



# Trust and Verify

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## Framework Convention on Climate Change

In the wake of the New York Intergovernmental Negotiating Committee (INC) meeting in late April/early May, a final report is now available detailing VERTIC's proposals for a verification regime for the Framework Convention on Climate Change. The 52-page report is entitled "Verification and the Framework Convention on Climate Change: A briefing document for UNCED Rio de Janeiro". The authors are John Lanchbery (who has now gone to Rio for the Summit), and Owen Greene and Julian Salt of Bradford University's Department of Peace Studies. The report costs £10 (inc p&p) from the office.

It builds upon the work of two earlier VERTIC reports in establishing the urgent need for a verification regime if the Framework Convention is not to be a 'paper tiger', and showing how the need might be met. An appendix reproduces the text of the UN Framework Convention on Climate Change as agreed and adapted by the INC.

Although the Draft Framework Convention which will be signed at the Rio entirely lacks verification provisions, these could still be established by means of protocols to the Convention. An important section of the new report lists those functions which any verification body which might be established should perform if the Convention is to be properly verifiable:

- ⊕ monitoring the national emissions of greenhouse gases by Convention signatories
- ⊕ working in a politically independent manner
- ⊕ indicating clearly and precisely when nations have not complied with treaty obligations
- ⊕ channelling findings to signatory nations and, preferably, also to the public
- ⊕ carrying out activities in a 'transparent' fashion
- ⊕ having the power and resources to check the accuracy of submissions
- ⊕ Ideally, aiding the implementation of national data collection systems and procedures
- ⊕ Ideally, researching ways of improving data collection procedures and helping improve knowledge of greenhouse gases and climate change phenomena
- ⊕ Ideally, working closely with all other relevant organisations

The obvious candidate body for carrying out these functions is the 'Subsidiary Body for Implementation', part of the organisational structure set up for the FCCC. The new report recommends that this body and the other 'Subsidiary Body for Scientific and Technological Advice' have close working relationships, possibly even including personnel transfers.

For a verification body to operate effectively standard methodologies in data collection would have to be devised to avoid confusion and facilitate analysis. Breaking down the data by emission sectors (eg Energy, Forest, Halocarbon) would be very useful. An alternative to the

sectoral approach to a Framework Convention is the 'Comprehensive Approach' advocated by some governments. This would take a holistic overview of greenhouse gas emissions from sources and uptake by sinks. The VERTIC report, however, considers that "adoption of the Comprehensive Approach would lead to serious shortcomings in any verification regime" (p32) because of gaps in the present knowledge of the sources/sinks systems taken as a whole.

As a result of the Bush administration's refusal to sign a Climate treaty at Rio which would make a legally binding commitment to emission reductions by a specific timescale (eg the European Community suggestion that CO<sub>2</sub> emissions be stabilised at 1990 levels by the year 2000), it looks likely that not only will there be no verification regime, there will also not be much to verify because the treaty will be very generalised. The EC suggestion will be a guideline only. In addition the US says it will not sign the biodiversity convention, and Britain is having second thoughts too. Interestingly, British Environment Secretary Michael Howard has argued that the British might not sign because the provisions of this second treaty are too weak.

## Nuclear Testing Update

Two recent events reduce the chances of the French and Russian moratoria being joined by other nuclear powers, and of a Comprehensive Test Ban Treaty being agreed in the short term.

The first was the US test 'Diamond Fortune' carried out on April 30th at the Nevada test site. This was the second US test this year, and the 938th US test since 1945. With a yield of less than 20kt, the explosion was intended to test the performance of military, electronic and communications equipment under nuclear explosion conditions.

According to testimony given to the US Senate Armed Services Committee by Energy Secretary James D. Watkins at the beginning of May, the US plans to conduct six tests during 1992. This would be the lowest annual total of US tests since the 1961 moratorium, but the testing schedule is being maintained at a time when no new US nuclear weapons are being manufactured. Apparently one reason why the Bush administration has so far shunned a moratorium is that it fears resuming testing afterwards would be politically difficult. There are signs, however, that the administration may have to make concessions on testing, because of growing domestic and international pressure. Proposed legislation requiring a US moratorium has significant support in both the House and the Senate, and Canadian Prime Minister Mulroney, for example, recently urged the US to join the other moratoria.

High-ranking but unnamed US officials say a paper has been drawn up with options ranging from halving the annual number of US tests, to almost ending US nuclear tests by 1995. An outright moratorium is not in prospect. There are divisions in the administration over the issue. The State Department, Energy Department and Arms Control and Disarmament Agency (ACDA) support con-

cessions, while the Department of Defence is opposed. Defence Secretary Richard Cheney was quoted as saying "haven't yet seen an argument for a lower level of testing than we currently have" Presidents Bush and Yeltsin are likely to discuss testing at the June Summit.

International Physicians for the Prevention of Nuclear War (IPPNW) has released a 44 page report based on the findings from a visit to Russia, Kazakhstan, Belarus and the Ukraine in April. The report quotes Russian officials as saying that Bush and Yeltsin had reached "a mutual understanding" that when the Russian moratorium expired the Russians would resume testing at a level of perhaps 4-6 tests per year for the next couple of years. 'Mutuality' arises in this analysis because Yeltsin is being pressurised by military figures to resume testing and Bush does not want to be in the politically exposed position of continuing to test while others do not. The analysis does not fit easily, however, with the fact that Russia has recently extended its moratorium beyond October to the end of 1992.

### Chinese nuclear test

The second event mentioned at the beginning of this piece was the large-yield nuclear test China apparently conducted on 21 May. Sources including Swedish Defense Research Agency and Norway's Seismic Observatory picked up evidence of an underground explosion at the Chinese nuclear test site at Lop Nor in Xianjiang Province. The Swedish institution estimated the yield to be equal to about 1 megaton, a figure which has been widely reported. If accurate this yield would make the nuclear explosion the most powerful since 1976. However, the full data on the test has not yet been collated for analysis, and VERTIC consultant Roger Clark of the Department of Earth Sciences at the University of Leeds say that at this stage the test can only be rated as 'at least 300kt'.

This would still be a very large explosion, considerably exceeding the 150 kt limit established by the 1974 bilateral US-USSR Threshold Test Ban Treaty. A test this size may have led to the dispersal of radioactive materials. The purpose of the test is not known for certain but one possibility is that China was testing a thermonuclear warhead for a new ICBM, with the added effect of signalling to France not to go ahead with arms sales to Taiwan. A consequence could be a hindering of US attempts to wean CIS republics away from nuclear weapons via the START and NPT treaties. The Russian moratorium may come under further pressure from military figures and Kazakhstan could rethink its commitment to get rid of all its nuclear weapons. It has voiced concerns for some time about its border with China and China's territorial intentions, and will probably try even harder to obtain firmer defence commitments from the US in return for denuclearising. North Korea may also react adversely to the news.

The Russian "Towards Novaya Zemlya" anti-nuclear testing movement is trying to contest the legality of Yeltsin's Presidential Decree No. 194 of February 27th, which mandated certain preparatory work at the Novaya Zemlya test site and switched jurisdiction over the Novaya Zemlya territory from the Arkhanghelsk regional authorities to the federal authorities.

### CIS and START

A START protocol was signed on 23 May by the US and all four former Soviet republics with strategic nuclear weapons during the European Community sponsored conference in Lisbon. The five-way protocol went ahead despite a declaration by the Russian deputy defence minister on 30th April that only Russia, as the successor to the Soviet Union, could sign treaties. The additional protocol has transformed the original bilateral START agreement into a multilateral one. The protocol requires

Ukraine, Belarus and Kazakhstan to eliminate nuclear weapons from their soil within seven years after the START treaty comes into force, and to join the NPT as non-nuclear powers.

Kazakhstan's president Nazerbayev said he had received additional assurances from the US that Kazakhstan would be a party to START 2 and any other future treaty to reduce nuclear arsenals. He promised to give up all nuclear weapons within two years; previously he had said 15 years might be necessary. However Nazerbayev was also reported as saying that Kazakhstan might in future agree to the stationing of Russian nuclear weapons on its territory! There is also doubt about whether Kazakhstan and the US regard the alleged security assurances Nazerbayev says he has received from Washington in the same way.

Kazakhstan now joins the other three CIS republics in being eligible for US aid to help with dismantling of weapons and retraining of scientists. Conditions imposed by Congress include: pledging to comply with existing agreements controlling nuclear, chemical and conventional arms, observing human rights, investing substantial resources in weapons dismantlement, forgoing military programs exceeding "legitimate defence requirements", forgoing reuse of fissile materials in weapons and allowing the US to verify weapons destruction.

The Lisbon conference saw preliminary discussion of a Western plan to offset CIS debt by selling plutonium from dismantled CIS warheads. The scheme could take up to 15 years since some 400 million tonnes of plutonium are present in the approximately 25,000 CIS warheads. The conference also saw the signing of an agreement by the EC, US, Japan and Russia to open a centre in Moscow which will provide work for Russian nuclear scientists on environmental cleanup, radiation monitoring and improving nuclear power reactor safety. It is hoped that the centre will begin financing projects in June. A parallel Ukrainian centre is also being established with \$10 million US assistance and other Western funding. EC Environment Commissioner Ripa di Meana is urging that the £315 million EC aid to the CIS for technical assistance be mainly spent on shutting down nuclear reactors, dismantling nuclear submarines and ending weapons-grade plutonium production.

Russia and five other republics including Kazakhstan signed a security treaty on 15th May; five others, including Ukraine & Belarus, did not. Only a week earlier it had been reported that Kazakhstan was blocking the launch of a Russian military satellite. Article 4 is a Nato-type mutual defence pledge; if any of the signatories are attacked by other states "all necessary assistance, including military assistance" will be provided. A Security Council will be established comprising heads of state and commanders-in-chief of national armies. All six republics who attended agreed in principle to implement the CFE Treaty.

US/NATO intelligence backs Russia's assertion that all tactical nuclear weapons in the CIS are now in Russia. Lieutenant-General Sergei Zelentsov of the CIS military command said on May 6th that destruction of the tactical nuclear weapons would begin in Russia "in about a month" and probably continue until the year 2,000.

The removed tactical nuclear weapons include those which had been allocated to the troubled Black Sea Fleet. Agreement has now been reached that the fleet itself should not be classified as a strategic resource, thus allowing the 380 ships to be removed from CIS joint command and divided between Ukraine and Russia. This manoeuvre has defused a dangerous situation. Ukraine now stands to gain control of more than the 20% of the fleet it had previously been offered, but the exact apportioning has not yet been worked out. In addition to part of the fleet, Ukraine will also gain control of those paratroop forces and most of the former Soviet Air Force stationed in the republic.

CIS strategic forces will in future consist of "strategic missiles, nuclear weapons held by air forces, nuclear weapons in the navy, anti-ballistic missiles, and some space-related weapons" (Marshal Shaposhnikov, 26/5/1992). Shaposhnikov said that strategic nuclear forces would revert to Russia once they had been withdrawn from the other republics, so Russia had no need to establish its own nuclear forces in addition to the Commonwealth ones.

### COCOM membership for CIS states?

US Secretary of State James Baker has proposed that CIS republics and Eastern European countries be brought under the Coordinating Committee for Multilateral Export Controls (COCOM) umbrella. The countries would gain access to Western high technology in return for commitments not to export nuclear and other technology to third world countries.

### IPPNW calls for dismantling funds

The IPPNW report referred to above (*Nuclear Testing News*) urges the US to spend the savings that would result from joining the Russian and French moratoria on helping the CIS dismantle its arsenal. IPPNW calculates over \$800 million is needed to accomplish the task – the US has currently earmarked \$400 million. The report also contrasts the levels of expenditure on the Gulf war, and the financial and other aid so far committed to neutralise the dangers of nuclear leakage from the CIS.

## Biological weapons

As mandated by the third review conference of the Biological and Toxin Weapons Convention (BWC), the International Conference of Verification Experts on the BWC met in Geneva from March 30th to April 10th, with 58 state-parties present. This first session focused on exchanging ideas and identifying possible measures to enhance the verifiability of the BWC. An evaluatory session is due to take place in the Autumn.

VERTIC has received a number of documents from Edward J. Lacey, Deputy Assistant Director of the US Arms Control and Disarmament Agency (ACDA) and Head of the US delegation to the Ad Hoc Group of BWC Governmental Experts. They include an interview with Dr. Lacey in which he sets out the US position, plus statements to the conference.

According to Dr. Lacey, the US is not in favour of the addition of verification measures to the 1972 BWC because "The US thus far has been unable to identify any measures that will make verification of the BWC more effective" (interview, Geneva, April 2nd 1992, p1). Elsewhere Dr. Lacey states "Verification measures should provide confidence that States Parties are in compliance with treaty provisions. In addition effective verification measures should deter violations by significantly increasing the risk of detection. Finally, effective verification should enable States Parties to detect a violation in a timely fashion well before it poses a significant military risk" (Statement, March 30th 1992).

At present the US uses national means including satellite and other sensors, and press reports, in its efforts to verify compliance with the BWC. Dr. Lacey believes that it would be "extremely difficult" to have an effective inspection regime which would meet the criteria given above because production of biological weapons is possible in very small, readily hidden facilities. "You would have to be in a position of inspecting every household, every reasonably sized building, and every laboratory".

The US says it is willing to be open-minded about verification proposals suggested by other nations, but believes that the way to improve the BWC is for confidence-building measures to be thoroughly implemented, particularly the new data exchange measures which were agreed at

the September 1991 third review conference. The deadline for national data submissions was April 15th 1992.

Lacey makes a clear distinction is made between confidence-building and verification. "Confidence-building measures involve a degree of uncertainty that is not appropriate or desirable for a verification regime". The US position is that new verification measures could actually undermine effective verification by instilling a false sense of confidence. The US is also concerned that trade secrets could be violated and legitimate biological activities disrupted.

However, Dr. Lacey himself notes "Compared to verification, the goals and results of confidence-building are more subjective, intangible and not easily subject to quantification", and that the US position on the difficulties of reliable verification has raised questions about its allegations of non-compliance with the BWC by other states. The Presidential Report to Congress on "Soviet Noncompliance With Arms Control Agreements" released on March 30th (and kindly sent to VERTIC by Dr. Lacey; copies available from the office) says that "The US has determined that the Soviet Union has maintained an offensive program since the 1930s and continues to be in violation of the 1972 BWC. The US judges that the Soviet capability may include advanced biological and toxin agents of which the US has little or no knowledge" (p9). On the question of chemical weapons the report says "the US found no basis for amending its previous conclusion that the Soviet Union had been involved in the production, transfer, and use of trichothecene mycotoxins for hostile purpose in Laos, Cambodia, and Afghanistan in violation of its legal obligations under international law as codified in the Geneva Protocol of 1925 and the Biological Weapons Convention of 1972" (p10).

With regard to the criteria for what constitutes evidence the report says that established standards of evidence are "two or more corroborating reports from different sources" (p9). There does therefore appear to be a considerable gap between what satisfies the US as the basis for allegations, and the criteria which have to be satisfied before something can be said to have been verified. This could be a fruitful area for debate.

In a further statement to the Ad Hoc Group made on April 1st, Dr. Lacey agreed with the UK representative that information gleaned about Iraq's BW program and the experiences of the first two UN Special Commission Biological Warfare Inspection Teams "may provide some practical lessons as we consider the feasibility of verifying the BWC" (p1). Dr. Lacey pointed out, however, that the degree of intrusiveness that was achieved in Iraq by the UN teams was highly unlikely to be acceptable to many states in the context of a multilateral verification regime for the BWC. "Of direct relevance to the analysis of potential verification provisions for the BWC, is the lesson that intrusive verification measures are not likely to yield conclusive evidence of BWC noncompliance if a potential violator has utilized dual use facilities or has concealed or destroyed its equipment" (p1).

In fact the UN teams found no evidence of BW agent production in large quantities, nor any weapons, warheads, filling facilities or equipment. "Due to the lack of hard evidence they were forced to make conclusions based primarily on circumstantial evidence" (p1). Therefore the UN conclusion that Salman Pak possessed an offensive BW character was based "primarily on the generally uncooperative and obstructive Iraqi behaviour, as well as Iraqi statements that the program was a military one" (p2). "UN Special Commission Inspection Team 15 assessed three Iraqi facilities as being capable of producing biological warfare agents. It also assessed the single-cell protein production facility at Al Hakam as 'suspicious' based on the presence of excessive security and discrepancies in the Iraqi explanation of the purpose of the facility" (p2).

## In the News

### Verification Bibliography

At the end of 1991 the Canadian Ambassador for Disarmament presented to the UN Under Secretary-General for Disarmament affairs a 250-page book entitled "Bibliography on arms control Verification: 1962-1991". This lists over 1,500 documents which discuss in detail verification processes, procedures or systems, as well as confidence-building, peace-keeping and compliance. The book includes a thesaurus of keywords and an extensive index.

### Iran

The *European's* story (*Trust & Verify* No. 27) that two nuclear warheads from Kazakhstan had been sold to Iran has not been substantiated. Both NATO Secretary-General Manfred Worner and US Defence Secretary Richard Cheney said on May 27th that to the best of their information all tactical weapons had been returned from the republics to Russia and were accounted for.

### Transparency please

William Waldegrave, British Minister in charge of the Citizen's Charter, has decided to place more of an onus on civil servants to release information that does not have compelling reasons to remain secret. VERTIC wonders if finally the government might publish the British verification research budget?

### Open Skies

VERTIC has received a letter from Stefan Forss, operative chief of the Finnish observer delegation to Open Skies in Vienna. Forss throws more light on the resolution of problems that could have derailed the treaty. The Swedish and Finnish observer delegations were asked to mediate, for example, when an impasse over the resolution of sensors had reached threatened the whole treaty. Some technical aspects of this issue were in fact deferred for consideration by the Open Skies Consultative Commission. Sweden has been asked to prepare technical evaluatory material, and the flight tests to settle these further resolution issues will take place at Boscombe Down in the UK.

Forss also reveals that it was the Finnish delegation who thought of a twin-track approach – a legally binding treaty and a politically binding declaration – as a way of solving the seemingly irreconcilable attitudes of Turkey and

Greece with regard to whether all observer states could become full members of the negotiations and accede to the treaty. The two countries had differed over Cyprus.

### Sticky solution

When Russian and US experts met in Kiev recently to tackle the thorny problems of nuclear wahead dismantling, one US weapons expert suggested that molasses might be just the thing to pour into the bomb casings from which explosive components had been removed. The idea is that the sensitive components would refuse to work if subjected to a molasses bath and anyway there would be a sufficiently awful mess in prospect to deter anyone from trying to reinsert them!

## VERTIC news

### New Arrival

On June 5th VERTIC director Dr. Patricia Lewis gave birth to a baby girl called Linidiwe. Remote sensing techniques proved incapable of providing an adequate estimate of the size of the yield, but reports are filtering back to us from an international team of on-site inspectors at Ground Zero that it was in the region of 3.7Kg. Apparently there were no aftershocks and both mother and baby are in good health. We cannot confirm a report that Dr. Lewis, facing a barrage of cameras, said she would rather read the complete set of Conference on Disarmament reports on chemical weapons than go through the experience again.

### VERTIC/KFA Julich research project

VERTIC will soon begin work on a collaborative project with the German government research laboratory KFA Julich on how to monitor the proposed international agreement to limit greenhouse gas emissions. The work is intended to be applicable to both the forthcoming Framework Convention on Climate Change and likely national legislation on emission reductions. The project work will support other work being conducted on the German government's project IKARUS, a national database of emission sources.

VERTIC's task will be to assess how to monitor and verify emissions due to forest burning and land clearance, while KFA will concentrate on emissions caused by fossil fuel burning and other industrial activities. VERTIC's part of the project will be performed jointly with Bradford University, and funded by KFA.

*Trust and Verify* is compiled & edited by Declan McHugh; research & production by Philip McNab.

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### What is VERTIC?

VERTIC is an independent organisation aiming to research and provide information on the role of verification technology and methods in present and future arms control and environmental agreements. VERTIC coordinates six working groups comprising 21 UK consultants and 11 overseas advisors. VERTIC is the major source of information on verification for scientists, policy makers and the press. VERTIC is funded primarily by grants from foundations and trusts and its independence is monitored by an Oversight and Advisory Committee.

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