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Verification of Conventional Force Reductions

With proposals and counter-proposals on the reduction of conventional forces in Europe flying backwards and forwards across the world, the question of verification of a conventional forces treaty is once again at the forefront of arms control discussions. Whatever the impact on the Conventional Forces In Europe (CFE) talks in Vienna of the current round of proposals, (and all indications are that both camps wish to avoid the model of the earlier Mutual Balanced Force Reduction talks (MBFR) and actually achieve an agreement) the question of verification remains central to the conclusion of any treaty. 23 individual nations are represented at the talks, as opposed to merely representatives of the two military blocs, but the figures under discussions are WTO and NATO holdings in the area from the Atlantic to the Urals.

The CFE mandate places considerable emphasis on the problem of verification. It states that any CFE agreement will include an effective and strict set of verification arrangements, including on-site inspections, full and frank exchanges of details of force capabilities and agreement on means of verifying compliance. Verification measures will have to include both the verification of withdrawals and the post-agreement processes of restructuring or redeployment.

As was the case with the INF Treaty, initial data supplied by parties to any agreement on conventional arms must be checked and errors corrected if there is to be any confidence in the verification of a treaty.

However, similarity with the INF treaty goes little further than this initial provision of baseline data. First and foremost among the problems associated with verifying a conventional forces agreement is the tremendous difference in numbers involved compared with the more familiar territory of intermediate-range or strategic nuclear weapons. Tanks and artillery pieces run into tens of thousands of items all of which are much more mobile than most nuclear systems.

Furthermore, it is highly unlikely that any category of weapon will be reduced to zero, creating particular problems for verification, since it is always easier to verify a reduction to zero than a reduction to a lower figure.

Verifying withdrawals could be easier than verifying ceilings, as long as withdrawn forces can be observed to the point where they are dismantled or destroyed. For the sake of confidence and security, removal of treaty limited items from designated zones should take place as soon as possible after any agreement. If equipment is to be destroyed or stored, sites to which they are to be moved should be monitored by a portal perimeter monitoring system in association with routine inspections.

The next stage of the verification procedure after removal and storage is verification of elimination and of production levels. If parties are allowed to witness destruction of treaty-limited items, there is likely to be more confidence in the stated residual levels of weapons still stationed on

the battlefield, provided that there was confidence in the original stated figures of those items and that there is a high level of confidence in verification of production and transfer of those items. This could be achieved by frequent and regular updates of data between NATO and the Warsaw Pact.

If a method of destruction is easy to witness, clearly this is preferable for confidence-building. The methods used in the INF agreement, when destruction of weapons was witnessed first hand by groups of observers, act as confidence building measures in their own right.

The level of confidence in a treaty would undoubtedly be increased if arrangements for the verification of production facilities were included in the terms of the agreement. Much production takes place outside the mandated "Atlantic-to-the Urals" (ATTU) area, however. Obviously if monitoring and inspections of these out of area production facilities can be negotiated that is the best option, but it is still possible to have a high level of confidence in production monitoring for the ATTU zone if only facilities in the zone are monitored, by also monitoring entry points at the borders of the zone.

Tags, which are labels identifying equipment, could be very useful in a CFE treaty. All legitimate items could be tagged at the point of production and at deployment sites, so that on future on-site inspections (OSIs) any untagged item becomes a violation of the treaty. In this way tags act to make a treaty limiting the numbers of weapons similar to a zero option from the verification point of view. Tags could also be very useful for data inventory purposes. They are particularly important for the verification of highly mobile equipment such as aircraft.

Monitoring and verification of residual forces could be divided into different categories, some of which overlap:

Stored equipment; Equipment at repair facilities; Training equipment; Stationed forces; Forces excluded or limited in a zone; Forces which transfer in and out of limited zones; Aircraft; Staff.

Up to now verification of conventional arms agreements has not been paid the attention it deserves. Verification measures are fundamental to any arms control agreement, but particularly so in the case of conventional arms because of the complexity of negotiations and the number and range of weapons involved. If verification of a conventional arms agreement is to be effective, a regime must be prepared so that all aspects of it, as described above, can work smoothly in conjunction with one another. The verification regime must therefore be planned as a complete process covering the entire range of the agreement, and not as a set of individual measures.

As in other agreements the crux is to make it financially and militarily costly to cheat. VERTIC's Dr Patricia Lewis has pointed out three points in particular which should be central to negotiations on conventional reductions.

1. In focusing on certain types of equipment, the CFE talks might lead to restructuring of forces which in turn might lessen the threat of attack.

2. Where categories of weapon are not reduced to zero, on-site inspections (OSI) will help monitor agreed ceilings - the hardest aspect of any treaty. Clearly OSIs for conventional weapons will be more expensive than OSIs under the INF Treaty as there are so many more sites to check. The sheer number of items and the geographical areas involved mean that "sampling" must be used for the traditional OSI. Accuracy of samples could be assured by allowance for sampling errors and bias. (Errors and bias might themselves be tremendously reduced by stratification of units. That is, all designated sites under an agreement are divided or "stratified" into blocks of units so that the units within each "stratum" are as similar as possible to each other in terms of some characteristic to be identified in advance. The strata can then be randomly sampled.) Another possibility is the use of inspectors stationed in the regions to be verified. These inspectors would be able to visit many more sites than inspectors based in their home countries.

3. The CFE talks are both multilateral and bilateral so the verification regime ought to reflect this dual nature. One way to achieve a suitable structure for verification is for each alliance to have a verification office or agency which deals with the co-ordination and the bilateral requirements of the treaty; and for each country to be responsible for inspections and have national inspector teams which reflect the multilateral nature of the treaty. In this way signatories could participate according to their resources and perceptions of verification as sovereign nations whilst the mechanism for co-ordination necessary for effective verification would be in place.

The "Other" Vienna Talks

The 35 state Negotiations on Confidence and Security Building Measures opened in Vienna on 9th March. They took up where the 1984-86 negotiations, which resulted in the Stockholm Document, left off. The conference mandate talks of the hope that the new talks will adopt "a new set of mutually complementary [CSBMs] designed to reduce the risk of military confrontation in Europe."

President Bush has said that the aim of the talks is to "address the problem of mistrust in the military and security spheres and the risk of confrontation arising through miscalculation," and to "lift the veil of secrecy from certain military activities and forces, and thus contribute to a more stable Europe"

There is no simple definition of CSBMs but it is generally accepted to mean measures that do not affect ultimate military capability, but facilitate communication, transparency and confidence thus reducing the risk of unintended confrontation, and the use of force or intimidation. Notification, inspection and observation of military manoeuvres, exercises and force posture fall into the general area of CSBMs.

The CSBM talks will have to be completed in time for the next CSCE (Conference on Security and Cooperation in Europe) Review Meeting in Helsinki in 1992; all 35 participants of the CSBM talks are CSCE members.

The current round of talks developed from the Helsinki Final Act in 1975 in which 33 European nations plus the USA and Canada agreed on a limited set of CSBMs for Central Europe. The 1986 Stockholm Document took measures further, covering all of Europe and instituting lower thresholds for notification of manoeuvres and longer periods of prior notification. It also included verification arrangements and was a mandatory rather than voluntary agreement.

Observers of the current round of talks generally agree that some kind of agreement will have been reached in

time for the 1992 CSCE Meeting. Two developments in particular have been picked out as being especially encouraging. First, the Warsaw Pact proposal to the talks incorporates many of the proposals tabled by NATO three years ago, which were at that time rejected by Warsaw Pact negotiators. Second, a package of 36 measures was tabled by the WTO at the first plenary of the Vienna talks. In Stockholm, it was over a year before specific proposals were made.

Differences remain, of course, but hopes for a far-reaching agreement are running high. The CSBM talks will act as a testing ground for concepts of mutual security and their means of implementation. Also as John Borawski, director of the Political Committee of the North Atlantic Assembly, has pointed out, although the talks will undoubtedly receive less publicity than the CFE negotiations, their potential for developing confidence between the 35 CSCE nations, and between the superpowers, should not be underestimated, nor should their potentially positive effects on the course of the CFE talks be overlooked.

START Opening Positions

The bilateral Strategic Arms Reduction Talks (START) reconvened on 19th June with the aim of reducing long-range nuclear forces on both sides by 50%. The superpowers' agreed objective is to reduce warhead totals to a common ceiling of 6,000. Missile launchers and strategic bombers would be limited to 1,600.

However it is commonly recognised that five main areas of conflict, recently outlined by Mr. Yuri Nazarkin, the Soviet Chief Negotiator, remain to be overcome.

1. The link between a START agreement and the interpretation of the ABM Treaty. Up to now the USA has insisted on a "broad interpretation" of the ABM Treaty which would allow development of the SDI programme. The USSR remains vehemently opposed to this. There is also disagreement over the development of a phased array radar station at Krasnoyarsk, Siberia. The USA points out that it violates the ABM Treaty and demands that the USSR dismantles it. The USSR has stopped construction work but wishes to convert the station into a scientific centre.

2. The USSR wishes sea-launched cruise missiles to be included in the negotiations (see *Trust And Verify* No.1) and ways of distinguishing between conventionally and nuclear armed SLCMs to be agreed. The USA opposes inclusion of SLCMs.

3. Numbers of heavy strategic bombers and methods of counting air-launched cruise missiles.

4. Limits for mobile missile launchers. The USA is pushing for higher ceilings than the USSR favour.

5. General verification mechanisms, counting methods remain to be agreed upon.

Verification is clearly a key element of the START negotiations. A future issue of *Trust And Verify* will consider the possible verification regime for a START Treaty.

Pre-Treaty Verification?

After a three month study, President Bush has approved a new proposal to seek practice inspections of Soviet and US nuclear weapons before any START treaty is concluded. The proposal has been dubbed the "Try Before You Buy" concept. These practice inspections would seek to test verification measures that could be used to verify treaty compliance.

There has been a degree of criticism from some congressmen and arms control organisations who believe the proposal might be used to put off coming to an agreement on strategic weapons, particularly mobile missiles. Indeed, many years ago, it would indeed have been seen as a delaying tactic because the USSR would almost certainly have rejected it. Now, however, in the light of changed attitudes towards on-site inspections (OSIs) and intrusive verification measures, this is not necessarily the case. Many, including analysts at VERTIC, believe that the proposal could in fact eliminate some of the problems encountered after the signing of the INF treaty.

After the signing of the INF Treaty, a barrage of information relating to the INF agreement was exchanged. By using pre-treaty verification tests, some of this information could be gathered in advance, making post-treaty arrangements more straight-forward, not to mention the obvious confidence-building possibilities of such measures.

The verification measures proposed are: an exchange of nuclear weapons data, trial monitoring of mobile-missile factories, direct inspection of missile warheads, a ban on encoding data from missile flight tests and a demonstration of weapon tags. There may be some resistance from the USSR on certain points, such as the fact that there is no mention of practice inspections of sea-launched cruise missiles which the USA does not wish to be included in any START treaty. Whether successful or not, the experience of these inspections could then be drawn upon during negotiations on the treaty itself.

The approach to trial inspections has not been finally agreed but it seems likely that the proposal will be made official.

It has been almost forgotten that in July 1988, President Gorbachev proposed a similar pre-treaty verification arrangement with regard to conventional forces. If, as is claimed, a major purpose of the pre-START verification proposal is to avoid the avalanche of data that came after INF, by gathering some of it beforehand, why did the US reject Gorbachev's proposal on Conventional forces, which would generate an even greater flood of complex data than a START treaty, calling it "old and diversionary"? (The Times 19th July 1988)

However, bearing in mind Gorbachev's apparent acceptance of pre-treaty measures shown by his July 1988 proposal, and his willingness to comply with INF verification arrangements, there should be a good chance of his accepting the US proposal, thus providing a major opportunity for confidence-building and giving a boost to START negotiations. Indeed, the head of the Soviet Foreign Ministry arms control department recently said that the US proposal was acceptable.

Stop Press: It was recently announced that a major experiment was taking place aboard a Soviet nuclear-armed warship. The Natural Resources Defence Council and the Soviet Academy of Sciences were testing ways of detecting nuclear warheads aboard ships. The two organisations have already been responsible for jointly demonstrating the feasibility of verifying a nuclear test

ban. A full analysis of this historic development will appear in next month's "Trust and Verify".

In The News

Superpower Pact To Prevent Accidental War

On 12 June, representatives of the USA and the USSR signed an agreement aimed at preventing an accidental war between the two nations. The move can be seen as an important confidence building measure between the two countries, and has been likened in importance to the Hot-Line Agreement of 1963. The agreement was signed in Moscow by Admiral William Crowe, chair of the US Joint Chiefs of Staff and Chief of Staff of the Soviet Armed Forces, General Mikhail Moiseyev. Officially titled the Agreement on the Prevention of Dangerous Military Activities, the pact was greeted by both sides with considerable enthusiasm, marking as it did a considerable warming in relations between the two sides' military establishments.

A US negotiator, Major-General Butler, talked of "a new level of trust" while one of his Soviet opposite numbers referred to reducing "the area of unpredictability in relations between our states".

The accord states that both sides "shall take measures to ensure expeditious termination and resolution by peaceful means without resort to the threat or use of force, of any incident which may arise as a result of dangerous military activities". The pact refers only to unintentional acts by the armed forces of either side that could spark the use of force. It is hoped that the accord might help prevent such disasters as the shooting down of the Korean airliner in 1985.

During the same visit to the USSR Admiral Crowe attended an army exercise in Byelorussia, visited the Khelmnitsky missile site in the Ukraine, went to sea on a missile cruiser and joined a naval exercise off Murmansk. The trip has been hailed as another example of Confidence and Security Building Measures (CSBM) between the superpowers.

Way Clearing For Nuclear Test Pacts

Agreement is thought to be close between the superpowers on the mutual monitoring of nuclear tests. Agreement on methods of verification would open the way for US senate ratification of the 1974 Threshold Test Ban Treaty (TTBT) and the 1976 Peaceful Nuclear Explosions Treaty (PNET) which limit the size of permitted underground nuclear explosions. The TTBT limits tests to 150 kilotons while the PNET restricts the size of nuclear explosions used for peaceful purposes, such as dam building. Tests in all other locations are already banned under the Partial Test-Ban Treaty (PTBT).

The two joint verification experiments in Nevada and Semipalatinsk in 1988 boosted confidence in an agreement and willingness to co-operate. Until recently the USA has considered the verification measures built into the unratified treaties to be inadequate but President Reagan proposed that the clauses be renegotiated. The final negotiation of protocols for a menu of acceptable verification techniques will take place over the next few weeks with both sides confident of reaching an agreement.

However the US has rejected a Soviet proposal that the two nations should go on to negotiate a treaty banning all further tests of any size, thus creating a Comprehensive Test Ban Treaty (CTBT). 41 signatories of the PTBT have called for an amendment conference of the PTBT to

discuss its possible conversion to a CTBT. (See Issue 1 of Trust and Verify).

Scientists Meet In Washington

Representatives of the Federation of American Scientists and the Committee of Soviet Scientists meeting in Washington in early May identified technology that might be applied to the verification of future arms control agreements covering nuclear warheads and ground-based lasers. Among measures discussed was the placing of simple equipment close to selected sites in each country in order to detect of high-power lasers capable of serving as anti-satellite weapons.

Methods of monitoring proliferation of weapons and nuclear materials were also considered. Roald Z Sagdeev chair of the Soviet Academy of Sciences Committee on International Security and Arms Control, said that fissionable materials could be monitored using radiation detectors during on-site inspections (OSIs). Frank von Hippel, chair of the Federation of American Scientists fund added that OSIs such as those used to implement the INF Treaty could be used to verify an end to production of fissionable material.

The scientists have been praised for their commitment to developing verification techniques and for organising the meeting which was not endorsed by either government.

Finnish Offer To Train Third World In Chemical Verification

On March 16th, at the 495th plenary of the Conference on Disarmament, Finland's Ambassador Karhilo outlined his government's proposal to offer Finnish expertise on the verification of chemical weapons to Third World countries. "Verification of the future convention is undoubtedly one of the most difficult issues facing the CW negotiations." he said, going on to describe Finnish research on chemical verification over the last 15 years, including the development both of methods of verification requiring sophisticated stationary instrumentation and those that are usable in mobile laboratories.

Ambassador Karhilo went on to reiterate his government's proposal, first made by Foreign Minister Kalevi Sorsa at the Paris Conference, that "as of next year Finland is prepared to train each year, free of charge, chemists from the developing world in the use of technical methods and instruments relevant to the verification tasks of the convention. Details of this offer will be worked out before the summer, and invitations will be extended directly to the governments concerned."

It is not yet clear how Third World governments have reacted to the offer but Finland's moves are surely to be seen as a positive move in the quest to achieve a verifiable worldwide ban on chemical weapons.

The UK and the CWC

The honourable William Waldegrave MP, Minister of State for Foreign and Commonwealth Affairs, delivered a statement to the Conference on Disarmament in Geneva on 15th June. Addressing a number of issues, Waldegrave

made a number of specific comments about the possibility of an agreement on chemical weapons.

In particular the minister presented the UK paper CD1921 on practice challenge inspections of military facilities. The paper reported the findings of two practice challenge inspections for a Chemical Weapons Treaty Convention. The practice inspections took place at MoD ammunition storage facilities and are said to have "confirmed the belief that challenge inspection is an important "safety net" element in the overall verification regime". A programme of further similar exercises is being planned and the UK recommends that other nations participating in the CWC should carry out their own practice challenge inspections and report their findings to the CD.

"Verification is the top priority." said Mr Waldegrave, " For a convention to work it needs verification which works. The existing verification provisions go a long way towards achieving this. But areas of particular concern remain. We must be satisfied that all high-risk facilities and activities are adequately covered, whether they are dual purpose production plants or military installations. Further efforts are needed."

This was seen and reported by some as a negative approach. Waldegrave then released a press statement saying: " I am sorry to say that in one of our home newspapers the presentation of our paper today has been interpreted as emphasising the difficulties of verification....Our intention is to emphasise the fact that these difficult issues are soluble if we do enough work on them, which is a very different emphasis. It is no good having a convention without having proper verification, but all our work shows that though we will never have 100% verification, you can have a very complete system if we work at it."

VERTIC News

VERTIC's Director, Dr. Patricia Lewis, will be attending the UN study on the role of the UN in verification at the end of July and also visiting Washington.

VERTIC has installed a new computer in its London office allowing it to further develop its database on verification and arms control issues.

Barrow and Geraldine S. Cadbury Trust has given VERTIC an immediate grant of 5000 pounds towards its scientific work on the Partial Test Ban Treaty amendment conference.

VERTIC Seismologists Active IN BSVRP

Seismologists from VERTIC's Seismology Working Group have been active in the British Seismic Verification Research Project. Their seismic station at Garm in Kazhakstan is running well and the equipment is undergoing routine maintenance at Leeds University.

The USSR has recently agreed to allow the BSVRP to move closer (at about 200 km) to the nuclear testing site in Semipalatinsk and to continue monitoring tests.

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VERTIC, 33 Southampton Street, London WC2E 7HQ, England

Tel: 01 379 7445