

# Challenges for Effective WMD Verification

by Berhanykun Andemicael

## *Keeping Nuclear & Chemical Arms in Check*

Effective verification is crucial to the fulfillment of the objectives of any disarmament treaty, not least as regards the proliferation of weapons of mass destruction (WMD).

The effectiveness of the verification package depends on a number of factors, some inherent in the agreed structure and others related to the type of responses demanded by emerging challenges.

The verification systems of three global agencies—the IAEA, the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO, currently the Preparatory Commission), and the Organization for the Prohibition of Chemical Weapons (OPCW)—share similarities in their broad objectives of confidence-building and deterrence by assuring members that rigorous verification would deter or otherwise detect non-compliance.

Yet they are up against various constraints and other issues, both internal and external to the treaty regime. These constraints pose major challenges to the effectiveness and reliability of the verification operations inspection experience.

**The Nuclear Scene.** In the nuclear field, the IAEA safeguards process was the first to evolve incrementally from modest Statute beginnings to a robust verification system under the global Treaty on the Non-Proliferation of Nuclear Weapons (NPT). The nuclear non-proliferation regime is now being supplemented by a technology-intensive verification system of the nuclear test-ban treaty (CTBT), a product of over three decades of negotiation. However, there still remain fundamental gaps and loopholes in the regime as a whole, which tend to diminish the combined effectiveness of the IAEA and the CTBT verification capabilities. At least three major problems can be identified:

- 1 The most intractable is the lack of universality of membership, essentially because of the absence of three nuclear-weapon-capable States—India, Pakistan and Israel—from both the NPT and the CTBT.
- 2 The second problem concerns the changes in US disarmament policy, especially in the nuclear field.

- 3 The third problem is the failure of the Conference on Disarmament to conclude a fissile material cut-off treaty. The world is already awash in fissile material and is increasingly threatened by the possible consequences of illicit trafficking in such material.

**The Chemical Field.** The chemical field poses fewer problems. The ban on chemical weapons is a virtually complete post-Cold War regime, with state-of-the-art concepts and procedures of verification resulting from decades of negotiation.

The concept of challenge inspection, as adapted from the bilateral INF (Intermediate-Range Nuclear Forces Treaty) model, is far-reaching but needs to be tested in an international setting.

Compared with verification problems in the incomplete and fragmented nuclear non-proliferation regime, the inspection challenges for the chemical ban regime seem to be less formidable. They have to do mainly with the subsequent erosion of inspection authority as State parties interpreted the provisions of the Convention in elaborating operational procedures. The absence of some States in tension areas, especially in the Korean Peninsula and the Middle East, from the OPCW diminishes the universality of the Organization. Operationally, there is also the damaging practice of some key States to secure precedent-setting exceptions for them while expecting other States to allow greater access to inspectors.

**Special & Challenge Inspections.** The detection of prohibited materials and activities is the common goal of the nuclear and chemical regimes for which the most intrusive and intensive procedures are activated by the three organizations.

In the nuclear arena, a special inspection in a State with a comprehensive agreement can be initiated by the Director General which, in theory, makes this process less cumbersome, than the so called “challenge inspections.” In the context of the strengthened safeguards, the new procedures now have a better prospect of discovering undeclared activities, particularly at the upper end of the fuel

cycle where weaponization of enriched uranium and plutonium is within reach.

In the CTBTO and the OPCW, requests for challenge inspections are within the domain of State Parties. They are expected to be relatively easy to initiate once a State manages the difficult task of assembling credible evidence to justify its request. There is insufficient experience to judge conclusively about the relative merits of the two types of special measures.

The IAEA has used some leverage from its capacity to mount special inspections; the probability of such action does enhance the authority of the Director General. The OPCW has yet to launch a real challenge inspection, despite some public allegations of non-compliance that have fallen short of a request for action. There is some concern that inaction may degrade the value of this measure as a usable tool and may deny the suspected State a chance to disprove the allegations. For the CTBTO this is not an issue at present, as the treaty is yet to enter into force.

**Access, Accountability, Authority.** Accounting for the strictly peaceful application of dual-use items constitutes the bulk of the work of the inspectorates at the IAEA and the OPCW. A common challenge in both fields is the advance of science and technology in the vast nuclear and chemical industries and the ingenuity of some determined proliferators to deceive by concealing illicit activities under legitimate ones. Inspection procedures and technologies need to keep up with the requirement for flexibility and adaptation to change.

However, there is no doubt about the necessity of greater transparency by inspected States, especially through physical access to entire sites. The recent case of Libya has set a positive model of transparency where adequate access was given to the inspectorates of both the IAEA and the OPCW. It has in addition shown that the shady network of illicit nuclear trafficking may well overlap with that of warfare agents. One of the lessons is that this type of problem may call for a coordinated approach by the IAEA and OPCW.

The effectiveness of verification in the three organizations depends heavily on the leadership of the respective Directors General, and the integrity and independence of the inspectorates. It also depends on the efficient management of the inspections, which involves a balancing act — to reconcile the high expectations from on-site inspections with the increasingly limited resources available for them.

Often, the inspectorates of the IAEA and the OPCW operate without the full benefit of all the assets provided for them in the agreed procedures, especially when an inspected State insists on its own interpretation of sovereignty rights and confidentiality needs. However, the inspectorates have been known to compensate for any drawbacks by combining dif-

ferent elements of verification to sketch an overall picture with minimal intrusiveness. For example, fuller access to documentation and to interviews with plant officials may narrow down the questions that may require clarification by extensive physical inspection and sample analysis.

**Common Aims, Complex Issues.** The common objective of the three organizations is to assemble and analyze all relevant information in order to conclude reliably whether a State is or is not complying with its treaty obligations.

This task is perhaps easier for the CTBTO that relies mostly on technologies monitoring, with challenge inspections as the last resort. For the IAEA and the OPCW, the management of verification is more complex, involving a combination of issues: (a) priority-setting for better allocation of inspection resources between high-risk and low-risk facilities; (b) planning for inspections with adequate coverage and intrusiveness; (c) optimizing the combination of human and technology assets for such inspections; (d) ensuring efficient and cost-effective management of operations; and (e) reporting findings with thoroughness, objectivity and impartiality.

The issue of priority-setting and resource allocation is a greater challenge for the OPCW than for the IAEA, which has a longer history of pragmatic adjustments in personnel and technological resources within the limitations of a virtually flat budget. The OPCW is yet to meet the challenge of dismantling chemical weapons and facilities within set deadlines without unduly diminishing the resources available for routine inspection of the chemical industry. Both agencies also face the challenge of balancing inspections—between the inspections in the vast area of declared facilities to build confidence about compliance and the inspections focusing on detection of possible undeclared facilities that might cause compliance concerns.

The positive lessons learned from the IAEA's verification experience today are valuable in advancing concepts and technologies that might also benefit the other areas of WMD verification. Together with the emerging, more comprehensive verification practice of the OPCW, they may provide a useful basis for developing common standards, which may in turn help in evaluating the cost-effectiveness of verification methods for the Biological and Toxin Weapons Convention and other components of a WMD control regime.

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