national greenhouse inventory
- Annual greenhouse gas inventory
- National systems for estimating greenhouse gas emissions
- National registry
- Demonstrated progress by 2005
- National communication

The parties agreed, in principle, that quantitative data should be reviewed annually, while process-related information need only be examined periodically. Much more work is needed, however, to determine the details of the reporting and review timetable. Of particular concern to environmental NGOs is that reviews should be conducted during the so-called pre-commitment period to ensure that the monitoring and reporting systems are working properly. The first five-year commitment period – during which agreed greenhouse gas emission reductions must be achieved – begins in 2008.

Group B spent most of its time discussing the annual review of quantitative information. Parties face a choice between the need for a swift assessment, so any non-compliant states can be barred from participating in the Kyoto Mechanisms, and a fair and thorough review. A key area of difficulty is whether or not certain reporting problems should be classified in advance for immediate referral to the compliance body.

This would speed up the process, but it raises a host of difficulties over classification criteria and who should be permitted to identify and to raise problems with the compliance body.

A further complication is the provision in the Protocol for 'adjustment' of emissions data submitted by parties that have not been estimated according to agreed methods. Workshop participants grappled with the question of whether all such data problems were, in essence, 'adjustable', and, if so, whether they should be adjusted in all circumstances. The underlying issue is that, if a problem is 'adjusted', then the party might escape being declared as non-compliant. Another issue is who should carry out the adjustment. Most parties agree that the responsibility should rest with expert reviewers, as long as the party has had an opportunity to correct the problem. Others insist that the party itself should make the adjustment. A subgroup of methodological experts from Group B was formed to consider the methods to apply adjustments, but it could not reach agreement. Clearly this is a complex technical issue that will require further work over the coming months.

Delegates only touched on the arrangements for providing expert review teams. The volume of information to be examined suggests a role for outside assistance, like auditors, although it is not clear how this would work. The various responsibilities of the expert review teams, the secretariat and the compliance body, need to be clearly defined.

The Buenos Aires Plan of Action, approved at the Fourth Conference of the Parties in 1998, calls for details of the Protocol to be agreed by November 2000. There is clearly a great deal of work to be done before then.

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## Virtual VERTIC

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# Whatever happened to Open Skies?

Although still an unfulfilled promise eight years after signature, the Open Skies Treaty remains the widest ranging multilateral effort to increase the transparency and openness of military activities. The Treaty is designed to:

- increase security and stability through transparency;
- provide an additional tool for crisis prevention and management; and
- facilitate the monitoring of existing and future arms control treaties and agreements.

To achieve these objectives the Treaty opens the entire territories of the states parties to aerial observation by unarmed fixed wing aircraft, utilising an agreed suite of sensors within fixed imagery resolutions. The sensors include panoramic and framing cameras, video cameras, infra-red line scanning systems and synthetic aperture radar. The sensor resolutions were based on the requirement for identifying and distinguishing between categories of so-called Treaty Limited Equipment (TLE) defined in the 1990 Treaty on Conventional Armed Forces in Europe (CFE). The full suite of sensors provides an all-weather, day/night capability. Imagery from observation flights is shared between both the observing and observed states and is available to the other parties. The number of flights that can be conducted is based on a quota system, which is loosely scaled to the geographical size of a country.

The idea behind the Treaty dates back to the 1955 Geneva Conference, where the US proposed a bilateral arrangement with the then Soviet Union to allow aerial observation of each other's territories. Unfortunately this proposal was rejected by the Soviet Union and essentially lay dormant for a generation. In May 1989 it was reformulated into a multilateral proposal and negotiations began in Ottawa, Canada, the following year. After some stalemate and efforts to overcome difficult political and technical issues, the Treaty was finally signed in Helsinki, Finland, in March 1992. It was expected that entry into force of the Open Skies Treaty would occur relatively soon after.

## Entry into force

Since 1992 there have been countless predictions as to when the agreement might enter into force, but none have proven correct. The obstacle is that 20 of the original 25 signatory states (all members of NATO and of the Warsaw Pact), including all nine with a 'passive quota' exceeding eight observation

flights, must ratify the Treaty. Entry into force then occurs 60 days after the last of these ratification instruments has been deposited with the depositary states, Canada and Hungary. Until recently there were three holdouts: Belarus and Russia, with a combined passive quota of 42; and Ukraine with 12.

The picture has brightened considerably, however, following Ukraine's ratification of the Treaty on 2 March 2000. And it is understood that the Russian Duma will next address Open Skies, having moved quickly under the new administration of President Vladimir Putin to ratify the 1993 Strategic Arms Reduction Treaty (START) II and the 1996 Comprehensive Nuclear Test Ban Treaty (CTBT). Russia's concerns appear to be based on costs, which are directly related to the high passive quota of flights and are paid by the inspected state. The Duma will also have to address the difficult issue of ratifying a Treaty that opens the country's entire territory to overflight. Belarus has 'grouped' itself with Russia in accordance with Treaty provisions, and it seems that if Russia ratifies Belarus will follow suit. Despite these developments, it would be incautious to make predictions on timelines for entry into force, although the possibilities are better than ever.

In addition to the 25 states that negotiated the Treaty, it is currently open to signature by any former Soviet state that did not take part in the negotiations. Thus far two of these countries – Georgia and Kyrgyzstan – have signed and ratified the agreement – 25 of the now 27 signatories have, therefore, ratified. For six months after entry into force any member of the Organisation for Security and Co-operation in Europe (OSCE) may apply for accession. After this period it is open to accession by any state that has been approved by consensus of the states parties through the Open Skies Consultative Commission.

## Trial flights

Although the Treaty has only a limited provisional application, there has been a programme of voluntary trial flights, which began even before the agreement was opened for signature. The tempo of trial flights has increased over the years and extensive experience has been gained in implementing the procedures for certification of aircraft and sensors, demonstration flights, the observation flights themselves and the processing of imagery. These trial flights have included several by Russia and Ukraine over continental US territory. Others have been made over Bosnia-Herzegovina, including two in a Russia-US jointly operated Russian AN-30B aircraft. Even



before entry into force the Open Skies Treaty is getting a head start in achieving its objectives.

## Open skies and technology

Given its long period of gestation, there are legitimate questions as to whether or not advances in, and the availability of, technology have overtaken the Treaty. The technology currently specified in the document could undoubtedly be improved. The Treaty provides a mechanism to do so: proposed changes in the sensor suite must be commercially available and be approved by consensus of the states parties. However, it appears doubtful that any significant changes to the sensor suite will be made prior to entry into force.

Open Skies compares favourably with commercially available satellite imagery in terms of available resolution and responsiveness, despite the restrictions placed on its capability. Open Skies optical cameras are allowed no better than 30 centimetres (cms) resolution and are capable of both vertical and oblique imagery. The video cameras have a resolution of no better than 30 cms of resolution. The infra-red line scanning devices are limited to a ground resolution of 50 cms and the sideways-looking synthetic aperture radar has a ground resolution of no better than three metres.

According to *Defense News*, there could be 14 commercially operated satellites capable of producing one-metre resolution imagery by 2003. This degree of resolution, though, does not meet the Treaty's criteria. In addition, the timeliness of delivery of the imagery – from the satellite to the user – directly affects its utility. For current commercial satellites this

delay extends from days to a week or more. This is a consequence of the satellite's relatively long revisit times over the area to be imaged, the relatively limited capabilities to look off to the side of the satellite's ground track and the relatively low capability of commercial satellite image-processing systems on the ground. Based on worst case treaty-specified timelines, the Open Skies process – from notification of intent to conduct an observation flight to the delivery of the imagery – is more responsive than that currently available commercially.

## Conclusion

The Open Skies Treaty continues to have the capacity to make a substantial contribution to the improvement of security and stability through transparency from Vancouver to Vladivostok. It is one missing element in the arms control pillar of the evolving Euro-Atlantic security architecture. The Treaty's entry into force will compliment the 1999 Adapted CFE Treaty and the Vienna Document 1999. It will provide another valuable tool for monitoring compliance, not only with these agreements, but also with treaties dealing with weapons of mass destruction, the environment and peace settlements.

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## Verification Quotes

'I do not think anyone expects Mr Ramaphosa and myself to stand guard, but obviously we have to find a mechanism that guarantees we can actually contribute to the confidence-building exercise'

Former Finnish Prime Minister Martti Ahtisaari, who along with Cyril Ramaphosa, former Secretary-General of the African National Congress, has been asked to inspect Irish Republican Army weapon dumps. Quoted in *The Times*, 9 May 2000, p. 8.

'Yes, my continental European friends, we have spied on you ... because you bribe. Your companies' products are often more costly, less technically advanced or both, than your American competitors' ... Why do you bribe? It's not because your companies are inherently more corrupt. Nor is it because you are inherently less talented at technology. It is because your economic patron saint is still Jean Baptiste Colbert, whereas ours is Adam Smith ... What are the economic secrets, in addition to bribery attempts, that we have conducted espionage to obtain? One example is some companies' efforts to conceal the transfer of dual-use technology. We follow sales of supercomputers and certain chemicals closely, because they can be used not only for commercial purposes but for the production of weapons of mass destruction. Another is economic activity in countries subject to sanctions – Serbian banking, Iraqi oil smuggling ...'

Former CIA Director R. James Woolsey, 'Why We Spy on Our Allies', *Wall Street Journal*, 17 March 2000.





### Northern Ireland: verifying the IRA

In a dramatic development that may kick-start the Northern Ireland peace process, the Irish Republican Army (IRA) has, for the first time, agreed to a specific verification arrangement to help resolve uncertainty over the status of its weapon holdings. The nationalist paramilitary group has agreed to permit two international luminaries – the former Secretary-General of South Africa's African National Congress, Cyril Ramaphosa, and the former Finnish Prime Minister, Martti Ahtisaari – to inspect some of its secret weapon caches to ascertain that they have been 'completely and verifiably put beyond use'. But it is still unclear:

- whether they will be accompanied by experts who can certify the quantity and quality of the inspected weapons;
- whether technical devices, including cameras, can be used during the inspections;
- whether tamper-proof seals will be used on either the weapons and/or the storage areas;
- whether remote monitoring equipment will be left at the sites; or
- how many repeat inspections will be permitted.

Although the IRA agreed to reappoint a representative to liaise with the International Commission on Decommissioning, which has been preparing for verification since the signing of the Good Friday Agreement in 1998, it is unclear what role the Commission will have in this new proposal. Nonetheless this is the first time that the IRA has agreed to discuss publicly a verification scheme. Even if restricted to a one-off guided tour of a small number of IRA weapons dumps, the initiative could be the type of confidence-building measure that helps to put the troubled peace process back on track, and it may pave the way for more intrusive and comprehensive verification schemes.

Source *Independent on Sunday*, 7 May 2000, pp. 1 & 6; *The Times*, 9 May 2000, pp. 8 & 12; *International Herald Tribune*, 8 May 2000, pp. 1 & 6.

### START II and the CTBT: Russia ratifies, but no entry into force yet

The Russian Duma voted in April to ratify both the bilateral US–Russia 1993 Strategic Arms Reduction Treaty (START) II and the 1996 Comprehensive Nuclear Test Ban Treaty

(CTBT). START II provides for the verified reduction of nuclear warheads to no more than 3,500 each by 2007 – around half the ceiling under the 1991 START I agreement. However the Treaty cannot begin to be implemented, and, therefore, the verification arrangements cannot commence, until the US Senate agrees to ratify a Protocol to the Treaty that was agreed, in 1997, by US President Bill Clinton and the then Russian President, Boris Yeltsin. As for the CTBT, it still requires signature and ratification by 14 more states before it enters into force. In its case, though, the verification system is already well under construction.

Source 'START II set for ratification', *Jane's Defence Weekly*, 19 April 2000, p. 2; Shannon Kile, 'Nuclear Arms Control' in *SIPRI Yearbook 1999: Armaments, Disarmament & International Security*, Oxford University Press, Oxford, 1999, pp. 536–537. For a detailed analysis of the CTBT see Trevor Findlay and Oliver Meier, 'Fulfilling the NPT: A Verifiable Test Ban', *VERTIC Briefing Paper* 00/1, April 2000.

### UNMOVIC: the Blix plan

On 14 April the UN Security Council unanimously approved the organisational plan for the UN Monitoring, Verification and Inspection Commission (UNMOVIC), which is mandated to resume the work of the former UN Special Commission (UNSCOM) in Iraq. The plan seeks to avoid some of the pitfalls associated with UNSCOM without neutering its powers and capabilities. UNMOVIC Executive Chairman Hans Blix proposed that all inspectors be UN employees (rather than seconded national officials) and that the operational divisions that deal with intelligence gathering (analysis and assessment) and inspections (planning and operations) be separated to help avoid government attempts to misuse UNMOVIC for their own intelligence-gathering purposes.

Blix welcomed the reappointment of qualified inspectors who served with UNSCOM, despite the fact that Iraq has reportedly barred seven former senior UNSCOM inspectors from its territory. All inspectors will now receive 'cultural training', stressing the importance of understanding Iraqi culture and the proper handling of adversarial situations. UNMOVIC will establish a Baghdad Ongoing Monitoring, Verification and Inspection Centre, with regional offices throughout the country. It will be equipped, like UNSCOM, to take photographs from the ground and the air, and will have its own fixed wing and helicopter capabilities. Blix emphasised that UNMOVIC will retain all of UNSCOM's powers to designate inspection sites, conduct interviews and to take samples. It remains to be seen what Iraq makes of all of this.



Source Barbara Crossette, 'UN Gets a New Proposal for Iraq Arms Inspections', *New York Times*, 6 April 2000; Bryan Bender and Andrew Koch, 'Briefing: Iraq: Poisoned Cigars, Perhaps?', *Jane's Defence Weekly*, 12 April 2000, pp. 21–25; Barbara Crossette, 'Key Step Taken At UN Towards New Checks on Iraqi Weapons', *International Herald Tribune*, 15–16 April, 2000, p. 2.

## IAEA Additional Protocols on a roll

On 22 March 2000 Russia became the last of the nuclear weapon states to sign an Additional Protocol to its safeguard agreement with the International Atomic Energy Agency (IAEA). Other signatories during the last meeting of the IAEA Board of Governors, held in Vienna on 20–24 March 2000, were Estonia, Namibia and Peru. On 1 April 2000 Hungary ratified its Additional Protocol – the only European state with a significant nuclear industry to have done so. This brings the total number of signed Protocols to 48, nine of which have entered into force. During the meeting the IAEA Director General, Mohamed Elbaradei, described the objectives of, and conditions for, the integration of traditional and strengthened safeguards, and laid out a road map for further progress.

Source 'The Development of Integrated Safeguards: A report by the Director General', GOV/INF/2000/4, International Atomic Energy Agency, Board of Governors, 9 March 2000, [www.iaea.org](http://www.iaea.org). For an analysis of the current state of play on the strengthened safeguards system see Oliver Meier, 'Fulfilling the NPT: Strengthened Nuclear Safeguards', *VERTIC Briefing Paper* 00/2, April 2000.

## CITES: track that elephant, tag that crocodile!

Monitoring was a significant issue at the eleventh Conference of the Parties to the Convention on International Trade in Endangered Species (CITES) on 10–20 April in Nairobi, Kenya. Heated discussions on the resumption of ivory trading concluded with an agreement that it would not restart until efficient monitoring systems were in place. The meeting established two systems: Monitoring Illegal Killing of Elephants (MIKE), which will track elephant populations in 60 locations in Africa and Asia; and Elephant Trade Information System (ETIS), which will observe ivory seizures globally.

Proposals to downgrade the protection afforded to gray and minke whale stocks rested partly on purported improvements in the means to monitor populations. Pro-whaling nations insisted that population estimates were now attainable using DNA tracking techniques. Other states, including Australia, maintain that these procedures are inadequate. The Conference rejected the proposals.

The parties also adopted resolutions on trade and conservation in rhinoceroses, freshwater turtles and tortoises, and seahorses, which also require parties to monitor populations and the impact of trade on them. Tagging systems for crocodile skins and labelling systems for sturgeon specimens were also endorsed, as well as a Secretariat proposal to suspend

trade in CITES-listed species with parties that fail to submit annual reports in three consecutive years.

The Secretariat described its collaborative work with the International Criminal Police Organisation (ICPO)–Interpol and the World Customs Organisation on a computerised data system to curb illicit trade.

Source 'Summary of the eleventh conference of the parties to the convention in international trade in endangered species of wild fauna and flora: 10–20 April 2000', *Earth Negotiations Bulletin*, vol. 21, no.11, 24 April 2000; 'Elephant Nations call a truce', *New Scientist*, 29 April 2000, p. 6.

## Russia asks for help and time for CW destruction

Under the 1993 Chemical Weapons Convention (CWC), states with declared stockpiles should have destroyed 1% of their most dangerous weapons (Category 1) by 29 April 2000. As a result of financial and technical problems, however, Russia has so far destroyed none. The Organisation for the Prohibition of Chemical Weapons (OPCW) Executive Council responded to a Russian appeal for more time and assistance by recommending an extension. This is provided that Russia meets the next destruction deadline of 29 April 2002 for destroying 20% of its most dangerous weapons and that it gives regular updates on progress to the Organisation.

OPCW Director General Jose Bustani proposed a standing committee to better co-ordinate assistance to Russia: 'We have to face reality – without substantial international assistance Russia will not be in a position to destroy its chemical weapons within the time frame set by the Convention'.

Source 'Russia Calls For Help Destroying Chemical Weapons', Reuters, 1 April 2000; 'Russia May Be Granted Delay In Deadline To Destroy Chemical Weapons', Agence France Presse, 30 March 2000; 'Russia to Discuss Plans for Destroying its Chemical Weapons', OPCW Press Advisory, Vienna, 30 March 2000; *Jane's Defence Weekly*, 19 April 2000.

## UK reports on plutonium production and verification

The UK has released two reports that were foreshadowed in its 1998 Strategic Defence Review (SDR). The first is an historical account by the Ministry of Defence (MoD) of British military plutonium production since the 1940s. It is based on information on the movement of plutonium to and from the Atomic Weapons Establishment (AWE) at Aldermaston, where all fissile components of nuclear warheads have been manufactured. It reveals that the UK has a 'surplus' of 300 kilogrammes that it cannot account for. The MoD blames the discrepancy – 1.7% of total production of plutonium for defence purposes – on the poor quality of accounting in the 1950s and 1960s.

The second report, by the AWE itself, aims to lay the foundation for a 'significant national capability to contribute



to the verification process' of a multilateral agreement on nuclear arms reduction. The study examines the verification requirements for warhead authentication, dismantlement and disposition, as well as for monitoring the 'nuclear weapons complex', in the event of what it calls, strangely, 'nuclear weapons arms control'. AWE proposes a Verification Research Programme to continue its work. Reviews of both publications will appear in the July 2000 issue of *Trust & Verify*.

Source Ministry of Defence, *Plutonium & Aldermaston: An Historical Account*, London, April 2000; Atomic Weapons Establishment, *Confidence, Security & Verification: The Challenge of Global Nuclear Weapons Arms Control*, Aldermaston, April 2000. Both reports are accessible at [www.mod.uk](http://www.mod.uk)

### Pakistani nuclear and missile facilities outed ...

Following its revelation of space images of North Korea's missile test site, the Federation of American Scientists (FAS) has published IKONOS satellite images of Pakistan's plutonium production reactor at Khushab, and the nearby medium-range missile base at Sargodha.

### Russia joins in ...

Russia intends to launch a satellite – named Arcon – by the end of 2000, which will provide one-metre resolution images

for commercial sale. Such images are already available from the US company, Space Imaging, but sales are subject to constraints. Russia currently restricts the sale of satellite pictures with a resolution of less than two metres, but Arcon's operators, the Ministry of Defence and the arms export company, Rosvoorouzhenie, hope that this law will be changed. 'If Space Imaging sold images of North Korea to the Federation of American Scientists, I don't see why our companies cannot sell images of Iran to Israel and vice versa,' a Russian industry source is quoted as saying.

### And no little green men in Area 51

Meanwhile the US company, Aerial Images, has obtained satellite images of the (formerly) top secret Area 51 at a US Air Force base in Nevada, taken by the Russian Space Information satellite, Sovinform Sputnik. The FAS has also posted them on its website.

To the disappointment of some observers, they do not confirm the long running allegations that the US government is hiding extraterrestrial spacecraft at Area 51. But then ... verification can never confirm a negative.

Source Simon Saradzhyan, 'Russia To Launch New High Resolution Craft,' *Defense News*, 27 March 2000, p. 1; 'Pakistan's Nuclear and Missile Facilities Revealed', 15 March 2000, [www.fas.org](http://www.fas.org); 'Secret "UFO base" revealed', BBC News, 18 April 2000, [www.bbc.co.uk](http://www.bbc.co.uk)

## Verification Bytes

- ▶ Japan and the US have established a Commission on Arms Control, Disarmament, Non-Proliferation and Verification that, *inter alia*, will facilitate joint verification work related to the CTBT (*Disarmament Diplomacy*, March 2000, pp. 43–44.)
- ▶ Malaysia has completed construction of a Centre for Remote Sensing at Temerloh, which could help it to monitor its implementation of environmental treaties, such as the Convention on Climate Change. It will also be able to observe ship movements in the Straits of Malacca and in contested areas of the South China Sea ('Malaysia all set for satellite station', *Jane's Defence Weekly*, 8 March 2000, p. 19.)
- ▶ Sir Richard Branson, director of the Virgin group of companies, has announced plans to equip airships with pioneering radar equipment to detect anti-personnel landmines in former war zones (*The Times*, 17 March 2000, p. 9.)
- ▶ As a contribution to transparency, France has, for the first time, released a report on its arms sales (*La Lettre de l'Observatoire*, no. 21, 1/2000, March 2000, pp. 1–3.)
- ▶ International Physicians for the Prevention of Nuclear War have launched the *Nuclear Weapons Convention Monitor* to track the debate on the prohibition and elimination of nuclear weapons (*Nuclear Weapons Convention Monitor*, no. 1, April 2000. Contact [mdatan@ippnw.org](mailto:mdatan@ippnw.org).)
- ▶ The Moscow-based International Science and Technology Center (ISTC) has released its Annual Report, which details its efforts to provide peaceful research opportunities to weapon scientists and engineers in former Soviet bloc countries as a contribution to non-proliferation (International Science and Technology Center, Annual Report 1999. See [www.istc.ru](http://www.istc.ru).)





### System for monitoring disease outbreaks

Scientists at the Center for National Security and Arms Control, Sandia National Laboratory, US, have developed an internet-based system for monitoring disease outbreaks. Doctors' offices and hospital emergency rooms will be equipped with touch-screen monitors connected via the internet to the state Office of Epidemiology. Doctors will enter a patient's symptoms and living circumstances and the system will automatically place the case in the context of similar cases. The project – funded by the Chemical and Biological Nonproliferation Program, US Department of Energy – will be tested in New Mexico and applied throughout the country if successful. Al Zelicoff, a physician and scientist at Sandia, has predicted that, some day, an analyst 'will literally be sitting at his desk drinking coffee watching all these epidemics ebbing and flowing over time and space'. Such a system could be useful for monitoring compliance with the Biological Weapons Convention by identifying unusual disease outbreaks that might be linked to the production or use of biological weapons.

Source Ian Hoffman, 'Tracking Diseases Via Computer', *Albuquerque Journal*, 27 March 2000, [www.abqjournal.com](http://www.abqjournal.com).

### Bio-marker for nerve gas exposure

US researchers have discovered that exposure to certain nerve agents creates characteristic bio-markers. Until now it was difficult to establish hard evidence that someone had been in contact with a nerve agent, as shown by the continuing discussion on Gulf War syndrome. A research team, led by Professor Mohamed Abou-Donia of Duke University Medical Center, Durham, North Carolina, US, has used the case of a boy who was exposed to tar and to an organophosphate insecticide, chlorpyrifos, when he was one year old. They discovered that these triggered the creation of antibodies against certain proteins. Such bio-markers could also be used to investigate allegations of use of certain chemical weapons.

Source Alex Kirby, 'Nerve poison leaves telltale evidence', BBC World Online, 18 April 2000, [news.bbc.co.uk](http://news.bbc.co.uk).

### GPS liberated

US President Bill Clinton announced on 1 May 2000 that the US had switched off a built-in error signal – called Selective Availability (SA) – in the Global Positioning System (GPS). The decision to end intentional signal degradation came six years earlier than expected and makes the system 10 times

more accurate than it is today for all users. SA was introduced to prevent foreign powers from getting the same positioning accuracy as the American military. The US maintains the capability to deny access to GPS if it believes that national security is threatened. With SA switched off, GPS will locate a position to within 20 metres. The move will assist verification agencies, for example, in determining the precise location of on-site inspectors, monitoring equipment and the sites of alleged instances of non-compliance.

Source 'Getting a better fix', *New Scientist*, 6 May, p. 5; 'Statement by the President Regarding the United States Decision to Stop Degrading Global Positioning System Accuracy', White House Press Release, 1 May 2000.

### Bugs and jam in space

The US telecommunications company, Motorola, recently filed patents in the US and in Europe that detail a system for listening to satellite telephone calls without being noticed. The bugging technology takes advantage of the way satellite systems use ground control centres to authenticate calls. When a cellular phone is used to make a call it makes contact with the nearest satellite, which then sends a data signal to the nearest ground station to authorise the connection. The bugging system makes the ground station send a signal telling the satellite to send it a replica of the conversation. This can then be intercepted by anyone with access to the station. Callers cannot tell that they are being bugged. While such a system is inappropriate for multilateral co-operative verification regimes, governments will undoubtedly exploit it as part of their 'national technical means' of verification.

More worryingly for multilateral verification, the US Air Force recently demonstrated just how easy it is to jam satellite signals. A team of engineers from the US Air Force Research Laboratory built a jamming system using only information available on the internet and materials bought for cash. For US\$7,500 they lashed together a mobile, ultra-high-frequency (UHF), high-power noise source that could be used to jam satellite antenna or military UHF receivers. The jammer was built using a petrol-driven electricity generator, wood, plastic piping and copper tubing. Amplification and noise generation electronics were obtained at an electronic enthusiasts' 'swap-meet'. The jammer worked effectively at blocking satellite communications and navigation systems. Fortunately, however, it would be much harder to block modern, extra-high-frequency global communication satellite clusters.

Source 'The spy who bugged me', *New Scientist*, 11 March 2000, p. 15; 'Wanna jam it?', *New Scientist*, 22 April 2000, p. 11.



## VERTIC to establish Independent Commission on the Verifiability of the CTBT

VERTIC is to establish an Independent Commission on the Verifiability of the Comprehensive Nuclear Test Ban Treaty (CTBT). Comprised of eminent scientists and other verification experts, the Commission will be charged with producing a report on the current verifiability of the Treaty and on its future verifiability once the CTBT multilateral verification system is fully established. The study will take into account not only the contribution of the official verification system, but also that of independent scientific networks, non-governmental organisations and national technical means. It will be completed by October 2000, when the Commission meets in London. Membership of the Commission and a call for submissions will be announced in the next issue of *Trust & Verify*. The project is being financially supported by the John Merck Fund and the Ploughshares Fund.

## Study on the on-site inspection provisions of the CWC

VERTIC has commissioned John Hart, former researcher at the Stockholm International Peace Research Institute and the Monterey Institute, to conduct a study of the implementation of the on-site inspection provisions of the Chemical Weapons Convention as they relate to the inspection of industry. John is visiting London, the University of Sussex and the Organisation for the Prohibition of Chemical Weapons in The Hague as part of his study, which is due to be completed by the end of July 2000. The work is financially supported by the W. Alton Jones Foundation.

## Seminar on BWC 25th anniversary

On 27 March 2000 VERTIC co-hosted a seminar on '25 Years of the Biological and Toxin Weapons Convention: Assessing Risks and Opportunities' with the United Nations Institute for Disarmament Research (UNIDIR), the Federation of American Scientists (FAS), the International Security Information Service (ISIS) and Bradford University's Department of Peace Studies. It aimed to highlight the importance of current negotiations on a verification Protocol to the Convention.

Despite being scheduled at the end of a busy day for Treaty negotiators, the seminar, held at the Palais des Nations in Geneva, drew more than 70 participants from the diplomatic community and from non-governmental organisations.

Ambassador Tibor Tóth, the Chairman of the Ad Hoc Group that is negotiating the new Protocol, chaired the event and emphasised that negotiations can still be finished in time for the next Review Conference in the second half of 2001.

All speakers argued that successful conclusion of the work was feasible in the near future. Nicholas Sims of the London School of Economics and Political Science, Mark Wheelis of FAS, Antonio de Aguiar Patriota, Minister at the Brazilian Mission to the UN in Geneva, and UNIDIR Director Patricia Lewis highlighted the political, scientific and legal challenges that the Convention faces and encouraged negotiators to agree a strong Protocol.

The seminar presentations will be available on VERTIC's website. A reader containing most of them can be ordered from: [s.pullinger@isisuk.demon.co.uk](mailto:s.pullinger@isisuk.demon.co.uk).

## New member of VERTIC International Verification Consultants Network

VERTIC is pleased to announce that Dr Rosalind Reeve, a consultant on environmental legal issues, based in Nairobi, Kenya, has joined its International Verification Consultants Network.

## Management study of VERTIC publications

The Cranfield Trust has provided the services of a Masters of Business Administration student at Cranfield School of Management to conduct a study of VERTIC's publications programme. Nigel Issa will examine the economics of the organisation's current publications programme and its plans for electronic publishing. In addition he will propose a marketing strategy for the programme. The report is due for completion by the beginning of June 2000.

## VERTIC workshop on verification of the Kyoto Protocol

VERTIC is to hold a one-day workshop in London on 28 July 2000 on Articles 5, 7 and 8 of the Kyoto Protocol. The workshop will brief participants on the continuing elaboration of these Articles, which relate to monitoring, reporting and implementation review. It is hoped that the presentations will stimulate discussion of the links between this work and the development of other parts of the Protocol, especially the Kyoto Mechanisms and the compliance system. The workshop is part of VERTIC's project on verification of the Kyoto Protocol, funded by the W. Alton Jones Foundation. For further information contact Clare Tenner at VERTIC.



## Staff News

**Trevor Findlay** participated in, and chaired some sessions of, the VERTIC-Wilton Park Conference on the Monitoring and Verification of Peace Agreements from 24 to 26 March. On 4 April he gave the opening presentation at a conference organised by the Vienna-based Provisional CTBT Organisation to commemorate the third anniversary of the commencement of its work. His paper was on the significance of the CTBT (see [www.ctbto.org](http://www.ctbto.org)). Trevor also held meetings with the Executive Secretary of the CTBTO, Ambassador Wolfgang Hoffmann, and with the new Chief of the Public Information Section, Ambassador Daniela Rozgonova. In addition he gave an interview with FM Radio 4 on CTBT issues. On 6 April, Trevor attended a briefing by Peter Hain, MP, Minister of State for Foreign Affairs at the Foreign and Commonwealth Office (FCO), on UK policy at the April-May 2000 NPT Review Conference. On 13 April he and Oliver Meier met with Andrew Barlow of the Arms Control Research Unit, FCO, to discuss CTBT and safeguards issues. On 11 April he appeared before the UK House of Commons Foreign Affairs Committee's inquiry into weapons of mass destruction (see [www.parliament.uk](http://www.parliament.uk)). On 3 May he addressed the NATO Parliamentary Assembly meeting in Portoroz, Slovenia, on the NPT and the CTBT. On 9 May he was interviewed on BBC Radio 4's 'Today' programme on the verifiability of 'putting weapons beyond use' in Northern Ireland.

Trevor's written work during the period included a paper on compliance with nuclear test ban treaties for the Geneva Centre for Security Policy. He also completed the final version for publication of a paper on the proliferation of weapons of mass destruction that he had presented in January at the United Nations University's Millennial Conference in Tokyo, Japan.

**Oliver Meier** visited Vienna on 20-22 March to talk to officials of the IAEA, the CTBTO and missions to the UN about recent developments in nuclear safeguards and CTBT verification. The trip was part of his research for two VERTIC *Briefing Papers* produced for the NPT Review Conference in April-May in New York:

'Fulfilling the NPT: A Verifiable Test Ban' (co-authored with Trevor Findlay) and 'Fulfilling the NPT: Strengthened Nuclear Safeguards'. On 24-26 March Oliver attended the VERTIC-Wilton Park Conference on the Monitoring and Verification of Peace Agreements. On 27 March he represented VERTIC at the Geneva seminar to mark the BWC's 25th anniversary. On 6 April he attended a briefing by Peter Hain at the FCO on UK policy for the NPT Review Conference. On 13 April he and Trevor Findlay met with Andrew Barlow of the FCO to discuss CTBT and safeguards issues. From April 27 to 4 May Oliver attended the NPT Review Conference in New York. He used this opportunity to meet with US officials and scientific experts in Washington, DC, to discuss CTBT verification issues.

**Clare Tenner** attended a workshop in Bonn, Germany, from 14 to 16 March on 'Issues related to Articles 5, 7 and 8 of the Kyoto Protocol', organised by the Climate Change Convention Secretariat. She participated in Working Group B. She also participated, on 18-19 April, in the Second European Forum for International Environmental Assessment (EFIEA) Climate Workshop, 'From Kyoto to the Hague - European Perspectives on Making the Kyoto Protocol work', at the Royal Netherlands Academy of Sciences, Amsterdam. Clare contributed to the new Climate Action Network (CAN) statement on Articles 5, 7 and 8 of the Kyoto Protocol, and drafted a letter on behalf of Climate Network Europe to EU ministers, outlining concerns over the EU negotiating position on the compliance system. She also prepared a submission to the Climate Change Convention Secretariat on Article 8 of the Protocol. Finally, she began organising a VERTIC workshop on verification of the Protocol to be held on 28 July 2000.

**Angela Woodward**, in addition to administering the Centre, represented VERTIC at the Annual Charity Fair in London on 5 April. During April she continued to work on VERTIC's submission to Landmine Monitor 2000 and attended the Landmine Monitor Researchers Meeting in Noordwijkerhout, Netherlands, from 15 to 17 May. On 11 May she attended a meeting of the UK Landmine Working Group, which VERTIC has just joined.



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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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