

Summary

In 1986 and 1987, the Soviet Union for the first time signed arms control agreements instituting on-site inspections as a means of monitoring treaty compliance. Previous decades of Soviet resistance had led to U.S. pessimism that extensive on-site inspections would ever be feasible. Accordingly, as U.S. agencies entered the Intermediate Nuclear Forces (INF) and Strategic Arms Reduction Treaty (START) negotiations, they had sponsored relatively little external research into on-site monitoring systems. Policymakers devised verification regimes for these treaties, then turned to the technical research community for quick development of new monitoring devices and systems as needed.

OTA's review of the INF and START cases suggests that:

- the policymakers' work might have benefited from the results of earlier, external research if it had been done; and
- the technical research community might have been better prepared to respond to policymakers' and negotiators' needs if its own research programs had been prioritized by the requirements of likely overall verification regimes.

U.S. technical research for cooperative arms control verification regimes has been piecemeal rather than synoptic, and oriented to the near term rather than the long term. When unilaterally gathered intelligence was almost the sole means of arms control monitoring, this approach seemed to suffice. (Note: This report addresses only issues related to research on cooperative monitoring techniques, not on National Technical Means (NTM); secrecy requirements impose this major omission.)

Three conditions suggest a need for more systematic, long-term research on cooperative verification methods:

- the likelihood that additional arms control agreements with cooperative verification measures will be negotiated;
- the likelihood that some of these agreements will involve numerous nations, some of which will not have access to NTM but will still want assurances of mutual treaty compliance; and
- the possibility that, as in the recent past, the United States will find itself negotiating arms control provisions that only shortly before seemed politically improbable.

A more systematic program of long-term analysis and research could improve support for future arms control negotiations. It could develop priorities for continuing research on technologies for various monitoring measures. It could help assess potential monitoring problems and identify promising technical solutions for further research. It might also help identify additional arms control measures made feasible by new monitoring techniques.

The United States lacks a synoptic, long-term program of research on cooperative measures of arms control verification in part because there is no one in charge—no one whose job is to make such a program happen. Two agencies, the Department of Energy (DOE) Office of Arms Control and the Defense Nuclear Agency (DNA) manage the bulk of research on technologies for cooperative verification measures. In 1990 DOE spent about \$130 million,¹ mainly at its national laboratories; DNA dispersed about \$35 million, including \$14.5 million from the U.S. Army, to the DOE national laboratories, to private contractors, and to other government agencies. Today, numerous Government agencies participate in interagency committees to coordinate arms control research, but none has overall authority.

Options for alternative organizational arrangements include:

- make some incremental changes for better research focus;
- designate a lead agency for planning verification research;
- channel all or most research funds through one of the currently participating agencies to the others;
- create a new verification research 'czar' to direct the multi-agency research program;
- create a new arms control agency with primary responsibility and authority for all types of arms control research, planning, negotiation, and implementation.

Each of these options has advantages and disadvantages requiring careful consideration.

¹About \$75 million of this was devoted to the monitoring of nuclear tests, which left about \$55 million for all other current and future types of arms control monitoring.