

Peace monitoring in the Solomon Islands

The ethnic conflict that erupted in late 1998 in the Solomon Islands resulted in the loss of over 100 lives, the displacement of some 30,000 people, the overthrow of an elected government and severe damage to the country's economy and polity. This small South Pacific nation, a former British protectorate, became independent in 1978. Its 380,000 ethnically diverse, Melanesian people speak over 80 different languages and reside on six main islands and a scattering of smaller ones. The conflict involved militant groups from Guadalcanal and from the neighbouring island of Malaita fighting pitched battles in and around the capital, Honiara, and in other parts of Guadalcanal. Guadalcanalese youth initiated the violence, believing that immigrant Malaitans had taken their land without proper compensation, were denying them job opportunities, and had been disrespectful towards their culture.

The conflict had an impact on the Solomon Islands as a whole. The country is now on the verge of bankruptcy, the government is unable to deliver services and the police force is discredited and divided because some of its officers participated in the overthrow of the government in 2000. Militarised and disaffected gangs further threaten community relations, and all of the provinces are demanding either separate statehood or independence.

A peace process, facilitated initially by Australia and New Zealand, with support from the London-based Commonwealth Secretariat, has helped to bring some degree of order to the Solomon Islands and has provided a focus for reconciliation and rehabilitation. In October 2000, following preliminary peace talks in the Solomons, combatants from both sides, along with national and provincial government representatives, were flown to Townsville, northern Australia, to negotiate a peace deal. Unfortunately, civil society representatives were not included.

The Townsville Peace Agreement (TPA) took over one week to negotiate and was flawed in a number of ways, particularly in its unrealistic expectations of the development and job-creation projects that might be initiated in Guadalcanal and Malaita. But the TPA succeeded in two major respects. It ended hostilities and provided a coherent framework for the peace process by establishing two monitoring bodies: the Peace Monitoring Council (PMC), comprising eminent, professional Solomon Islanders (including ex-combatants from both sides) to monitor and 'enforce' the Agreement; and an International Peace Monitoring Team (IPMT), to work in support of the PMC and to take the lead in disarmament and confidence-building activities.

Inside this issue . . .

Rosalind Reeve analyses the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), while Molly Anderson examines the outcome of the COP6 environmental meeting. In addition, all of the usual features: Peace Missions Monitor, Verification Watch, Science and Technology Scan, Verification Quotes and VERTIC News and Events.

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The Peace Monitoring Council

The PMC has provided indigenous leadership for the peace process. It meets regularly in Honiara, its members participate in a host of community conferences and school presentations and travel to remote communities across Guadalcanal and Malaita. It runs a vigorous media campaign to educate the public about the terms of the TPA and to remind the parties of their obligations, particularly the requirement to hand in weapons to the IPMT. Despite the wording of the Agreement, the PMC has no true enforcement authority, but must rely on persuasion and its status as a neutral organisation to cajole recalcitrant elements into complying.

Ten PMC monitoring posts are located at various population centres and in areas of previous militant activity. Monitoring teams comprise full-time employees (replaced after several months' service) drawn from local communities, including chiefs, teachers, clerics, youth workers and (recently) women's representatives. Following initial difficulties with the selection of monitors and the supply of rations and equipment, the teams have become useful community contact points and are regularly called on to facilitate negotiations and/or to mediate in disputes between individuals, families and communities.

International Peace Monitoring Team

The IPMT is a civilian-led, unarmed, neutral, multinational and multi-disciplinary organisation with personnel drawn from the Australian and New Zealand police and defence forces, civilian government departments, and from the police forces

of Pacific island nations, including the Cook Islands, Tonga and Vanuatu. The Commonwealth Secretariat has seconded a monitor to the team and the United Nations (UN) is planning a similar attachment later in 2001. Currently, the IPMT has 49 monitors. There is an expectation that the IPMT will be deployed for no less than two years.

Its major role is to collect and store weapons (its disarmament function) and to build confidence between the parties to the TPA and among members of the wider community. Secure weapon storage containers have been established in various areas of Guadalcanal and Malaita. But the IPMT, like the PMC, has no enforcement authority and relies on persuasion and building community trust to secure disarmament.

Leaders of the IPMT participate in PMC executive meetings and its six teams (four on Guadalcanal and two on Malaita) work in tandem with the PMC monitoring posts, as well as with local-level civil society organisations involved in reconciliation, including the (Anglican) Church of Melanesia's Brothers and Sisters. Teams provide a physical presence by conducting patrols within their areas of operation—on foot or by boat—and by developing strong links with schools, churches, women's organisations, provincial officials and former militants. Facilitating community meetings and seminars, between groups that seek to reconcile, between faction leaders, and between ex-militants and government representatives, has become an important part of the IPMT's work.

Both the PMC and the IPMT report regularly on infringements of the Agreement (to date these have mostly involved the public carriage or discharge of weapons by ex-militants) and on breaches of the peace, which in most instances are criminal acts of theft, damage to property, assault and intimidation, committed on some but not all occasions by ex-militants. The availability of guns, alcohol and drugs has contributed to rising crime. The PMC and the IPMT have had to exercise care in remaining neutral and impartial, in not attempting a 'policing' role (despite a community-wide expectation that they would do so), and in not being drawn into a quasi-governmental or service delivery role in the absence of regular government.

Encouraging results

The results of the monitoring effort, almost 12 months after the signing of the TPA, have been encouraging. Weapons handed in to the IPMT number just over 1,000; none of the weapon storage containers have been tampered with; and community confidence is being re-built. Observers claim a higher level of peace and harmony in the country than at any point in the

Erratum

In the July–August 2001 edition of *Trust & Verify*, VERTIC reported that a 'phial' of plutonium had allegedly been smuggled from the Karlsruhe recycling plant in Germany. In fact it was a small plastic tube containing partly solidified and heavily oxidised sludge organic waste compounds. Such wastes neither qualify as fissile material nor generically as high-level nuclear waste. Preliminary analysis indicated that the sludge wastes contained a trace amount of americium and undefined plutonium isotopes, estimated at a few hundred micrograms (millionths of a gram). Neither amount is significant in nuclear proliferation terms. VERTIC is grateful to Mark Hibbs, Editor for Asia and Europe, *Nucleonics Week/Nuclear Fuel*, for drawing attention to this matter. For further information, see *Nuclear Fuel*, 25 July 2001, p. 5.

Peace Missions Monitor

Hebron monitors hounded out

The Temporary International Presence in Hebron (TIPH2), an international monitoring mission designed to help ease tensions, announced in August that it was scaling back its activities in the Israeli-controlled part of the town to a minimum, citing harassment from Jewish settlers as the reason. The mission was dispatched in 1997, and comprises 85 unarmed monitors from Denmark, Italy, Norway, Sweden, Switzerland and Turkey. Meanwhile, despite the fact that a commission led by former US Senator George Mitchell has recommended the deployment of international monitors to help ease the current Palestinian–Israeli war of attrition, Israel remains opposed. In a significant turnaround in US policy, US Secretary of State Colin Powell now favours such an idea and detailed plans have been drawn up.

Source *Jane's Defence Weekly*, 29 August 2001, p. 15; *SIPRI Yearbook 2001*, Oxford University Press for the Stockholm International Peace Research Institute (SIPRI), Oxford, 2001, p. 136; *The Times*, 18 August 2001; Andrew Buncombe, 'Powell calls for Middle East monitors', *The Independent*, 29 June 2001, www.independent.org; Ewen MacAskill, 'Secret plan to send observers to Israel', *The Guardian*, 3 August, 2001, p. 1.

OSCE monitors slam Belarus poll

European monitors have described the re-election of Belarus President Alexander Lukashenko on 10 September as undemocratic. The head of the Organisation for Security and Co-operation in Europe's monitoring mission, Hrair Balian, did not criticise the polling itself, but condemned the pre-election environment of intimidation and suppression of dissent, which he said made a free and fair outcome impossible.

Source Alice Laghado, 'Belarus election "undemocratic"', *The Times*, 11 September 2001, www.thetimes.co.uk

IRA drops decommissioning method offer

In mid-August, the Irish Republican Army (IRA) withdrew the proposal it had made to the Independent International Commission on Decommissioning for an allegedly foolproof method of putting its weapons 'completely and verifiably beyond use'. The method, which apparently would involve burying the weapons under concrete, was put in confidence to the head of the Commission, Canadian General John de Chastelain, but not revealed publicly. General de Chastelain endorsed the proposal and the Commission's powers were extended to allow it to become involved in implementing it. However, lack of public detail about the method and of a firm IRA commitment to actually carry out decommissioning helped lead to a new crisis in Northern Ireland, encompassing suspension of the Northern Ireland Assembly established under the 1998 Good Friday Agreement. The IRA has yet to verifiably decommission a single weapon under the agreement, although it has permitted three inspections by international monitors to verify that a certain number of weapons have not been removed from secure storage.

Source *The Independent*, 15 August 2001, p. 1; *The Times*, 15 August 2001, p. 4; *The Independent*, 1 June 2001, p. 2.

past three years. The IPMT and the PMC have had a 'circuit-breaker' effect, facilitating, for example, access by excluded groups to debates on the peace process. Both groups of monitors are in demand to facilitate and attend meetings; organisers undoubtedly appreciate that trouble is unlikely when monitors are present. Elements of civil society have felt more able to voice their concerns and to increase their involvement in reconciliation and rehabilitation strategies.

Despite this progress, however, the peace process remains fragile. Compliance with the disarmament provisions of the TPA has not been total. Over 500 modern weapons remain unaccounted for—held illegally by the police, the militants and their core followers, key political players and criminal ele-

ments. Factionalism among the TPA parties and dissatisfaction with the apparent lack of a 'peace dividend' in cash or economic development, are increasingly evident. With this in mind, the PMC called a meeting in mid-September 2001 of the parties to the TPA to review the agreement and examine areas of compliance and implementation that require additional effort. This review, together with the holding of national elections in December 2001, is expected to breathe new life into the peace process in the Solomon Islands.

David Hegarty

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Verifying CITES: not quite a jungle out there

The 1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is one of the oldest multilateral environmental agreements.¹ Seen as the flagship wildlife accord, CITES now has 155 states parties and has been in force since 1 July 1975. It addresses one of many threats to the earth's biological diversity—over-exploitation through international trade. Its primary objective is to ensure 'the international co-operation of Parties to prevent international trade in specimens of wild animals and plants from threatening their survival'.

CITES does not have a formal, clearly defined system of verification. Instead, a number of techniques have evolved over the years through practice and via the accumulation of 'soft' law—resolutions and decisions of the Conference of the Parties (COP). Collectively amounting to a compliance system, these techniques consist, *inter alia*, of formal and informal mechanisms for verification.

The chief actors in the CITES compliance system are the COP, the Standing Committee, the CITES Secretariat, and non-governmental organisations (NGOs). The COP, composed of state party delegates, is the supreme decision-making body and meets every two and a half years. The Standing Committee is an executive board made up primarily of 14 regional party representatives. It oversees the operation of the Convention between COP meetings and is the main decision-making body on compliance issues. The Secretariat, based in Geneva, Switzerland, comprises over 30 professionals and support staff. In addition to information-gathering and review (which includes on-site *ad hoc* verification), it is mandated: to undertake scientific and technical studies that will contribute to implementation; to prepare reports and make recommendations on implementation; and to perform any other function entrusted to it by the parties. Various Animals and Plants Committees also play a minor role in the compliance system as technical advisers.

The Secretariat wields considerable power, since not only does it review and verify information, but also it makes

recommendations to the COP and Standing Committee, which are sometimes far-reaching and are often acted on. The Standing Committee—which of necessity is political—squeezes compliance issues into a busy agenda. On occasion it has been accused of dealing with non-compliant countries inequitably. And in the case of non-reporting by parties it has been accused of failing to act at all. The establishment of a compliance or implementation committee, preferably composed of experts, would to some extent depoliticise the process. It would allow these experts (generally lawyers and law enforcement officers) to influence CITES in a consistent and formal way. This would focus more attention and, significantly, funding on improving implementation of CITES by states parties. Concentrating power in the hands of the Secretariat can be an advantage, but only if it is applied neutrally and to serve the parties. Occasionally the Secretariat has gone beyond its remit: its unilateral decision in 2000 to reform the infractions report (a useful verification tool) is just one example.

The Secretariat is assisted by NGOs that are contracted for certain tasks, including verification. The International Union for the Conservation of Nature and Natural Resources (IUCN)

Norway violating CITES and whaling ban?

On 14 May, Norway announced that it would allow whale product exports to Japan and elsewhere, contravening CITES. Norway resumed commercial whaling in 1993, despite a global moratorium imposed by the International Whaling Commission (IWC). Chris Parsons, a researcher at the Hebridean Whale and Dolphin Trust on the Isle of Man, UK, alleges that Norway is overestimating the number of remaining minke whales. One of the arguments that Norway has used to justify a resumption of whaling is that certain species of whales are not endangered. Japan, meanwhile, has been criticised by the administration of US President George W. Bush for expanding its two-year whaling programme in violation of the IWC ban. US officials said they were considering trade sanctions against Japanese makers of whaling equipment.

Source 'US faults Japan on whaling hunting', *International Herald Tribune*; Emma Young, 'Minke whales are out for the count', *New Scientist*, 16 June 2001, p. 12; *UN Wire*, www.unfoundation.org, 15 May 2001.

¹ This article draws on the author's forthcoming book: *The CITES Treaty and Compliance: Policing International Trade in Endangered Species*, Earthscan/Royal Institute of International Affairs, London, (spring 2002). A longer version will appear as a chapter in VERTIC's forthcoming *Verification Yearbook 2001*.

and the Trade Records Analysis of Fauna and Flora in Commerce (TRAFFIC) review information, monitor trade and sometimes participate in on-site verification. Although the World Conservation Monitoring Centre (WCMC) is now part of an intergovernmental organisation, the UN Environment Programme (UNEP), as an NGO it maintained the CITES database for 25 years. Other NGOs have considerable influence in CITES, although to a lesser degree than the WCMC and mostly through lobbying at COP meetings. Action taken with regard to rhinoceros and tigers has resulted largely from NGO pressure.

A strength of the CITES compliance system is its increasing use of trade sanctions against non-compliant states and non-parties. Since 1989, several cases of parties with implementation problems, including two European Union (EU) members, Italy and Greece, have been brought before the Standing Committee by the Secretariat, resulting in suspensions of trade in CITES-listed species. In comparison, during the 1980s, there was a distinct reluctance to act firmly against powerful but non-compliant consumer states, notably Japan and EU members. Nearly all countries that have been subject to trade suspensions over the years have responded (at least on paper). Exceptions are the United Arab Emirates (UAE), which temporarily withdrew from the Convention from 1998–90 and still presents a problem with respect to compliance, and the Democratic Republic of the Congo (DRC), which was subjected to a CITES trade suspension in June 2001. Unusually for any international treaty, parties have also been advised to suspend trade in CITES-listed species with three non-parties whose unregulated trade was undermining the Convention—El Salvador, Equatorial Guinea and Grenada—all of which now adhere to the agreement.

These sanctions have generally elicited the required response. But given that on-site verification is *ad hoc* rather than systematic, the true achievements of the system cannot be assessed. The qualified success of sanctions also needs to be judged against other weaknesses in the compliance system. One is poor annual reporting by parties, undermining the Convention's main information base. Another is the institutional structure and its operation. Apart from the lack of a compliance or implementation committee and a tendency by the Secretariat to stretch its powers, the Standing Committee lacks transparency, as exemplified by its exclusion of all NGOs, except the IUCN and TRAFFIC, from its meetings.

Another significant weakness pertains to national implementation. The national legislation project, initiated in 1992 and implemented with the assistance of the IUCN's Environmental Law Centre and TRAFFIC USA, revealed that three-

Countries subjected to trade suspensions in CITES-listed species (1985–2000)

Country	Recommended	Lifted
Bolivia	1985–86	1987
UAE ¹	1985	1990
El Salvador ^{*2}	1986	1987
Equatorial Guinea ^{*3}	1988	1992
Thailand	1991	1992
Grenada ^{*4}	1991	1992
Italy	1992	1993 ⁵ 1995 ⁶
Greece	1998	1999
Guyana	1999	1999
Senegal	1999	2000
DRC	2001	S/F ⁷

Notes

- * Non-parties at the time suspensions were imposed
- 1 Withdrew from CITES between 1988 and 1990
- 2 Joined CITES in 1987
- 3 Joined CITES in 1992
- 4 Joined CITES in 1999
- 5 Temporary lifting of trade suspension
- 6 Permanent lifting of trade suspension
- 7 Trade suspension still in force

quarters of parties possessed inadequate CITES legislation. While the situation is slowly improving, there is no programme for systematically reviewing and improving the capacity of parties to enforce their legislation, which is widely assumed to be weak, particularly in developing countries.

All of these weaknesses need to be redressed if CITES is to achieve its goal. The compliance system would benefit, and, more importantly, the wildlife that the Convention aims to protect will be saved.

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Climate change: COP6 finally does the business

After the dramatic collapse of talks in The Hague, Netherlands, in November 2000, few observers had high expectations of agreement when the Sixth Conference of Parties (COP6) to the 1992 UN Framework Convention on Climate Change (UNFCCC) resumed in Bonn, Germany, from 11–23 July 2001. Some expected the meeting to ring the death knell for the Convention's 1996 Kyoto Protocol, especially after President George W. Bush announced in March that it was 'fatally flawed' and that the US would no longer participate in its negotiation. At the eleventh hour, however, the remaining parties reached agreement, salvaging a groundbreaking piece of environmental international law that has been 10 years in the making.

The drive to achieve a political deal in Bonn meant that verification and monitoring made little progress. Talks in The Hague in November had made headway in outlining parties' additional reporting requirements under the Protocol and the procedures for reviewing submissions. Provision had also been made for an executive board to oversee the implementation of projects under the Clean Development Mechanism (CDM), allowing developed states to offset their own emissions by establishing schemes in developing countries. Although these decisions were not revisited in Bonn, there are still areas of disagreement that need to be resolved when talks resume at COP7 in Marrakesh, Morocco, from 29 October–9 November 2001.

The terms agreed in Bonn included concessions by the EU on carbon sinks, supplementarity and compliance. Each of these issues will present challenges to the monitoring, verification and compliance regime, which needs to be finalised as part of the overall Protocol package.

The extent to which sink activities could be used to offset greenhouse gas emissions was a key stumbling block in The Hague and led to the eventual collapse of the talks. In order to secure a deal in Bonn, the EU bent to pressure from Australia, Canada and Japan to include a higher level and wider definition of sink activities. Under the Bonn agreement, afforestation and reforestation projects are now eligible under the CDM. In addition, the list of sink activities that a state can undertake within its borders has been expanded, subject to a cap on the amount of greenhouse gas absorption that can be claimed. Canada and Japan negotiated very generous caps as the price of their support, bringing down the costs of implementing their commitments under the Protocol. The Protocol target is to reduce emissions globally by 5.2 percent below 1990 levels. Calculations that include these new 'sink' provisions slash this to a 1.8 percent reduction at best and at worst a 0.3 percent rise.

The extra sinks allowances under the Protocol increase the importance of an accurate, reliable and transparent monitoring and verification system. However, this could prove difficult,

US set to contravene climate change convention?

US energy plans, announced by President Bush in May, will, if implemented, violate US commitments under the UNFCCC. The Convention commits parties to develop national plans to reduce their greenhouse gas emissions to 1990 levels. US emissions, which currently exceed this target by 15 percent, would rise to 50 percent above 1990 levels.

Source Statement by Donald Goldberg, Senior Attorney, Center for International Environment Law, Washington, DC, 17 May 2001.

Denmark ready and waiting . . .

On 29 May, Denmark became the first EU country to complete its domestic procedures for ratifying the Kyoto Protocol. Energy Minister Sven Auken emphasised that 'it is even more important in the light of the American rejection, that countries show clearly that the Kyoto process is continuing'. Denmark has not yet presented its instrument of ratification to the depositary (the UN Secretary-General); it appears to be waiting for other EU members to catch up so that all of them can ratify simultaneously. To date, 39 countries have ratified the Protocol. To enter into force, it requires at least 50 ratifications, including those of Annex 1 (developed) countries, which accounted for 55 percent of global emissions in 1990.

Source UN Wire, www.unfoundation.org; UNFCCC Secretariat, Bonn.

given the many problems associated with monitoring a carbon sink. (Pete Smith, senior lecturer in the Department of Soil Science, University of Aberdeen, outlines these complications in a July 2001 VERTIC *Briefing Paper*, 'Verifying sinks under the Kyoto Protocol'.) Techniques used to measure the carbon stocks fixed by each sink are subject to numerous uncertainties and calculating the level caused by human-induced activity is hard to determine. The lack of historical, comparative data with which to set 1990 baselines will also lead to accounting inaccuracies. Furthermore, regular monitoring needs to be carried out to check that stored carbon has not been released into the atmosphere and that leakage has not simply displaced carbon monitoring activities to neighbouring areas. The report surmises that the necessary infrastructure, complexity and costs of a high-level verification system make it prohibitive, potentially undermining the integrity of the treaty. Certainly, only the lowest level of monitoring, consisting of self-reporting by state parties and no independent validation, is feasible before the start of the first commitment period in 2008.

The EU also compromised at Bonn on the issue of supplementarity. Previously, the EU had argued that use of the flexible mechanisms should be limited in order to encourage domestic action to reduce emissions. No limit was set in Bonn. Instead, the rules of the Protocol now state that 'the use of the mechanisms shall be supplemental to domestic action and domestic action shall thus constitute a significant element of the effort made by each party'. The mechanism by which the significance of domestic action will be measured has not yet been established. But if parties are required to report on how their trading and overseas projects are supplemental to domestic action, the lack of clear criteria will make it difficult to judge non-compliance and to enforce penalties.

The last and perhaps largest hurdle for negotiators in Bonn was the issue of compliance. Japan successfully rejected calls for an amendment to Article 18 to include legally binding consequences for violations of the Protocol. As a result, parties opted for the softer alternative of 'politically binding consequences'. While this decision perhaps leaves the commitment of some parties in doubt, they have at least chosen to set out penalties for non-compliance. If countries fail to meet their assigned levels of emissions by the end of the first commitment period, they will be obliged to make up the deficit, plus an extra 30 percent over the second commitment period. They will also be required to submit an action plan to the compliance committee and their right to take part in emissions trading will be suspended.

Verification Quotes

Most scientists would be very dubious. But it is an interesting theory which deserves verification.

Duncan Steel, Reader in Space Technology, Salford University, on the theory that the discovery of live bacteria high in the earth's atmosphere 'strongly' indicates that they come from outer space, quoted in John Ezard, 'Bacteria point to life in outer space', The Guardian, 31 July 2001.

As to verification, US national technical means alone can monitor the critical elements of a ballistic missile agreement bearing most significantly on US security. The tests required for the development of long-range missiles are easily detectable, and the export of North Korean ballistic missiles on a scale that would affect US security would also soon be apparent. If an agreement included a ban on all missile production and the elimination of existing missiles, additional verification measures would indeed be necessary. But, as desirable as these constraints would be, they need not be absolutely comprehensive to provide high confidence that the North Korean missile program had in fact been adequately constrained. Indeed, working out a mutually acceptable balance of obligations and verification measures is what negotiations are all about.

Spurgeon M. Keeny, Jr., Preserving the North Korean Threat, Arms Control Today, April 2001

Prior to COP6, substantial progress was made on the details of the verification system for the Kyoto Protocol. While the agreement in Bonn is crucial, important aspects of the monitoring and verification regime need to be finalised in Marrakesh. For example, the verification requirements relating to 'demonstrable progress' in 2005 have to be tackled. Agreement also must be reached on how baselines will be set for projects undertaken under the CDM and Joint Implementation (JI) mechanisms and whether a panel will oversee JI projects in the same way as projects under the CDM. It is essential that negotiators continue in Marrakesh to work towards a verification system that gives credibility and environmental integrity to the political decisions made in Bonn. This will give countries the confidence to move forward with ratification.

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The verification power of seismology

British scientists at the Atomic Weapons Establishment (AWE), Blacknest, have used seismological data to recalculate the yield of India's nuclear explosion on 11 May 1998. By comparing this data with information from India's 1974 nuclear explosion, the research team has concluded that the maximum yield of the 1998 explosion would have been around 40 kilotons (kt) and was most likely to have been in the region of 20kt. Indian scientists at the Bhabha Atomic Research Centre insist that the yield was around 60kt. The British scientists deduce that 'the capacity of the International Monitoring System being set up to verify the Comprehensive Test Ban, should be sufficient for the System to act as a strong deterrent to any nation on the Indian Sub-continent and adjacent areas attempting to carry out a clandestine test'.

The same group of forensic seismologists have used data from the CTBTO's International Data Centre and non-CTBT seismic stations to analyse recordings of the explosions that sank the Russian submarine, *Kursk*, on 12 August 2000. Their analysis showed that the cause of the accident was an explosion, as the signature was inconsistent with a natural event, such as an earthquake.

Source Alan Douglas *et al.*, 'The yields of the Indian nuclear tests of 1998 and their relevance to test ban verification', *Current Science*, vol. 81, no. 1, 10 July 2001, pp. 72-74; 'British Scientists say India's Pokhran thermonuclear device failed', Pakistan News Service, Lahore, 23 July 2001; 'AWE scientists fathom secrets of the Kursk', *AWE Today*, 7 August 2001.

Taking aim at small arms

The UN General Assembly agreed an Additional Protocol to the 2000 Convention on Transnational Organized Crime in May. Under the Firearms Protocol, which focuses on eradicating the illicit manufacture of, and trafficking in, firearms, states must pass legislation requiring effective export control procedures. This would facilitate information exchange among law enforcement authorities and establish effective weapon marking systems and transfer records. Since the legislation covers only the commercial trade in firearms, their components and ammunition, there remains a proliferation threat, resulting from government weapon exports, including those to non-state actors. The fact that the Protocol does not mandate a uniform system for marking weapons may hamper verification of compliance.

States must first ratify the Convention before becoming a party to the Protocol, which will enter into force once it has acquired 40 ratifications but no earlier than the Convention.

Source 'UN General Assembly adopts illicit firearms protocol', *Arms Control Today*, July/August 2001, p. 29; 'General Assembly adopts third additional protocol, on firearms, to Convention against Transnational Organized Crime', UN document GA/9866, 31 May 2001.

US limits support for CTBTO

The US announced on 21 August that it is to limit its participation in, and contribution to, the Vienna-based Preparatory Commission (PrepCom) for the Comprehensive Test Ban Treaty Organization (CTBTO), the body charged with setting up the verification system for the Comprehensive Nuclear Test Ban Treaty (CTBT). The US has decided it will continue to participate in and fund only those PrepCom activities directed to establishing and supporting the International Monitoring System (IMS) including, to the extent required for IMS support, the International Data Centre and Global Communications Infrastructure. It will no longer participate in and fund other activities, including those related to establishing the on-site inspection (OSI) system. According to Department of State calculations, the US will reduce funding for the PrepCom by 4.5 percent or approximately US\$900,000 annually, amounting to around one percent of the current PrepCom budget. Failure to pay its assessed dues would put the US in technical non-compliance with its commitment as a CTBT signatory.

The move is intended to signal the Bush administration's intention to 'disassociate' itself from the treaty. Test ban opponents in Washington were arguing for even bigger cuts, but were apparently won over by the argument that US national capabilities to detect nuclear explosions will be improved by having access to IMS data.

US officials have since stopped attending meetings aimed at developing an OSI manual. Stringent provisions for OSIs were a high priority for the US during the CTBT negotiations and the US has consistently fielded the largest delegation to the talks on OSIs in Vienna. US technical assistance has also made a considerable contribution to the development of the verification system. The partial US withdrawal puts these achievements at risk.

Other delegations were stunned by the US move and voiced their support for the Organization. The PrepCom budget was contentious even before the US statement, as non-entry into force has complicated financial planning. (The treaty's verification system must be ready for entry into force, but this cannot happen until the US and 12 other nations ratify the accord.) There is a fear that other states might use the opportunity of the US decision to reduce their contribution to the PrepCom or that they may question the system's viability without full US backing.

Source Phillip C. Bleek, 'White House to seek partial funding; plans to drop support for on-site inspections,' *Arms Control Today*, September 2001, www.armscontrol.org; 'US Statement Regarding CTBTO PrepCom Participation', Vienna, 21 August 2001; Permanent Mission of the Russian Federation to the International Organizations in Vienna, 'Press Release by the Ministry of Foreign Affairs of the Russian Federation regarding the US statement at the 15th plenary session of the Preparatory Commission for the Comprehensive Nuclear Test Ban Treaty Organization', 27 August 2001.

BW protocol talks implode . . .

The last session of the Ad Hoc Group (AHG) of states parties negotiating a verification protocol to the 1972 Biological Weapons Convention (BWC) in Geneva, ended on 17 August without agreement on a final report, much less a protocol. Substantive talks stopped after the US rejected the draft protocol on 25 July (see *Trust & Verify*, May–June 2001 and July–August 2001). No delegation was prepared to press for an agreement without the US. Discussions over the course of the three remaining weeks of the AHG meeting focussed on how to report the failure to the BWC Fifth Review Conference, scheduled to be held from 19 November to 7 December 2001. Ultimately, inability to find consensus language on how to address the reasons for failure prevented the report from being adopted.

The future of the multilateral negotiations on a universal, legally binding agreement to verify compliance with the BWC is now uncertain. On 3 August, Brazil, Chile, Netherlands, New Zealand, Norway, Peru and South Africa proposed that a special conference be convened to discuss the way forward. This was rejected. However, it is likely that negotiations on a protocol will continue. While many delegations stated that 'business as usual was not possible', none of them called the process into question. There was also agreement that the results of the AHG, including the 300-page rolling text and the 200-page Chairman's text, should be taken forward by the successor to the AHG. Finally, the mandate of the talks remains valid. In his closing statement on 18 August, the Chairman of the

talks, Hungarian Ambassador Tibor Tóth, said that this represented a 'ray of hope'.

. . . while US bio-defence work raises questions about BWC compliance

A series of articles in the *New York Times* on 4 September 2001 shed new light on the reasons for the US rejection of the protocol. Washington has admitted that it has conducted three separate, clandestine projects aimed at mimicking offensive biological weapon (BW) efforts in order to develop better defences:

- **Project Clear Vision:** the Central Intelligence Agency built and tested a BW bomb, based on a Soviet design. Work was undertaken from 1997–2000.
- **Project Jefferson:** the Defense Intelligence Agency of the US Department of Defense (DoD) planned to develop a new strain of the anthrax microbe by implanting genes from *Bacillus cereus*, an organism that causes food poisoning. This research, which has been put on hold pending a legal review, was intended to replicate Russian research reported in the press.
- **Project Bacchus (Biotechnology Activity Characterization by Unconventional Signatures):** was undertaken by the DoD's Defense Threat Reduction Agency. A US\$1 million, fully functional BW production facility was constructed at the Nevada Test Site in an attempt to simulate the difficulties involved in producing bio-warfare agents using commercially available components. Two successful tests were conducted in 1999 and 2000 with BW simulants.

The agencies involved are reported to have actively opposed transparency measures, such as those envisaged in the draft BW verification protocol, and contributed to US rejection of the protocol. Whether the US has violated the BWC by conducting research that, taken together, would constitute an essential part of an offensive weapons programme, is being debated. At the very least, though, the US has violated a politically binding commitment to declare such activities to the UN and other states parties under the confidence-building measures established for the BWC in 1986. None of the projects was listed in the declarations submitted by the US from 1997–2001.

Source Judith Miller, Stephen Engelberg and William J. Broad, 'In Secretly Fighting Germ Warfare, US Tests Limits of a 1972 Treaty', *New York Times*, 4 September 2001; Judith Miller, 'Next to Old Rec Hall, a "Germ-Making Plant"', *New York Times*, 4 September 2001, www.nytimes.com; 'USA vers-tossen gegen Biowaffen-Vereinbarung', *Press Release*, The Sunshine Project, Hamburg, Germany, 7 September 2001.



Chip off an old rock

Researchers at Uppsala University in Sweden have created the first diamond-based computer chip. This represents a crucial first step towards the invention of a 'lab-on-a-chip' for versatile, on-the-spot chemical analysis. This could be an important tool for CW monitoring and verification, allowing inspectors to conduct fast and reliable tests without having to send samples to a laboratory.

Diamonds have many of the special properties needed for the lab-chip of the future. They have good surface properties, permitting sample fluid to move easily over them. They will not contaminate the sample and have excellent thermal properties to keep the temperature of the chip constant. In addition, they have good optical and electrical properties, making it possible to identify materials using fluorescence and electric fields.

Source 'Gem of a chip', *New Scientist*, 18 August 2001, p. 23.

Border monitoring enhanced

Exensor Technology has developed a multi-sensor device called EX-MS, which provides enhanced and more precise target discrimination capabilities. It has two main elements: a sensor unit that takes acoustic, seismic and magnetic field measurements and a processor to analyse data in real-time. The processor compares the data sequence with a pre-recorded library of signatures in order to determine the type of threat. The processor then analyses the data to determine speed and direction. The in-built database allows the device to differentiate between different types of armoured fighting vehicles, as well as to identify a whole spectrum of other dangers, ranging from foot soldiers to helicopters. A two-way communication capability enables the operator to update the signature library once an unknown signal has been positively identified.

The device is the first of its kind to provide large area surveillance with a reliable target identification capacity. The EX-MS is also cost effective, carrying out a job that would otherwise require a large number of ground troops. It is designed for border monitoring in particular, but has a host of other verification applications, from area surveillance to monitoring demilitarised zones as part of peacekeeping operations.

Source 'An intelligent defence against breaching borders and ceasefires', *Defence Procurement and Analysis*, summer 2001, pp. 49–53.

Muscling in on bio-weapon detection

Researchers in Australia are utilising the molecules that make muscles contract to provide early warning of a BW attack. The project, funded by the US Defense Advanced Research Projects Agency, aims to develop a detector chip small enough to fit on a wristwatch. Currently, bio-warfare agents can only be detected through lengthy tests and using bulky equipment, making them of limited use in the field.

When muscles tense, strands of two proteins, called actin and myosin, slide past each other. This movement can be used like a switch to indicate the presence of dangerous agents, such as anthrax. Researchers plan to line up thousands of actin and myosin molecules in laser-etched tracks on a chip and to attach antibodies to each of the actin molecules. In the case of a bio-weapon attack, they hope that the antibodies will stick to the molecules of the dangerous agent. This should clog up the 'switch' and alert the user to the attack. The researchers' next step would be to build a circuit to amplify this molecular signal so that it can be used in a detector device.

While a working prototype for the bio-detector chip is perhaps two years away, when available, it could provide a valuable addition to the verification toolkit. Light, portable and sensitive, it could be used to alert soldiers and inspectors to the use of BW in the field.

Source 'We're under attack', *New Scientist*, 1 September 2001, p. 20.

US experiments with hyperspectral 'vision'

The US Air Force (USAF) will begin an experiment later this year to assess the benefits of using satellite hyperspectral imagery (HSI) to help locate enemy targets hidden by camouflage and to counter other deception measures used to fool visible sensors. However, HSI could also provide a useful verification technology for peacekeeping operations in places like Kosovo, where remote, wooded and mountainous areas are difficult to monitor.

An HSI spectrometer camera will be mounted on the commercial satellite, OrbView-4. The images will be transmitted to earth for processing by a mobile ground station, with the aim of providing near real time HSI information. Analysis of the light spectra collected by HSI may allow targets to be 'seen', even if they are not visible. This is because each material provides a unique 'fingerprint', absorbing and emitting character-

istic frequencies of light. The USAF will be using HSI from OrbView-4 with a resolution of eight metres. However, imagery will be commercially available with a resolution of 20 metres.

Source 'USAF to experiment with hyperspectral imagery', *Jane's Defence Weekly*, 25 July 2001, p. 8.

Patches shine a light on chemicals

A team of US researchers has designed a 'smart' patch that changes colour when exposed to trace amounts of chemical

compounds. The device works by binding liquid crystals to a thin, nano-engineered gold surface. In the presence of selected chemicals, the crystals change orientation, altering the way that they reflect light and hence their perceived colour and brightness. Researchers plan to produce a multipurpose detector with different areas designed to react to specific chemical compounds in concentrations as low as a few parts per billion. The patches could be used for verifying CW production and/or use.

Source 'Breakthrough patches detect dangerous chemicals', *New Scientist*, 17 August 2001, available at www.newscientist.com

VERTIC

News & Events

Guide to Reporting under Article 7 of the Ottawa Convention

In August, VERTIC published its *Guide to Reporting Under Article 7 of the Ottawa Convention*. The Guide should prove to be a useful resource for everyone involved in efforts to ban landmines. The report was tabled and distributed by VERTIC at the Third Meeting of the States Parties to the Ottawa Convention in Managua, Nicaragua, from 18–21 September 2001. The Guide was also tabled as a UN document and will appear in the treaty's official languages. VERTIC's version includes a CD-ROM containing blank reporting forms in Arabic, Chinese, French, English, Russian and Spanish. For free copies of the Guide, contact Thomas Withington at info@vertic.org.

Staff news

TREVOR FINDLAY attended a briefing on the funding policies of the Diana, Princess of Wales Memorial Trust at County Hall, London, on 16 July. On 20 July he participated in a seminar at the International Institute for Strategic Studies (IISS) given by John Hillen on US policy on the use of force. On 13 August he and Molly Anderson met with Christine Lancaster, an Australian environmental lawyer, to discuss VERTIC's environmental programme. During the period Trevor completed the manuscript of his book for the Stockholm International Peace Research Institute (SIPRI) on *The Use of Force in UN Peace Operations*, which is to be published by Oxford University Press later this year. On 7 September he gave an address on the subject to the South African National Defence Force Academy near Pretoria. He appeared on the BBC's *News 24* on 26 July to discuss US rejection of the BW protocol.

MOLLY ANDERSON took up her full-time position as VERTIC's new Environment Researcher in August, after representing VERTIC at the COP6 meeting in Bonn, Germany, in July. There she met with members of the Climate Action Network and other interested parties. On 8 August she attended a follow-up meeting—titled 'The Bonn Agreement: what does it mean?'—at the Royal Institute of International Affairs (RIIA) in London. She also visited Duncan Brack, the head of the Energy and Environment Programme at the RIIA, to discuss possible collaboration.

BEN HANDLEY has been promoted from Assistant Administrator to the position of Administrator. Over the past few months he has assisted in drafting financial statements for VERTIC funders and in preparing budgets for future VERTIC projects.

OLIVER MEIER was interviewed on the BBC's *Breakfast News* and *Today Programme* on 17 July on the need for increased transparency in BW defence programmes in the UK and elsewhere. From 23–25 July he attended the opening of the 24th meeting of the BWC Ad Hoc Group in Geneva. He also gave a presentation in Geneva on 'Reaching an agreement on a BWC Protocol: laying the foundation for a strong verification regime' at a seminar for EU delegations and NGOs. Oliver was interviewed in Geneva by several journals and newspapers on the BW issue and for *News Hour* on *BBC World Service Radio, Europe* on 25 July. He published op-eds on the BW protocol in the *Frankfurter Rundschau* (31 July), *Financial Times Deutschland* (7 August) and *Defense News* (27 August). The English language section of the German Press Agency used a translated version of the *Frankfurter Rundschau* article. On 24 August he was interviewed on *Radio France International* on

the Bush administration's policy on international treaties and on 5 September *Westdeutscher Rundfunk Radio 2* interviewed him on the clandestine US BW defence research programme.

Oliver has been working on a VERTIC *Briefing Paper* for the CTBT Article XIV conference and continued to edit the *Verification Yearbook 2001*. A chapter written by him—'A civilian power caught between the lines: Germany and nuclear non-proliferation'—was published in Sebastian Harnisch and Hanns W. Maull (eds), *Germany as a Civilian Power?*, Manchester University Press, Manchester, 2001.

JOHN RUSSELL continued to work with Jane Boulden on the *Verification and Compliance Handbook*. A first draft was provided to VERTIC's partner organisation in the project, the United Nations Institute for Disarmament Research (UNIDIR), at the end of August. In addition, John has been assisting in the promotion and distribution of his VERTIC *Briefing Paper* on 'On-Site Inspections under the INF Treaty: a post-mortem', published in August.

THOMAS WITHINGTON has been updating and preparing for the redesign of the VERTIC website, as well as finishing the *Verification Organisations Directory 2001*. In addition, he has organised the distribution of VERTIC *Briefing Papers* and other publications. Thomas has been co-ordinating preparations for a panel meeting at the end of October in London to discuss the *Verification and Compliance Handbook*. Meanwhile, he is also continuing to promote the *Verification Yearbook 2000* to bookshops and distributors around the UK.

ANGELA WOODWARD became VERTIC's full-time Legal Researcher in July. She will continue monitoring implementation of the Landmine Convention, as well as researching legal issues arising from the verification and implementation of other treaties. She completed and supervised the publication and distribution of VERTIC's *Guide to Reporting under Article 7 of the Ottawa Convention* and submitted the organisation's contribution to *Landmine Monitor 2001* on national implementation legislation.



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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