



# Trust and Verify

The Bulletin of the Verification Technology Information Centre

No. 57 May 1995

ISSN 0966-9221

## In this issue:

- Non-Proliferation Treaty Conference
- Progress on the Climate Convention
- VERTIC Conference in Georgia

## Non-Proliferation Treaty

The Review and Extension Conference of the Non-Proliferation Treaty was held in New York from 17 April to the early hours of 13 May.

The Conference agreed on Thursday 11 May to a package of four resolutions by consensus:

- a recognition that there was a majority of parties in favour of the indefinite extension of the NPT;
- a set of steps for strengthening the review process;
- a set of 'Principles and Objectives for Nuclear Non-Proliferation and Disarmament'; and
- a call for universal accession to the NPT by states in the Middle East.

(These documents are reproduced as a supplement to this edition of *Trust & Verify*.)

### NPT Update

During the Conference itself, the ACRONYM Consortium, of which VERTIC is a member, published *NPT Update* on a daily basis to help people both at the Conference and outside of it to keep track of events. The updates were primarily written by Rebecca Johnson who provides the ACRONYM reports from the Conference on Disarmament in Geneva.

The complete set of NPT Update has been reprinted in a special edition of the ACRONYM publication *Nuclear Proliferation News*, which is available from the VERTIC office.

## Chinese nuclear test

At 0405 GMT on 15 May China carried out a nuclear test at the Lop Nor test site. The event measured 5.8 on the Richter scale and had an estimated yield of 95 kt  $\pm$  65%.

The test came less than 48 hours after the end of the NPT Conference, at which the Chinese delegation agreed to the statement on principles which included: 'Pending the entry into force of a CTBT the nuclear-weapon States should exercise utmost restraint'.

The test attracted widespread international condemnation.

## Clinton—Yeltsin summit

The 10 May summit meeting between Presidents Clinton and Yeltsin produced a series of statements.

In the *Joint Statement on the Transparency and Irreversibility of the Process of Reducing Nuclear Weapons* the Presidents declared that:

- 'Fissile materials removed from nuclear weapons being eliminated and excess to national security requirements will not be used to manufacture nuclear weapons;
- 'No newly produced fissile materials will be used in nuclear weapons; and
- 'Fissile materials from or within civil nuclear programs will not be used to manufacture nuclear weapons.'

The transparency statement also called for further bilateral agreements:

- 'An exchange on a regular basis of detailed information on aggregate stockpiles of nuclear warheads, on stocks of fissile materials and on their safety and security;
- 'A cooperative arrangement for reciprocal monitoring at storage facilities of fissile materials removed from nuclear warheads and declared to be excess to national security requirements to help confirm the irreversibility of the process of reducing nuclear weapons, recognizing that progress in this area is linked to progress in implementing the joint U.S.–Russian program for the fissile material storage facility at Mayak; and
- 'Other cooperative measures, as necessary to enhance confidence in the reciprocal declarations on fissile materials stockpiles.'

The *Joint Statement on Nonproliferation* directed that 'the Gore–Chernomyrdin Commission prepare a joint report on steps that have been accomplished and additional steps that should be taken to ensure the security of nuclear materials.'

The meeting also produced a statement on the Anti-Ballistic Missile (ABM) Treaty.

## UK fissile materials

The statement by the British Secretary of State for Foreign and Commonwealth Affairs, Douglas Hurd, at the NPT Conference stated that Britain 'has ceased production of fissile material for explosive purposes'.

### Definitional problems

The statement begs the question: at what point is fissile material 'produced'?

For highly-enriched uranium (HEU) the answer is relatively simple and verifiable. The question is one of purpose as HEU is used in submarine reactors.

For plutonium the answer is more complicated and is effectively in two stages. The first stage is that atoms of plutonium are created upon irradiation of fuel rods. However, at this point this material is of no direct use. The plutonium is only useful after separation from the rest of the contents of the fuel rod — the second stage (reprocessing).

Whilst the first stage of production would be by far the easiest to verify, a definition of production at this point in the process would be dangerous as it would enable a potential party to a fissile material cut-off to stockpile irradiated fuel rods for future reprocessing while remaining legally in compliance with the cut-off.

If the definition of cessation of production includes the reprocessing stage, then there may be consequences for the recycling of material by the nuclear-weapon states during routine maintenance of weapons. Owing to the nature of certain isotopes, plutonium is often purified after a number of years (primarily to remove americium-241).

The purification of plutonium can use similar chemical processes to that of reprocessing and therefore a verification regime that covered all such chemical processes could have long-term implications that may not be readily apparent at the outset.

It is therefore important that a definition of production is sought at the earliest possible stage. A definition that is too wide would find opposition from military elements of the nuclear-weapon states; a definition that is too narrow would leave a loophole that would greatly reduce the security benefits of a cut-off. The definition would also have to be non-discriminatory in order to achieve the fullest support for a cut-off.

The question of this definition was irrelevant when the US announced it had ceased production of plutonium for weapon purposes as both irradiation and separation facilities were not operational at the time.

## Progress on the Climate Convention

There have been two meetings concerning the Climate Convention so far this year. The first was the eleventh and final meeting of the Intergovernmental Negotiating Committee (INC) on the Climate Convention in New York in February and the second was the first meeting of the Conference of the Parties (CoP) to the Convention held in March and April in Berlin.

The eleventh INC had three main issues to resolve prior to the first CoP. The most important was whether the commitments in the Convention (which are roughly to stabilise greenhouse gas emissions at 1990 levels by the year 2000) were adequate to meet the aim of the agreement, which is to prevent dangerous anthropogenic interference with the climate system. The other issues were whether to allow joint implementation (JI) schemes between developed and developing country parties and what rules of procedure should be adopted at the first CoP. In particular, the INC needed to agree on what sort of voting rules to use in deciding on matters of substance, such as adopting a protocol to increase the level of commitments in the convention.

In the first week of the two week INC, progress seemed to be being made in the debates on adequacy of commitments but the debates on joint implementation and rules of procedure rapidly became bogged down. The notion that JI should be allowed between developed and developing country parties was opposed by the G77 and China. Consequently, the talks broke down completely, in spite of the fact that many developing countries would have welcomed

a pilot phase in which JI schemes would be tested without credits accruing to the Annex 1 parties. This would have been a good compromise given that there are many technical uncertainties associated with joint implementation which need to be resolved.

The debate on rules of procedure was inextricably linked to that on the adequacy of commitments. The minority of parties which considered the commitments to be adequate wanted consensus voting on matters of substance at the CoP, because then they could block any vote to begin negotiations on a protocol or amendment designed to make the commitments more stringent. Consequently, little progress was made on rules until the second week of the meeting when the debate on the adequacy of commitments got going in earnest.

The nub of the debate was that most states believed that science indicated that the commitments were inadequate to prevent dangerous climate change and that they should therefore be amended, probably by the adoption of a protocol. Indeed, the Alliance of Small Island States formally introduced a protocol advocating the Toronto Target: a 20% cut in greenhouse gas emissions by 2005 for Annex 1 parties only. This and all other movements to agree that the commitments were inadequate were opposed by the Organisation of Petroleum Exporting Countries (OPEC) led by Saudi Arabia and Kuwait, and tacitly supported by some Eastern European states which also wished to export fossil fuels. The INC thus found itself in the unusual position of having all of the main negotiating groups, such as the G77 and OECD, opposed effectively by a small but determined group.

Initially, it was thought that some deal could be done with OPEC by trading a seat on the Bureau and some voting rights under the rules procedure in return for movement on adequacy on the part of the OPEC countries. However, the debates grew rapidly more acrimonious as some Annex 1 countries tried to involve the developing into promising to adopt commitments to reduce emissions in the future, something that everyone knew that they must do eventually but a politically inept factor to introduce at such a critical stage of negotiations.

Eventually the meeting broke up with no agreement on the adequacy of commitments, joint implementation, rules of procedure or an OPEC seat on the Bureau. The only positive outcome of the meeting was that the first review of implementation got off to a good start, with most parties submitting quite comprehensive reports on emissions and on policies and measures for emission abatement and vying with each other for their countries to be inspected.

The CoP in Berlin began on a bad note by again failing to agree on rules of procedure. However, in a nifty piece of footwork, the parties did manage to decide to use the rules that were finally proposed (but not agreed) at INC 11, but not to adopt them formally. At the time, this was seen as a victory for the oil exporters because all voting processes would automatically default to the UN rule of consensus, thereby allowing them to continue to block any protocol on emission reductions.

There then followed very similar debates to those in the INC, with no consensus looking likely on either JI or the adequacy of commitments. At the end of the first week of the two week meeting, the negotiations were delegated to smaller groups of about twenty five states and were carried on in private.

Little progress was made during the early phases of the second week when environment ministers arrived.

## British Nuclear Warhead Numbers — Part II

In the last issue of Trust & Verify (no. 56) a series of calculations gave estimates of the numbers in the stockpile of British nuclear warheads based on details given in official statements. In the meanwhile, further official statements have been made.

Statement on the Defence Estimates 1995 (the defence white paper) and the UK's position paper at the NPT Conference state that the reduction of 21% in warhead numbers and 59% in explosive power from the 1970s to the end of the 1990s relates to total warheads in the stockpile ('all warheads excluding those awaiting dismantlement').

Both papers state the reduction in operational warheads for the same period is 30%. However, when it comes to reductions in operational explosive power, the white paper gives a reduction of 62%, while the position paper gives a reduction of 63%.

The figures given in T&V 56 should therefore be taken as an indication of the total warhead stockpile.

### Calculations

Substituting the new reduction figures into the equations used in T&V 56, the new version of

equation (1) becomes:

$$RAF_{1970} = 43 \times \text{loads (operational)}$$

It is certain that *loads (operational)* will be less than *loads (total)*. If *loads (total)* = 3 [a reasonable assumption borne out by the earlier equations] *loads (operational)* = 2. Therefore the number of operational RAF weapons in 1970 would be 86.

Under this scheme, the 1970 operational warhead total is 2 x 48 Polaris warheads plus 86 WE177s, giving a total of 182; and the planned total is 2 x 64 Trident warheads giving a total of 128. **128 is 30% fewer than 182. (29.67%)**

86 WE177s, comprising 8 WE177A (at a yield of 25 kt—total 200 kt) and 78 WE177B (at a yield of 200 kt—total 15600 kt), give a WE177 total of 15800 kt and, with 96 Polaris warheads gives a '1970' operational explosive yield total of 35000 kt; the operational explosive power for Trident would be 12800 kt. **12800 is 63% less than 35000. (63.43%)**

Then, quite rapidly, the negotiations on JI began to be resolved on the basis of a 'green paper' submitted by India and by midweek a deal had been struck on joint implementation. In essence, it was agreed that there would be a four year pilot phase for JI schemes with no credits accruing but with voluntary participation by developing countries. A breakthrough considering the G77 position at the INC, although many were left wondering what involuntary JI might have been.

The discussions on adequacy of commitments were not resolved so quickly and continued every day and night in great secrecy. Although not quite such great secrecy for it not to become apparent that there was no longer any Eastern European opposition to a protocol and that OPEC opposition had softly and silently faded away, leaving the USA, Canada and Australia agreeing (as at INC 11) that the commitments were inadequate but not agreeing to negotiations on a protocol on emission reductions. This rather odd position was forced on the Americans delegation by the new Republican Congress which wanted no protocol or, if they had to concede one, no mention of targets and timescales in it. The Canadian and Australian positions were a result of the fact that in both countries emissions are forecast to rise.

Finally, at the last possible moment, figurative white smoke emerged from the negotiating group's meeting room. The group had agreed that the commitments in the Convention were inadequate and that a protocol or other legal instrument should be negotiated without delay by an open ended *ad hoc* group of the parties. The protocol or instrument is to apply to the Annex 1 parties who are to 'set quantified limitation and reduction objectives (an alternative wording to targets) within specified timeframes (an alternative wording to timescales), such as 2005, 2010, and 2020, for their anthropogenic emissions by sources and removals by sinks of greenhouse gases not controlled by the Montreal Protocol'. The *ad hoc* group is to report to the second CoP, in 1996, and to schedule to complete its work as early as possible in 1997 with a view to having its recommendations adopted at the third CoP.

Given the preceding debates this was a remarkable conclusion for which much credit should go to Angela Markell (the German Environment Minister and President of the Conference) and Raoul Estrada Oyuela (the Argentinean Ambassador to China, Chair of the INC and of the Conference of the Whole) for their skills in shuttle diplomacy between opposing groups.

### VERTIC Conference in Georgia

In March VERTIC celebrated the first anniversary of its Conflict and Confidence Building project with the opening of a regional office for the Transcaucasus in Tbilisi, Georgia. The office will co-ordinate a number of action-research projects that VERTIC has just started in the region. The projects put to the test some of the work VERTIC has done so far in the field of civilian confidence building measures.

The first action research project to be launched was the Georgia Youth Project. A pilot project was conducted successfully from March to May 1995. The second phase of the project starts in June and will run for one year. The first part of the project was funded by VERTIC through its core grants. The second part of the project will be funded mainly through the TACIS Democracy Programme of the European Union.

The Georgia youth project is designed:

- to strengthen existing youth structures and help create new ones and to develop a democratic and pluralistic forum for the youth of Georgia;
- to help Georgian youth organisations to interact with their counterparts in Western Europe;
- to help in the training of youth leaders and develop amongst them respect for democratic and pluralistic principles;
- to support initiatives of different youth organisations in the field of conflict prevention, minority and human rights, environment, development and social work amongst young people;
- to use the youth structures as a model for the rest of Georgian society and in so doing effectively

contribute towards the development of the democratic process in the country; and

- to contribute through the knowledge accumulated and experience gained, to the process of developing civilian confidence building measures that may be useful in other former Soviet Union Republics and other parts of Europe.

Forty-three youth organizations, including all the youth organizations of the political parties in the parliament, as well as organisations representing ethnic minorities have already signed up to the project.

The climax of the pilot project was a four-day conference held from 4-7 May in the Khvemo-Kartli region with the theme 'Youth for a democratic Georgia'. More than 120 youth leaders participated in the meeting.

Messages of greetings were sent to the conference by the Georgian head of State, Edward Sheverdnadze and the Patriarch of Georgia, Ilya II. A steady stream of guest speakers addressed the conference, including Elizabeth Winship, from the Office of Democratic Institutions and Human Rights of the OSCE who went to Georgia specifically for the conference. Other guest speakers included US Ambassador Kent Brown, as well Irina Sarishwilli Chanturia, Leader of the National Democratic Party of Georgia and Guram Muchaidze, Leader of the Social Democratic Party.

For most of the time however the Conference split into working groups that were moderated by leading personalities from Georgia's rich NGO community. The working groups discussed a variety of themes including constitutional frameworks, human rights, minority rights, the role of youth organisations, civil society and the mass media.

The Conference was widely covered by the Georgian media and was assessed as a huge success by all participants. It was in fact the first time that so many youth organisations representing such a diverse spectrum of Georgian society got together for such a conference. VERTIC hopes to build on the success of this meeting in the second phase of the project due to start in June.

*Trust & Verify* is edited and produced by Richard Guthrie with additional reporting by VERTIC staff and consultants.  
© VERTIC 1995

#### **Trust & Verify**

*Trust & Verify* is produced by VERTIC 10 times a year. Anyone wishing to comment on its contents should contact the VERTIC office.

Unless otherwise stated, views expressed in *Trust & Verify* are the responsibility of the editor and do not necessarily reflect those of VERTIC nor any individual or organization associated with it.

#### **Subscriptions**

Subscription rates are £15 (individual) or £25 (organization) per year. Payments may be made by cheque or credit card.

#### **What is VERTIC?**

VERTIC is an independent organization aiming to research and provide information on the role of

## Mike Pentz

(30 November 1924–29 May 1995)

It is with great sadness that *Trust & Verify* announces the death of Professor Mike Pentz. A South African physicist and engineer, Mike was renowned for his research at Imperial College and at CERN in Geneva in the 1950s and 60s.

In 1969, Mike set up the Science Faculty at the newly-founded Open University where he was Dean of Science until 1985. He was a founder of Science for Peace and Scientists Against Nuclear Arms (SANA).

Mike, and his wife Anne, have provided VERTIC with much support – intellectual and moral – over the years. We will miss you Mike.

### **Verification 1995 launch**

On Thursday 20 April, *Verification 1995*, the latest in VERTIC's series of yearbooks, was launched at a hotel across the road from the United Nations building where the NPT Conference was being held.

The launch was chaired by Ambassador Jayantha Dhanapala, President of the NPT Conference, with presentations by Tim Trevan, of the United Nations Special Commission; David Fischer, formerly of the International Atomic Energy Agency; and Richard Guthrie, co-editor of *Verification 1995* and editor of *Trust & Verify*.

The launch was attended by senior figures from national delegations to the NPT Conference together with journalists and representatives of other non-governmental organizations.

verification technology and methods in present and future arms control and environmental agreements.

VERTIC co-ordinates 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.

#### **Other publications**

In addition to *Trust & Verify*, VERTIC publishes the *Verification* (formerly *Verification Report*) series of yearbooks and a variety of research reports each year. Details of VERTIC publications are available on request.

Carrara House  
20 Embankment Place  
London WC2N 6EZ  
Telephone 071 925 0867  
Facsimile 071 925 0861

