

Nuclear Weapons

Among the current verification systems relating to nuclear weapons are those that verify the ban on nuclear testing; those that verify the nonproliferation of nuclear weapons and those that deal with nuclear reductions or nuclear disarmament (to date by particular states only).

The Comprehensive Nuclear Test Ban Treaty (CTBT)

The 1996 Comprehensive Nuclear Test Ban Treaty, which bans nuclear tests in all environments, envisages the creation of a Comprehensive Nuclear Test Ban Treaty Organization (CTBTO) to verify compliance. Although the treaty has not yet entered into force,¹ its verification system is being steadily developed and progressively implemented by a Preparatory Commission (Prepcom), established in November 1996, and located in Vienna, Austria. The Prepcom will transform itself into the permanent CTBTO at entry into force of the treaty.

The PrepCom comprises a plenary body of all states that have signed the treaty and a Provisional Technical Secretariat (PTS). The Plenary has two working groups: Working Group A deals with budgetary and administrative matters, while Working Group B deals with verification issues. There is also an Advisory Group of experts to advise the Commission and its subsidiary bodies on financial, budgetary and administrative matters. The PTS is responsible for establishment and operation of an International Monitoring System (IMS) and an International Data Centre (IDC); preparing the on-site inspection (OSI) regime; and for the administration and legal affairs of the PrepCom. Created in March 1997 with only nine staff members, the PTS had by April 2004 grown to 274 staff members from 70 states.²

The verification regime

In terms of its global reach and interconnectedness, the CTBT verification system the most ambitious envisaged for a multilateral arms control or disarmament agreement. With at least a notional goal of 2007 for its completion, the system is already exceeding the verification capabilities envisaged by its designers and when finished is likely to be significantly more powerful.

International Monitoring System

The International Monitoring System (IMS) will eventually comprise 321 monitoring stations and 16 radionuclide laboratories located in some 90 countries. Two hundred and one of the stations belong to the system's primary network, which will provide data to the IDC on a continuous basis. Four types of stations are being set up: seismic, infrasound, hydroacoustic (the three waveform technologies) and radionuclide. These are able to detect tests in different environments and contribute synergistically to verifiability.³

¹ As of 29 September 2004 there were 173 signatories, of which 118 had ratified. Of the 44 Annex 2 states required to ratify before entry into force, 33 have done so, leaving 8 that have signed but not ratified and three (India, Pakistan and North Korea) which have not yet signed. The US Senate rejected ratification in 1999 and the current administration of President George W. Bush is opposed to pursuing ratification.

² Annex IV to the Report of the Twenty-Second Session of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization: Report of the Executive Secretary for the Period January-April 2004, CTBT/PC-22/1/Annex IV, 29 June 2004, p. 13.

³ Seismic monitoring is most capable of detecting underground tests, although it might also be able to discern atmospheric tests conducted at low altitudes. Hydroacoustic technology primarily monitors the oceans for