

VERTIC MATTERS

Verification as Security



Patricia M. Lewis
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**VERTIC MATTERS:
VERIFICATION AS SECURITY**

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Executive summary

- Verification is a process that establishes whether all parties are complying with their obligations under an agreement. These agreements can be international treaties on arms control or the environment, or agreements between different communities within a state. The success of any agreement depends on building an atmosphere of trust. Trust can best be built and maintained when all sides are aware that cheating is likely to be detected.
- If carried out properly, with awareness of constraints, verification will always increase the security of the states and communities participating in the agreements. In this respect, verification is cost-effective. It builds confidence in the agreements and builds trust between the participants.
- The international community needs to make a concerted effort to promote multilateral measures. This would need a decision to make issues such as nuclear non-proliferation, anti-personnel mines, biological weapons elimination, climate control, species protection, conflict prevention and so on, the heart of foreign policy.
- An increased commitment to research into new verification/confidence-building measures is required. Implementing and verification organisations need to be adequately resourced and to be supported by the international community so that they have real power.
- Regional confidence- and security-building measures could be promoted and they could begin to establish a framework for nuclear weapon-free zones in the regions. From the regional confidence-building programmes, verification and confidence-building measures could also be developed to help solve sub-state conflicts.
- Environmental agreements must be implemented so that states are clearly seen to be complying with their obligations. Implementation processes are crucial in determining the success of environmental agreements. In the long term, it is very much in the interests of developing countries that the wealthier, more polluting states are truly reducing their polluting emissions and, therefore, verified, meaningful treaties hold real advantages for disadvantaged states.
- If the international community were to approach global and regional security through the verification and confidence-building route, then we would be developing a more secure world built on knowledge and increasing trust, rather than on threat and fear.

Introduction

If carried out properly, with awareness of constraints, verification of arms limitation agreements will always increase the security of participating states or communities. Verification builds confidence in the agreements and builds trust between the participants. In this way, verification is unlike other security measures, such as building a new aircraft carrier or a set of fighter jets, which may increase security but may also increase insecurity by, for example, encouraging a regional arms race. Verification is, thus, extremely cost-effective.

Verification is cost-effective security

Verification and confidence-building apply to a wide range of agreements. This paper considers agreements in the fields of arms control and disarmament, and the environment, and also agreements between communities within a state, or between sub-state communities across state boundaries.

The paper outlines the principles of verification, looks at its history and technology, and details a number of proposals that could be put into practice for very little cost whilst greatly increasing international security.

What is verification?

Verification is a process that establishes whether all parties are complying with their obligations under an agreement. These agreements can be international treaties on arms control or the environment, or agreements between different communities within a state. The success of any agreement depends on building an atmosphere of trust. This trust can only be maintained if all sides are aware that cheating is likely to be detected.

Building trust

It must be noted, however, that there is no such thing as 100% certainty in verification. The important role of verification is to ensure that a party contemplating cheating on a treaty cannot do so without running a substantial risk of being found out. The design of verification regimes determines whether the likelihood of catching significant cheating is very high (say, 80–100%) or is low (say, below 50%). Generally, the more effort, money and resources put into verification, the higher the probability of detecting cheating.

No certainty

The process of verification includes the collection of information relevant to obligations under arms limitation and disarmament agreements, analysis of the information, and reaching a judgement as to whether the specific terms of an agreement are being met.¹

Verification is a process

Verification *per se* is treaty/agreement specific. Monitoring — the open collection of information — can be part of the verification process or it can be quite separate (for example, the 1992 multilateral Open Skies agreement) and can be separate from any agreement (for example, intelligence gathering). However, the difference between verification and monitoring is becoming increasingly obscure.

Monitoring can be separate from verification

The purpose of verification is to make it unacceptably risky for any party to cheat on an agreement. If the verification provisions of an agreement are comprehensive, then

Verification deterrence

1. "Verification in all its aspects: Study on the role of the United Nations in the field of verification", United Nations document, A/45/372, 28 August 1990

parties will be deterred from cheating because they know that they run a high risk of getting caught. This is called "verification deterrence".

In this way agreements can be "built to last" and states or communities can develop other elements of their security framework that are based, in part, on the knowledge obtained through comprehensive verification.

Intelligence and verification

*Verification is open,
intelligence is secret*

There is a synergy between verification of arms limitation agreements and intelligence-gathering for national security. Both processes include collecting information, collating information from a number of sources, analysing the information and distributing the information or analysis to interested parties.² Both verification and intelligence activities lead eventually to decisions on national and international security. The key difference between verification and intelligence gathering is that the former is carried out entirely in the open with the consent of all participating states, whereas the latter is a highly secretive operation.

Two-way process

Intelligence agencies however, play a role in verification, often by providing background information or by making suggestions for on-site inspection targets. The verification process also feeds information into the intelligence agencies, such as "ground-truthing" (establishing if the information on the ground supports the information gleaned from satellites).

*Secrecy can be a
liability*

Secret intelligence-gathering can be useful for the purposes of verification and information gleaned through verification is always useful for the intelligence agencies. However, secret monitoring can also be a liability for verifiers because, if there is suspicion that, say, an on-site inspection is being carried out for reasons not related to the treaty, or if one of the inspectors is clearly an intelligence agent while acting for the agency, then the whole process of verification could be brought into disrepute and states would no longer participate in a cooperative fashion.

Recent arms control verification history

USA-USSR (Russia) bilateral treaties

*Verification was used
to stall negotiations*

From the end of World War II and the beginning of nuclear weapons until the rise of Mikhail Gorbachev in the USSR, the role of verification in USA-USSR arms control treaties was greatly dependent on the technology available to carry out monitoring at a distance. Throughout the bilateral negotiations, up until the 1987 Intermediate-range Nuclear Forces (INF) Treaty, the issue of intrusive on-site inspections for verification purposes was guaranteed to stall or even halt negotiations. The USA pursued the concept of "anytime, anywhere" inspections,³ whilst the USSR viewed such proposals with intense suspicion, believing inspections to be a cover for espionage. The stand-off

2. Michael Herman, "Intelligence and Arms Control Verification", in "Verification Report 1991", J.B. Poole (ed.), VERTIC/The Apex Press, London, 1991, p. 187

3. Article 10 of the US draft of the CWC, Conference on Disarmament Document CD/500, Geneva, 1984

was so established that it was said that "verification is becoming a shield for those not interested in arms control to hide behind".⁴

The Strategic Arms Limitation Treaties and the Anti-Ballistic Missile Treaty all relied for their verification on "National Technical Means" which, in the arms control context, meant monitoring by intelligence satellites. The Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty were not ratified for many years, partly due to the issue of verification. In 1991, when agreement was reached on intrusive verification, the treaties entered into force.

National Technical Means

The breakthrough in intrusive verification between the two superpowers came when General Secretary Gorbachev introduced the policy of *Glasnost* (openness) and offered to open up sensitive military sites for inspections. The first bilateral agreement that took advantage of this change in policy was the 1987 INF Treaty which not only included on-site inspections to INF bases, but also allowed monitoring of production facilities and of missile reduction.

Glasnost and the INF Treaty

Since then the USA has back-tracked,⁵ and the military and commercial agencies have raised concerns over the intrusiveness of on-site inspections and the cost of the verification regimes.

Cost concerns

Multilateral treaties

The main multilateral treaties in the field of arms control and disarmament are the: Geneva Protocol (1925, entry into force (eif) 1928); Antarctic Treaty (1959, eif 1961); Partial Test Ban Treaty (1963); Outer Space Treaty (1967); Tlatelolco (1967, eif 1968); Non-Proliferation Treaty (1968, eif 1970); Seabed Treaty (1971, eif 1972); Biological Weapons Convention (1972, eif 1975); Environmental Modification (Enmod) Convention (1977, eif 1978); Inhumane Weapons Convention (1981, eif 1983); Rarotonga (1985, eif 1986); Stockholm Accord (1986); Conventional Forces in Europe (1990, eif 1992); Vienna Document (1990); Open Skies (1992, eif outstanding); Chemical Weapons Convention (1992, eif outstanding).

Although East-West tensions were played out in multilateral negotiations (for example, in the Chemical Weapons Convention (CWC)), their effects were often mitigated by states not participating in the Cold War. As a result, the arguments over intrusive verification were of a different calibre to those in bilateral negotiations.

Multilateral negotiations are different

Treaties such as the 1968 Non-Proliferation Treaty (NPT) and the 1959 Antarctic Treaty have provisions for on-site inspection, although the 1963 Partial Test Ban Treaty (PTBT) and the 1972 Biological Weapons Convention (BWC) have no verification provisions at all.

Verification 1959-1972

Before the end of the Cold War, but during the Gorbachev thaw, the highly significant Stockholm Accord was agreed between the participating states of the CSCE (Conference on Security and Co-operation in Europe, now called OSCE — Organisation for Security

1986 Stockholm Accord

4. Sidney Graybeal, US Commissioner to the US-USSR Standing Consultative Commission, 1973-7, quoted in Richard Scribner, Theodore J. Ralston and William D. Metz, "The Verification Challenge: Promise and Problems of Strategic Nuclear Arms Control Verification", Birkhäuser, Boston, 1985, p. 21

5. See, for example, Gordon M. Burck, "The Chemical Weapons Convention Negotiations", in "Verification Report 1992", J.B. Poole and R. Guthrie (eds.), VERTIC, London 1992, pp. 126-8

and Co-operation in Europe). This was a series of confidence-building measures designed to increase transparency over military exercises in Europe. From the beginning, states carried out challenge inspections of military exercises and exercise calendars and data on the exercises were exchanged between the states. The execution of the Accord was very successful. The trust that built up between the CSCE countries as a result of the Stockholm Accord had a number of effects, including: (i) the formation of friendly relationships between East and West inspectors; (ii) a shift in perception of "the other side" as "enemy" so that there was a sense of common purpose; (iii) a pride in the inspection process itself — this led to friendly rivalry in, for example, seeing which team could offer the best food and wine; (iv) a reduction in the numbers and scales of the military exercises (partly as a result of lessening tension and partly as a result of cutting the cost of observation and inspection).

CFE and Open Skies

Thanks to the success of the Stockholm Accord, further treaties on conventional forces in Europe were negotiated (the Vienna Accord, the Conventional Forces in Europe Treaty (CFE) and the Open Skies Treaty). All of these treaties have met with success, although the CFE Treaty has inherent structural problems due to the break-up of the Warsaw Pact.

CWC and BWC

At the Conference on Disarmament, the Chemical Weapons Convention was successfully negotiated, but with less stringent on-site inspection requirements than first postulated. As it is yet to come into force, it is not possible to say how the verification provisions will be viewed in practice. The Biological Weapons Convention is undergoing a process whereby confidence-building measures and verification provisions are being worked out, and they will be integrated into the treaty in the next few years.

Current arms control verification concerns

Nuclear non-proliferation

The NPT

The mainstay of efforts to prevent the spread of nuclear weapons is the Nuclear Non-Proliferation Treaty (NPT). This treaty, negotiated between the years of 1965 and 1968, entered into force on 5 March 1970 and now has approximately 180 member states — the significant outsiders being Israel, India and Pakistan. At the NPT Review and Extension Conference in 1995, it was decided to extend the treaty indefinitely. Not only does the NPT commit the parties to negotiate "in good faith on effective measures relating to cessation of the nuclear arms race at an early date and to nuclear disarmament under strict and effective international control", but the indefinite extension of the NPT was a result of a package deal in which states were committed to the eventual elimination of nuclear weapons. The package also includes a commitment to achieving a Comprehensive Test Ban Treaty (CTBT) by the end of 1996 and an enhanced review process of the NPT — so that international attention will be focused on compliance with the treaty three years out of five, as opposed to having one review conference every five years as previously.

Adherence to the treaty is monitored by the International Atomic Energy Agency (IAEA) in Vienna through bilateral safeguards agreements between the Agency and each member state. However, IAEA membership is not the same as NPT membership.

The treaty has been severely undermined by the discovery of: (i) Iraq's nuclear weapon programme; (ii) the suspicion over the capabilities and intentions of North Korea (DPRK) and the long refusal of North Korea to fulfil its safeguards obligations; (iii) the protracted dispute over the ownership of ex-Soviet weapons on Ukraine's soil. North Korea's agreement with the USA on the freezing of DPRK's nuclear weapons capability and the substitute of its current reactor programme with light water reactor technology has begun to ease the situation. However, the issue of special on-site inspections to undeclared sites is likely to cause problems in approximately five years' time (1999–2000), when these inspections are eventually to take place.

Iraq and North Korea

On the plus side, the destruction of South Africa's nuclear weapons demonstrated that while it may not be possible to "disinvent" nuclear weapons, it is possible to dismantle a nuclear weapon arsenal and to verify the dismantlement of the whole programme.

South Africa's dismantlement

Iraq's situation demonstrated deep flaws within the safeguards system — lack of resources within the IAEA, inspection criteria leading to numerous inspections of installations in Germany, Japan and Canada and a only a handful of inspections of facilities in Iraq, and the failure of the international community to promote the use of special or challenge inspections. Since the discoveries of a clandestine nuclear weapons programme in Iraq and the IAEA's detection of suspect activity in North Korea, the IAEA has had to take a long, hard look at the effectiveness of its safeguards programme.

Flaws in safeguards

If the IAEA is to detect undeclared, illegal activities in the future, safeguards need to be strengthened and reinforced. The IAEA has embarked on a programme (called "93+2") to evaluate the technical, financial and legal aspects of a wide set of measures. Proposals for new measures are extensive. They include new techniques, new types of on-site inspection and much more information to be provided by States Parties.

93 + 2

Increased costs should be partly offset by a reduction in frequency of on-site inspections under certain conditions and by the provision of information by States. There will be a large increase in cost-effectiveness. Most of the proposed techniques will not require any changes to the safeguards agreements between the States and the IAEA. However, some of the proposals will require some additional agreements to satisfy legal requirements. There has been agreement in principle on all of the proposed measures and, by the end of 1995, many of the changes should be agreed for implementation. Most importantly, the IAEA will have continually to evaluate and review the effectiveness of safeguards, and continue to update them as necessary.

There is an intrinsic uncertainty in determining the amounts of nuclear materials at plants. Material balance calculations will usually contain "material unaccounted for" (MUF) even when there has been no diversion and, over a period of time, the MUF will exceed the significant quantity for diversion. Therefore, over a long period, it may be impossible to discriminate between genuine accountancy problems and clever diversion tactics.

Material unaccounted for (MUF)

However, the largest constraint on the effectiveness of IAEA safeguards is the combination of the safeguards budget and the focus of inspection effort. The frequency

Safeguards budget

and intensity of inspections are currently determined by the amount of nuclear material put through each facility. As a result, until recently, approximately 60% of the IAEA's safeguards budget went into inspecting facilities in Canada, Japan and Germany. Now, thanks to EURATOM, approximately 40% of the inspection effort goes into inspecting Canada and Japan. This, coupled with the 1994 safeguards budget set at US\$70 million and with the fact that a number of countries are unable to make their contributions, means that the IAEA is severely stretched and unable to carry out its duties to the full.

Export Controls

- | | |
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| <i>Nuclear Suppliers Guidelines</i> | In the early 1970s the Zangger Committee drew up an agreed "trigger list" of equipment and materials which should only be exported under IAEA safeguards. In the mid-1970s the London Suppliers Club (including France) — now the Nuclear Suppliers Group — extended the export controls to a wider range of technologies associated with reprocessing, enrichment and heavy water production plants ("sensitive technologies"). Called the Nuclear Suppliers' Guidelines, they also apply to re-exported items. |
| <i>Restrictions on dual-use technologies</i> | In 1992, the Nuclear Suppliers Group further strengthened export controls by agreeing on a common list of dual-use technologies and undertaking not to transfer nuclear facilities, equipment, components, material and technology to non nuclear-weapons states unless they accept full-scope IAEA safeguards. |
| <i>Article IV and export controls</i> | Both the Zangger list and the Nuclear Suppliers' Guidelines are codes of conduct and not binding agreements. Industrially underdeveloped states strongly resent the agreements, believing them to be devices to preserve the privileges of the industrially developed states and to be in violation of Article IV of the NPT. |
| <i>Technology to Iraq</i> | In addition, despite the strengthening of the guidelines and the increasing concern over the spread of nuclear weapons, companies in the UK exported sensitive technologies to Iraq. However, although Iraq did receive a number of key technologies from the West, much of its nuclear weapons effort was based on old technologies that had been further developed by scientists in Iraq. |
| <i>1940s' technology</i> | When considering the capabilities of states, it is important to remember that the basic technology for building nuclear weapons is 1940s' technology. There are few states today which, if they so desired, and if they had the resources in terms of cash and expertise, could not build a crude Hiroshima-style nuclear bomb. In doing so, such states may not need to import many items classed as "sensitive technology". |

The INF and START (1 and 2) verification regimes

- | | |
|---------------------------------|---|
| <i>INF and START comparison</i> | All three of these nuclear weapon reduction treaties have stringent verification regimes and the most comprehensive of the three is that of the Intermediate-range Nuclear Forces (INF) treaty. This is because it is a "zero option" treaty — all of the INF missiles have been destroyed and so any discovered now would be an unambiguous and serious violation of the treaty. The INF infrastructure has also been disbanded. "Zero-option" treaties are always easier to verify. Because the START regimes leave the infrastructure intact and large numbers of weapons deployed, the degree of certainty in the verification regime is not as high as for the INF treaty. |
| <i>Common features</i> | The verification regimes for all the treaties include the following technologies and methods: on-site inspections; radiation detection techniques; production monitoring |

(including portal perimeter monitoring); remote sensing by satellite; and witnessing the destruction and reduction of weapons.

Chemical and Biological Weapons Conventions

Chemical Weapons Convention and verification

The Chemical Weapons Convention, signed in Paris in January 1993, has yet (at the time of writing) to enter into force. 30 states have so far ratified the treaty, which needs 65 ratifications before it can enter into force and the implementation of the verification provisions can begin.

65 states needed for entry into force

The verification regime of the Chemical Weapons Convention is extensive and intrusive: it includes inspections to commercial facilities. The implementation of the treaty, including the verification provisions, will be carried out by the Organization for the Prohibition of Chemical Weapons (OPCW), located in the Hague.

OPCW

Each party to the treaty has to establish a National Authority to serve as the focal point for liaison with the OPCW and other parties. It is the National Authority to which the OPCW will turn first in order to resolve any non-compliance questions.

National Authorities

Biological Weapons Convention and verification

The 1972 Biological Weapons Convention has no verification provisions. However, since 1991, steps have been taken to include verification and confidence-building measures in the treaty. This is called the VEREX process.

VEREX

In September 1994, the Special Conference to consider verification measures, which was held in Geneva, decided to set up an *ad hoc* group of experts. Proposals will be considered at the next Review Conference in 1996.

Study on verification measures

Anti-personnel mines

Land-mines or anti-personnel mines pose one of the most serious problems today. Due to the efforts of the International Committee of the Red Cross, the issue of either banning anti-personnel mines or making them safe after a period of time is now on the international agenda. Both of these options pose severe verification challenges.

Serious verification challenges

If anti-personnel mines were to be banned completely, then it would be possible to verify a cessation of production at declared facilities, but it would be much harder to stop or track production at clandestine facilities. However, verification of absence is generally easier than verification of limits.

It is easier to monitor zero than to monitor limits

If neutralisation devices had to be built into all mines, so that they would become ineffective after a period of time, the installation could be verified at production. Again it would be much harder to stop clandestine production but with the alternative of legal "safer" mines, the market for illegally-produced "unsafe" mines maybe lessened.

Neutralising devices

Technologies and methods for verification

A large number of technologies and methodologies are used for verification. These include notification and information exchange and on-site inspections — checking the information given against what the inspectors find.

- On-site inspections* There are many sorts of inspections. There are inspections to verify the destruction of equipment (these are usually long-notice inspections, as destruction of missiles and warheads, for example, needs a great deal of planning), inspections to check data (very short-notice so that non-compliance cannot be easily hidden) and inspections to take samples back to laboratories to build up a data base and to check for clandestine activity. There are no-notice inspections and challenge inspections in addition to routine inspections and continual monitoring. The technologies for inspections include locks, tags and seals on containers, video recordings, off-site analysis, nuclear material detectors, X-ray cameras, seismometers, chemical agent detectors, biological agent detectors and a range of pollutant monitors.
- Detector networks* There are a number of international and national technical means that can monitor at a distance. These include seismic networks for monitoring explosions, radioactive debris detector networks, hydro-acoustic detector networks, pollutant detector networks and so on. In addition, aircraft are useful for taking photographic images of areas of interest and for flying through regions with sniffers or pollutant detectors on board.
- Satellite imaging* One of the most significant technologies for verification is the satellite. Satellites are used for a variety of intelligence-gathering operations that pertain to verification. They can be used to monitor communications and activities such as missile launches. Specifically, they are used to take overhead photographic and radar images. Such images can be used to reproduce the three-dimensional terrain of an area of interest and can also provide irrefutable evidence of transgressions or of compliance of international agreements. Over recent years, the role of commercially available imagery has played an increasingly important role in verification and confidence-building.

The future

- Confidence and security building* The key role for verification is increasingly one of confidence and security building. If verification techniques and practices were included as one of the most significant engines in the machinery of security, then international security could have stronger foundations than today.

Nuclear non-proliferation

For nuclear non-proliferation, a new approach to verification is needed.

Apart from political measures to strengthen the NPT, there are a number of technical steps that could be taken to increase the effectiveness of safeguards. The steps to be taken by the IAEA under the "93+2" programme (see above) will make a large difference

to the implementation of the NPT,⁶ however further measures are needed. The list below briefly summarises vital improvements to the IAEA safeguards which are urgently needed to deter further states from non-compliance.⁷

- 1) A world-wide nuclear transparency system for reporting imports, exports and production of all nuclear materials and sensitive non-nuclear materials and equipment.
- 2) A reduction by 50% of the amounts of fissile material deemed to constitute a "significant quantity".
- 3) Establishment of an enhanced full-scope safeguards regime with increased transparency, challenge inspections and "low-proliferation risk" power plant designs.
- 4) Nuclear weapon states accepting enhanced full-scope safeguards.
- 5) Increasing the IAEA budget (but divorcing the increase from any increase in the promotion of civil nuclear energy budget) to enable the Agency to carry out the necessary inspections.

One of the prerequisites for nuclear non-proliferation is the reduction of nuclear weapons of the (declared and undeclared) nuclear weapon states. This was reiterated at the NPT Review and Extension Conference in April/May 1995 (see above).

There are two approaches to reductions in nuclear weapons:

- 1) The traditional approach of "top down" reductions (i.e. USA and Russia first, eventually bringing in China, France and the UK, and hoping for co-operation from Israel, India and Pakistan)
- 2) The regional approach (i.e. establishing regional nuclear weapons free zones through treaties such as the Treaty of Tlatelolco and the Treaty of Rarotonga).

Both of these approaches require stringent verification. The first requires the type of verification regime set in place by the INF and START treaties, bringing other nuclear weapon states into the structure as and when necessary. The second needs a confidence-building approach as the states in the region build trust in each other through a sequence of agreements and confidence-building measures.

Two verification approaches

The regional approach could start with the two nuclear weapon free zones in existence (South Pacific and Latin America) and build from there. For example, 1995 could see the establishment of a sub-Saharan Nuclear Free Zone in Africa. The regions of South Asia, the North Pacific/East Asia, the Middle East, North America, the CIS and Europe could all be involved in a process of confidence-building, transparency and — where appropriate — nuclear weapons reductions in parallel with the "top-down" reduction process.

Regional and top-down

6. *Strengthening Safeguards*, Patricia M. Lewis, *Verification Matters Briefing Paper 95/2*, VERTIC, April 1995

7. *These steps are taken from: Owen Greene, "Verifying the Non-Proliferation Treaty: Challenges for the 1990s", Verification Matters No. 5, VERTIC, November 1992*

Regional confidence-building and sub-state conflicts

A mechanism for reducing tension between groups within states before it reaches the point of conflict is needed within the international security system.

Confidence-building measures

In the first place, a mechanism for alerting the international community to tension that may escalate to violent conflict is needed. Second, we need a process of mediation for the hostile parties and third, a set of tried and tested verification and confidence-building measures, which could be appropriately chosen for individual situations, should be set in operation.

New task

The application of verification and confidence-building measures to sub-state conflicts has received very little attention until now and it is this new task that provides us with the biggest challenge for the future.

Status of non-states

The main difficulty in applying confidence-building measures to sub-state and trans-border conflicts is that the situation is not one of state-to-state, but one of groups within states. Often, one of the groupings will be the government of the state, or one of the groupings may inhabit a region across state boundaries. There may be many vested interests in not allowing a mediation and confidence-building process to begin. These include an unwillingness to share power, a fear of exposure, deeply held prejudices and so on. There has, therefore, to be a procedure whereby a group, or groups, who feel under threat can approach the international community directly, and be accorded some status so that they may be recognised and heard internationally.

Objections can be put aside

Although there are very few governments in a position to tolerate groups that directly oppose the state, or simply wish for more autonomy, by granting those groups as degree of international status — particularly if the groups have participated in violent action — it has been possible for governments and sub-state groups to put aside such objections to prevent violence or when a violent situation has become unbearable.

Steps to increase confidence

During the process of mediation and negotiation, there are steps that can be taken to increase confidence in the intentions of the parties and to increase the likelihood of subsequent agreements succeeding. These range from building trust between local communities to providing data on levels of military equipment held by the state and by para-military organisations.

Civilian confidence-building measures

Building trust between, for instance, local communities, or between the state and a minority group, through structured and agreed procedures is called civilian confidence-building.

Practical measures

The role of verification and confidence-building in sub-state and trans-border conflicts, such as ethnic or religious conflicts, is a new idea.⁸ Such measures could include: (i) the setting up of youth organisations that include representation from all sections of the population; (ii) establishing an independent newspaper that is mandated to take the concerns and aspirations of all sections of the population into account, and to help build bridges between minorities and majorities and is monitored by an independent agency;

8. Dennis Sammut, "The CSCE and Russian Peacekeeping", in "Verification 1995: Arms Control, Peacekeeping and the Environment", J.B. Poole and R. Guthrie (eds.), VERTIC/Westview Press, 1995, p. 291

(iii) establishing locally-based committees, on which UN representatives also sit, to act as a forum for low-level complaints to lessen the risk of escalation into violent conflict; (iv) to set up, if appropriate, visits from communities in neighbouring states that have overlapping ethnic or religious communities to facilitate exchange of ideas, information and solutions, and so on.

Military and para-military transparency measures

In the case of sub-state violent conflicts where there are military, para-military or militia (as in the case of Northern Ireland, for example), the military capabilities of all the groupings need to be known and monitored, and that information made available to all parties. Independent observers could be allowed to observe the military capabilities of each party so that each side has more confidence in the numbers they are given.

Military and para-military transparency

Most importantly, trained mediators should be enabled to set up meetings and exchanges between the parties, so that differences and concerns over military and paramilitary capabilities and intentions can be aired and reconciled.

Military capability mediation

During a negotiation, it is unlikely that parties will wish to give highly detailed data on the location, configuration, and command and control of their military capabilities. However, once agreement has been reached, a detailed data exchange and verification regime could be established through an independent organisation, such as the UN or the OSCE, and reductions, withdrawals, re-positioning and re-configuration could then be verified to everyone's satisfaction.

Independent organisations

Of course such a process cannot solve every problem and prevent every conflict. Some states and ethnic groups will refuse to be involved, and some will lie and cheat on agreements reached. The earlier the process is started, the higher the chance of success. For that reason the role of monitors and alerters requires urgent study.

Expect the worst

As in the case of state-to-state trust-building, such measures would not solve major problems by themselves and they are no panacea. However, they could help to reduce tensions and improve the climate for negotiations and long-term agreements.

Tension-reduction measures

For example, in a long-running dispute, there can be agreement that neither side wishes to enter into violent conflict with the other and they may be able to identify a number of confidence-building measures to relieve tension. Such measures can be reinforced if there is a degree of verification built in, for example through on-site inspections and aerial overflights. Tensions within negotiations are then reduced and parties can find that they reach agreement much more quickly — or they find that there is still disagreement but that it is no longer so critical.

Verification can reduce tensions

This process has been dubbed as “agreeing when we can — negotiating when we can’t”. It takes a realisation that, although confidence-building measures cannot solve a problem, they do help to reduce tension and increase understanding, and thereby facilitate creative discussion.

Agree when we can — negotiate when we can't

The principle of “agree when we can — negotiate when we can’t” could be the foundation for experimenting with a range of new civilian and military confidence-building measures which could set the scene for a more peaceful and prosperous twenty-first century.

Environmental agreements

Environmental degradation affects international security

The role of verification in environmental agreements is now an established field of study and it is recognised as an important activity for future security. The effect that environmental degradation has on international security, in terms of poverty, migration, conflict over resources and so on, is becoming increasingly apparent.

Compliance is crucial

It is in the interests of all states that environmental agreements are complied with, purely for the sake of the survival of the planet as we know it. For this reason, the implementation review processes and verification mechanisms are crucial in determining the success of environmental agreements. For example, it is in the interests of all states that competitive industries in other countries are not gaining monetary advantage by ignoring their obligations under environmental agreements.

Poorer states often have most to gain from verification

The countries with most to gain from checking that states are complying with their obligations are often those which are most severely affected by the environmental degradation — frequently the poorer countries. It is very much in their interests that more polluting states — in many cases the wealthier, industrially developed states — are truly reducing their polluting emissions. This is particularly the case for climate change and transboundary pollution.

Industrially developing nations could make a significant contribution

However, some states, particularly the less industrial states, are generally suspicious of verification. One of the most important tasks facing the international community is to promote the values of implementation and verification, and point out the very real advantages that verified, meaningful treaties hold for disadvantaged states. This is particularly true for the ways in which appropriate technologies and methodologies could be used to implement the treaties. Industrially developing nations could make a significant contribution to the techniques being developed to monitor environmental agreements and in doing so they could shape the process more to their liking.

Strong implementation is vital

Grand declarations and statements of intent on environmental issues are no longer enough. Environmental agreements must be backed up by strong implementation and checks on that implementation — the environment is an issue for all.

Comparison with arms control verification

The verification of environmental agreements has some overlap in the methodologies and technologies with the verification of arms control treaties, but there are also a number of differences.

Agreements can be less quantitative

Although some key environmental agreements have hard targets and timetables (such as the Montreal Protocol) and some ban explicit activities (such as the Whaling Convention), some agreements are much less quantitative than in the field of disarmament. For example, in the case of the Climate Convention, states have not yet agreed to commit themselves to exact limits of greenhouse gas emissions. Rather they have agreed to try to hold to 1990 levels. Some states have declared that they will reduce their emissions unilaterally, and some will if other states also join in.

Large margins of error and many unknowns

Second, the measurable entities are very different to pieces of military hardware. There are often large margins of error and so there is much reliance on comparisons of self-reported data with other variables. In addition, many of the baseline data are unknown. For example, with the Biodiversity Convention, it is impossible to know how many species are there in the world.

Third, even when there are individual items that can be measured, such as endangered animal species or species of plant life, they are subject to other forces in addition to malign human activities that can destroy them. Trying to separate out the activities that can be controlled and monitored from those that cannot is difficult, particularly when they are entangled. On the other hand, by far the greatest threat to animals and plants is the destruction of their natural habitat by humans. In addition, such destruction is relatively easy to measure accurately, and there is a large body of reliable data to support the monitoring of forest, marshlands and desert areas and so on.

Controllables are difficult to separate from uncontrollables

The security picture is becoming more complex. In many cases environmental degradation, such as water shortages or water pollution, are forming part of the backdrop to violent conflict. Building confidence in environmental agreements via effective implementation will become an increasingly important part of global and regional security regimes.

Effective implementation of environmental agreements is crucial to security

Environmental agreements, particularly those which aim to protect plants and animals, often cover complex issues which states may have neither the resources or the inclination to address properly. To a large extent, the implementation and monitoring of such agreements is provided by non-governmental and intergovernmental organisations (NGOs and IGOs).⁹ This is an increasing trend in all international agreements with large and small NGOs and IGOs playing crucial, and sometimes lead roles.

NGOs and IGOs

Practical steps to increase security through verification

Verification is a process that establishes whether all parties are complying with their obligations under an agreement. These agreements can be international treaties on arms control or the environment, or agreements between different communities within a state. The success of any agreement depends on building an atmosphere of trust, and trust can best be built and maintained when all sides are aware that cheating is likely to be detected.

Build trust through verification

If carried out properly, with awareness of constraints, verification will always increase the security of the states and communities participating in the agreements. In this respect, verification is cost-effective. It builds confidence in the agreements and builds trust between the participants.

Good verification always increases security

The international community needs to make a concerted effort to promote multilateral measures. This would need a decision to make issues such as nuclear non-proliferation, anti-personnel mines, biological weapons elimination, climate control, species protection, conflict prevention and so on, the heart of foreign policy.

Promote multilateral arms reductions

⁹ John Lanchbery, "Reviewing the Implementation of Biodiversity Agreements", in "Verification 1995: Arms Control, Peacekeeping and the Environment", J.B. Poole and R. Guthrie (eds.), Westview Press/VERTIC, London 1995, p. 330

- Research into new techniques* In the first place, what is required is an increased commitment to research into new verification/confidence-building measures and to fund the monitoring and implementation organisations so that they can be more effective.
- Adequate resources* Implementing and verification organisations need to be adequately resourced and to be supported by the international community so that they have real power.
- Regional frameworks* Regional confidence- and security-building measures could be promoted and they could begin to establish a framework for nuclear weapon free zones in the regions. From the regional confidence-building programmes, verification and confidence-building measures could also be developed to help solve sub-state conflicts.
- Verified environmental treaties hold real advantages for poorer states.* Environmental agreements must be implemented so that states are clearly seen to be complying with their obligations. Implementation processes are crucial in determining the success of environmental agreements. In many instances, it is very much in the interests of developing countries that the wealthier, more polluting states are truly reducing their polluting emissions and, therefore, verified, meaningful treaties hold real, long-term advantages for disadvantaged states.
- Build security on trust not fear* If the international community were to approach global and regional security through the verification and confidence-building route, then we would be developing a more secure world built on knowledge and increasing trust, rather than on threat and fear.



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VERTIC, the Verification Technology Information Centre, was established in 1986 as an independent, non-profit making organisation of scientists in response to the needs of policy-makers, journalists, legislators, the academic community and others for reliable information on verification.

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