

# Annual Report 2006



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## ARTICLE I of the Treaty

### BASIC OBLIGATIONS

1. Each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control.
2. Each State Party undertakes, furthermore, to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion.

### Paragraph 1 of the Text on the Establishment of a Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization

1. There is hereby established the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter referred to as “the Commission”) for the purpose of carrying out the necessary preparations for the effective implementation of the Comprehensive Nuclear-Test-Ban Treaty, and for preparing for the first session of the Conference of the States Parties to the Treaty.

### Verification Activities

Under the terms of the Comprehensive Nuclear-Test-Ban Treaty (CTBT), a global verification regime to monitor compliance with the Treaty must be operational when the Treaty enters into force. Such a verification regime must be capable of detecting nuclear explosions in all environments: underground, in water and in the atmosphere. Establishing this regime is the main activity of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

## Foreword

### by the Executive Secretary

Among the occurrences of 2006 that had significance for the CTBT and the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, there are three which deserve special attention.

The first was the marking of the occasion of the first ten years since the CTBT was adopted at the United Nations General Assembly on 10 September 1996. In this first decade of its existence, the CTBT contributed greatly to international nuclear non-proliferation and disarmament efforts by providing an international norm against nuclear testing.

Over the same period, the Preparatory Commission and its Provisional Technical Secretariat (PTS), established in 1997, made good progress in building up the international verification regime, including the International Monitoring System (IMS), a unique network of 321 monitoring stations and 16 radionuclide laboratories worldwide whose purpose is to detect any kind of nuclear explosion. Nearly three quarters of the network is now installed and over half of the stations have been certified as meeting the stringent specifications of the Commission.

These achievements would not have been possible without strong support from the international community and, in particular, without cooperation with the scientific world. It is in this context that we organized a scientific symposium, CTBT: Synergies with Science, 1996–2006 and Beyond. The symposium was held at the Hofburg Congress Centre in Vienna, where we successfully made use of the tenth anniversary in launching efforts to strengthen links between the political and scientific constituencies.

In the midst of the tenth anniversary celebrations came the announcement of the Democratic People's Republic of Korea that it had conducted a nuclear test on 9 October 2006. However, this event presented us with an unplanned opportunity to prove that our achievements were real and worthwhile. Within hours, States Signatories received reliable data and analyst-reviewed data products relating to the event, which was well recorded throughout the world by the IMS even though less than 60% of the stations were contributing to provisional operation of the system. Our response to the event demonstrated that the PTS is capable of receiving and reviewing data for an event of special interest in accordance with the time lines envisaged in the Treaty, and of providing States Signatories with relevant data products. Thus the challenge posed by the event provided a chance to show that, once complete, the global verification regime of the CTBT would be feasible and credible. This was the second important development for the Commission in 2006.

The third important development was in the area of civil and scientific applications of the CTBT verification technologies. While the purpose of the verification regime is to ensure compliance with the Treaty, the verification technologies are also useful for civil and scientific purposes. Following the tsunami of December 2004 in the Indian Ocean, which killed hundreds of thousands, we started to support international and national tsunami early warning efforts by exploring whether our verification regime could contribute to this important humanitarian endeavour. The Preparatory Commission took a decision at its

Twenty-Seventh Session in November last year which has enabled the PTS to formalize interim arrangements to provide real time and continuous data to relevant tsunami warning organizations.

These three significant occurrences are described at greater length in this annual report. As usual, the report also gives an account of the substantial progress made by the PTS in all aspects of its work to establish the verification regime and to prepare for the entry into force of the Treaty.

In 2006, the PTS made considerable advances in installation and certification during the further build-up of the IMS. By the end of the year, a total of 244 IMS stations had been established, representing 76% of the stations planned. A further 28 stations and three radionuclide laboratories were certified, bringing the total number of certified stations to 184 (equivalent to 57% of the IMS) and the total number of certified radionuclide laboratories to nine (corresponding to 56%). In January 2007, another 2 stations were certified. States hosting IMS facilities continued their valuable cooperation with the Commission. Three additional IMS facility agreements were concluded with Italy, Cape Verde and Cameroon and the agreements with Iceland, Paraguay, Senegal and the Russian Federation entered into force. At present, appropriate legal arrangements are in place for 327 facilities in 84 countries.

The International Data Centre (IDC) in Vienna received, analysed, reported on and archived the waveform and radionuclide data from a growing number of IMS stations. The PTS in 2006 made substantial progress in connecting IMS facilities to IDC operations, with 16 new or upgraded waveform monitoring stations and 6 radionuclide particulate stations being integrated into the IDC operational system. The number of stations in IDC operations reached 190 (59%), substantially enhancing the geographical coverage of data being received. Importantly, a new, state of the art Operations Centre serving the entire PTS was built during 2006 and was officially opened in January 2007.

The Global Communications Infrastructure (GCI), which provides communications links to IMS sites as well as to National Data Centres and station operators, continued to expand throughout 2006. In July, the 200th very small aperture terminal (VSAT) of the GCI was installed. By December, 208 VSATs had been installed, representing 83.8% of the total planned. The volume of data received by the IDC increased from about 7500 to slightly over 8300 megabytes per day. Almost 6800 megabytes per day were transported from the IDC to remote sites. At the same time, in view of the fact that the current GCI contract will expire in September 2008, the procurement process for the contract for the next GCI continued. The preliminary design phase was completed in December 2006.

By the end of 2006, 94 secure signatory accounts had been established – an increase of 4 over last year – and a total of 808 users were authorized to access IMS data and IDC products and receive technical support, which is 71 more than in 2005. Over 800 requests from authorized users regarding technical information were received and resolved during the year, compared with 700 in 2005. In addition, by the end of 2006, the ‘NDC in a box’ software had been distributed to 97 States Signatories, an increase of 13 over 2005.

These figures demonstrate that the capacity and coverage of the verification system are increasing, and that more and more States Signatories are accessing the data and data products provided by the PTS and receiving technical support. Thus more effective arrangements for PTS interaction with station operators,

National Data Centres and the GCI contractor are being put in place and States Signatories are thereby deriving greater benefit from the investment they have made in the verification system.

During the year, we continued to give priority to preparations for the Integrated Field Exercise in Kazakhstan in 2008. This exercise will be an important part of our endeavours to address the concerns of delegations that progress in establishing the on-site inspection (OSI) regime should not fall behind progress in other areas. The preparations included setting up a task force to coordinate efforts and conducting a successful small scale exercise in Croatia. The PTS also continued developing the plan for training and exercise activities for future inspectors. Moreover, important progress was made in testing and evaluation of equipment for measuring radioactive noble gas isotopes during an OSI.

As an outcome of the Quality Management Workshop held last year, I endorsed a quality policy for the PTS in August 2006. This policy is an important component of our overall quality management efforts, which will ultimately provide users with greater confidence in the functioning and products of the PTS.

The year also saw the restructuring of the PTS on the basis of the final report of an external review team that was adopted by the Commission in November 2005. In September 2006, I approved changes to the organizational structures of the IMS and IDC Divisions along the lines recommended by the final report. This significant step will enhance further the coordination within the PTS in response to the increasing degree of integration of the various components of the verification system.

Activities in 2006 to support the verification regime as well as to promote the Treaty, such as training courses and workshops, were held around the world with the participation of about 350 representatives from more than 100 States. I am grateful to Australia, Austria, Azerbaijan, Canada, Croatia, Egypt, Hungary, Japan, Kazakhstan, Malaysia, Mexico, Nigeria, Ukraine and the United States of America for successfully hosting these events. In addition, I would like to express my appreciation to the Netherlands for its voluntary contribution of funds during 2006 in support of the Commission's outreach activities.

Multilateral fora provide valuable opportunities to promote the support of the international community for the cause of the Treaty as well as the work of the Commission. In this context, during the year the PTS continued to develop contacts and cooperation with relevant global and regional international organizations. I personally participated in the summits of the African Union, the Non-Aligned Movement and the Organisation internationale de la Francophonie in order to enhance cooperation with these international organizations.

As a result of these and other outreach efforts, in 2006 the number of signatories to the Treaty increased by one and the number of ratifiers by 11. The number of new ratifications was almost twice that achieved in 2005. As of 31 March 2007, the Treaty had 177 signatures and 138 ratifications, including ratifications by 34 of the 44 States listed in Annex 2 to the Treaty, whose ratification is required for the Treaty to enter into force, and is moving ever closer to achieving the status of universality. I would also like to refer to the efforts of States to promote the Treaty. In September 2006, a ministerial meeting of the Friends of the CTBT was held in New York, co-hosted by Australia, Canada, Finland, Japan and the Netherlands and attended by representatives of 61 States, including 22 Ministers and Deputy Ministers of Foreign Affairs. The Joint Ministerial Statement that was issued during the meeting reaffirmed full support for the objectives of the CTBT and the

work of the Commission. Recently, States decided to convene the next Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty from 17 to 18 September this year in Vienna. We hope that the conference will further strengthen this positive momentum for the entry into force of the CTBT. The PTS, for its part, is committed to assisting these endeavours.

With these achievements and positive developments, I am pleased to present the annual report of the organization for 2006, in which you can find further details of what I have described above.

Tibor Tóth  
Executive Secretary

CTBTO Preparatory Commission

Vienna  
April 2007



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## Abbreviations

ATM	atmospheric transport modelling
AU	African Union
CD	continuous data
CIF	Capital Investment Fund
DE06	OSI directed exercise in 2006
DOTS	Database of the Technical Secretariat
ECOWAS	Economic Community of West African States
GCI	Global Communications Infrastructure
GIS	geographical information system
IDC	International Data Centre
IFE	Integrated Field Exercise
IMS	International Monitoring System
IOC	Intergovernmental Oceanographic Commission
NDC	National Data Centre
OSI	on-site inspection
PTS	Provisional Technical Secretariat
QMS	Quality Management System
REB	Reviewed Event Bulletin
SAINT	Simulation Assisted Interactive Nuclide Review Tool
SAMS	Seismic Aftershock Monitoring System
SPT1	first system-wide performance test
UNESCO	United Nations Educational, Scientific and Cultural Organization
VSAT	very small aperture terminal
WMO	World Meteorological Organization