

Appendix 3-A

Costs and Benefits of Onsite Inspections for Nonproliferation Regimes

Efforts to strengthen verification of compliance with the NPT or the BWC will have to take into account the difficulties of balancing costs and possible benefits from onsite inspections. Costs include the following:

- **Costs of inspecting: inspection teams, equipment, and operations, whether they are nationally supplied or work for international organizations, cost money.**
- **Costs of being inspected:** personnel of the government or industrial facilities undergoing inspections have to spend time and money preparing those sites to protect classified or proprietary information from exposure to foreign inspectors. The inspections themselves may bring site operations to a halt, costing more time and money.
- **Compromise of nonpertinent information: preparations to protect information that can properly be concealed from inspectors may not always be successful or affordable. Officials worry about revealing military or industrial secrets or losing competitive advantages.**

The costs in the first category are not too difficult to calculate; those in the second category are more difficult to estimate; those in the third are nearly impossible to quantify. Further complicating

judgments about how high a price to pay for enhanced verification regimes is the fact that increments of intrusion and expense will not necessarily lead to correspondingly higher confidence in compliance. The United States, for example, in negotiating the CWC, judged that “anywhere, anytime” challenge inspections would not bring sufficient returns in verification to justify the costs (primarily the third category of



Costs of onsite inspection are one issue in assessing the net value of verification regimes for nonproliferation agreements. Pictured here is an x-ray fluorescence spectrometer used to analyze samples from nuclear inspections in Iraq.

costs above: endangered military and intelligence secrets).¹

Other verification enhancements also impose costs. For example, improved international export reporting to monitor flows of dual-use technologies could compromise legitimate competitive advantages for some of the companies involved.

A multilaterally conducted verification regime carries yet another risk: that the information collected by an international organization might prove useful to potential proliferants within the organization. This risk is greatest in the nuclear field, where significant weapons know-how is still difficult to acquire. Thus, in gathering details about the Iraqi nuclear weapons program, the IAEA has tried to restrict the information to members of the organization already possessing nuclear weapons.

To be weighed against the above costs is the question of how much verification is enough. Beyond the issue of the symbolic or psychic benefits of various verification measures, policymakers need to judge arms control regime verification requirements (e.g., those for the projected Chemical Weapons Convention) in at least three dimensions:

- the significance of potential violations,
- the verification measures that would be required to deter or detect significant violations, and
- the tangible and intangible costs of those verification measures.

Inevitably, judgments on these matters will be complex, subjective, and open to debate: no conclusive technical criteria will be possible. The discussion below shows why this is so.

Proponents of arms control or disarmament agreements for weapons of mass destruction (or,

indeed any kinds of weapons) have generally acknowledged that no verification regime will be perfect: a nation that wants to cheat badly enough can probably get away with it at some level. Therefore, they suggest as a practical standard that verification measures should be able to detect “militarily significant” violations. The following two examples indicate how the Reagan administration framed this concept in its support of the Intermediate Nuclear Forces Treaty. Based on Cold War strategic calculations, these examples do not directly pertain to the consequences of violating nonproliferation commitments. But they do illustrate issues important to any arms control agreement.

At that time presidential arms control adviser Paul Nitze said that the administration. . . .

. . . would consider the standard to be whether or not the Soviet Union could covertly deploy a force which would be militarily significant and whether we could find that out. . . in a timely fashion, so that we could take offsetting actions ourselves in a timely manner.²

In written responses to questions, Secretary of State George Schultz outlined factors that would go into a determination of military significance:

- the **quantitative** level and overall threat presented to the United States and NATO;
- qualitative factors, including kinds of weapons and their capabilities;
- an assessment of the state of readiness and training of the cheating force;
- the extent to which other forces available to the cheater make cheating forces redundant or add significant capability;
- the extent to which existing U.S. or allied forces could permit an effective counter; and

¹ The Chemical Weapons Convention has the most extensive onsite inspection regime of any international nonproliferation **commitment**. For an analysis of some of the costs of implementing such a regime, see U.S. Congress, **Office of Technology Assessment**, *The Chemical Weapons Convention: Effects on the U.S. Chemical Industry*, OTA-BP-ISC-106 (Washington DC: U.S. Government Printing **Office**, August 1993).

² Ambassador Paul **Nitze** in U.S. Congress, Senate Committee on Foreign Relations, *The INF Treaty, Hearings, Part I, Serial Number 100-522*, Pt. 1, 1988, p. 301,

- the overall political and military situation surrounding discovery of cheating (e.g., relative stability or tension).³

In other words, even in the limited case of long-range theater nuclear forces, the actual number of illegal missiles would be only one factor in a judgment of the military significance of a potential arms control violation.

In the nonproliferation context, the problem of defining militarily significant levels of violation is even more difficult. For example, while the possession of 10 illicit nuclear weapons might mean nothing between the United States and Russia, who each have thousands more, the same number might appear overwhelmingly decisive in a contest between, say, Iraq and Saudi Arabia.

In addition, when weapons of mass destruction are to be employed as instruments of threat or terror, how can one determine what is a militarily significant capability? In the case of biological weapons, for example, a small quantity of agent (much less than a ton), properly delivered, could kill hundreds of thousands of people; if used against protected troops, the same weapons might have little military effect.

Chemical weapons present comparable problems. One systematic attempt to assess militarily

significant quantities of agents points out that estimates might depend on whether chemical weapons are being used in covert sabotage operations, mass destruction of civilian populations, or battlefield situations. The analysts in that study settled on tactical battlefield employment as their base case. They point out that in that setting, military significance could depend on:

- the toxicity of the agent,
- the degree of incapacitation or mortality sought,
- weather conditions,
- the degree of protection of the target troops,
- the delivery systems used, and
- the size of the target region.

These analysts then decided that a possibly militarily significant attack would be one against 10 battalions in a 100 km² area. In that case, significant quantities might be 30 tons of VX nerve agent or 1,000 tons of mustard gas. They caution, however, that “these values cannot at this point be equated with detection goal quantities associated with treaty monitoring.”⁴

³Ibid., pp. 470-471.

⁴Mark F. Mullen, Kenneth E. Apt, and William D. Stanbro, *Criteria for Monitoring a Chemical Arms Treaty: Implications for the Verification Regime* (Los Alamos, NM: Los Alamos National Laboratory Center for National Security Studies, Report No. 13, December 1991), pp. 5-7.