CTBTO PREPARATORY COMMISSION | preparatory commission for the comprehensive nuclear-test-ban treaty organization

# CTBTO Fact Sheet

CTBT = Comprehensive Nuclear-Test-Ban Treaty

**Aim:** bans nuclear testing everywhere on planet - surface, atmosphere, underwater and underground.

**Why:** to obstruct the development of nuclear weapons: both the initial development of nuclear weapons as well as their substantial improvement (H-bomb) necessitate real nuclear testing. The CTBT makes it almost impossible for countries that do not yet have nuclear weapons to develop them. And it makes it almost impossible for countries that have nuclear weapons to develop new or more advanced weapons. It also helps prevent damage caused by nuclear testing to humans and the environment.

**History:** Between 1945 and 1996, when the CTBT opened for signature, over 2000 nuclear tests were conducted: by the United States (1000+) Soviet Union (700+), France (200+), United Kingdom and China (45 each). Three countries have broken the de-facto moratorium and tested nuclear weapons since 1996: India and Pakistan in 1998 and the Democratic People's Republic of Korea (DPRK) in 2006. Many attempts were made during the Cold War to negotiate a comprehensive test ban, but it was only in the 1990s that the Treaty became a reality. The CTBT was negotiated in Geneva between 1994 and 1996.

**The Treaty has yet to enter into force:** All 44 States specifically listed in the Treaty - those with nuclear technology capabilities at the time of the final Treaty negotiations in 1996 – must sign and ratify before the CTBT can enter into force. Of these, nine are still missing: China, DPRK, Egypt, India, Indonesia, Iran, Israel, Pakistan and the USA. DPRK, India and Pakistan have yet to sign the CTBT. Otherwise, 182 countries have signed, of which 150 have ratified the Treaty (as of February 2009), including three of the nuclear weapon States: France, Russian Federation and the United Kingdom.

**The Treaty Organization:** Since the Treaty is not yet in force, the Organization is called the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Organization, or CTBTO. It was founded in 1996, with approximately 260 staff from most of the CTBT's 180 Member States. It is headed by the Executive Secretary, Tibor Tóth (Hungary). The CTBTO's main tasks are the promotion of the Treaty and the build-up of the verification regime so that it is operational when the Treaty enters into force. The budget is around US$120,000,000 or € 82,000,000.

**Verification regime:** A unique and comprehensive system. At the heart of the verification regime is the International Monitoring System (IMS), which consists of 337 facilities located all over the world that constantly monitor the planet for signs of nuclear explosions. Around 75% of these facilities are already sending data to the International Data Centre at the CTBTO headquarters in Vienna.
The IMS uses the following four state-of-the-art technologies:

Seismic: 50 primary and 120 auxiliary seismic stations monitor shockwaves in the Earth. The vast majority of these shockwaves – many thousands every year - are caused by earthquakes. But man-made explosions such as mine explosions or the nuclear test announced by the DPRK in 2006, are also detected.
Hydroacoustic: 11 hydrophone stations "listen" for sound waves in the oceans. Sound waves from explosions can travel extremely far underwater.
Infrasound: 60 stations on the surface can detect ultra-low frequency sound waves (inaudible to the human ear) that are emitted by large explosions.
Radionuclide: 80 stations measure the atmosphere for radioactive particles, 40 of them also pick up noble gas. Only these measurements can give a clear indication as to whether an explosion detected by the other methods was actually nuclear or not. They are supported by 16 radionuclide laboratories.

**On-site-Inspection:** If the data from the IMS stations indicate that a nuclear test has taken place, a Member State can request for an on-site-inspection to be carried out to collect evidence that will allow the final assessment to be made regarding whether a nuclear explosion – a Treaty violation - has actually taken place. This will only be possible after the CTBT has entered into force. A large on-site inspection exercise was carried out in September 2008 in Kazakhstan.

**Civil and scientific applications:** The IMS data are provided to the CTBT Member States and to other international organizations. They are used also for applications other than test-ban verification, such as for tsunami-warning (by proving timely data), research on the Earth's core, monitoring of earthquakes and volcanoes; research on the oceans, climate change research and many other applications.