

Annual Report 2005



Annual Report 2005

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.

This report serves as the first of the Executive Secretary’s written reports to the Twenty-Sixth Session of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization. It gives an account as of 31 December 2005 of the activities undertaken by the Provisional Technical Secretariat of the Commission during 2005 in implementation of the seven Major Programmes.

Foreword

by the Executive Secretary

I am pleased to present the annual report of the Provisional Technical Secretariat (PTS) of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization, the first since I took up my duties as Executive Secretary in August 2005.

In the course of 2005, the PTS continued to make substantial progress in all aspects of its work to establish the Treaty verification regime and to prepare for the entry into force of the Treaty.

The PTS made considerable advances in installation and certification during the further build-up of the International Monitoring System (IMS), a unique worldwide verification network consisting of 321 seismic, hydro-acoustic, infrasound and radionuclide monitoring stations and 16 radionuclide laboratories. In 2005, a further 37 stations and 1 radionuclide laboratory were certified as meeting the technical requirements of the Commission, so that by the end of the year there were 156 stations and 6 laboratories certified. Installations were completed at an additional 22 stations. Thus 68% of the network was either certified or installed. This progress can also be seen in the increase of expenditure in the Capital Investment Fund from 55% in 2004 to 82% in 2005. States hosting IMS facilities continued their valuable cooperation with the Commission. Two additional facility agreements were concluded with the Russian Federation and Iceland and the agreement with Guatemala entered into force. At present, appropriate legal arrangements are in place 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 2005 made substantial progress in connecting IMS stations to IDC operations. With 33 new or upgraded waveform monitoring stations and 5 radionuclide particulate stations integrated into the IDC operational system during the year, the number of stations in IDC operations reached the 50% mark, substantially enhancing the geographical coverage of data being received. Furthermore, the Global Communications

Infrastructure (GCI), which provides communications links to IMS sites as well as to National Data Centres (NDCs) and station operators, continued to expand throughout 2005 with the installation of 14 new very small aperture satellite terminals, bringing the number installed overall to 199, which is equivalent to 77% of the total planned. At the same time, in view of the fact that the current GCI contract will expire in September 2008, the procurement of the next GCI contract has been initiated with the objective of ensuring a smooth transition. The procurement process continued in 2005 with a review of expressions of interest and the release of the final request for proposals.

Complementing the momentum in the build-up and integration of the verification network, substantial strides were made in 2005 in improving the ability of the IDC to analyse data and provide quality products to States Signatories. For example, new and improved software developed by the PTS for receiving and sending data was introduced. The PTS also made progress in refining and improving detection and analysis methods and algorithms for processing of data. As a result, the number of 'false' (non-real) events in the automatic processing dropped from 69% to 50% compared with the number of events in the Reviewed Event Bulletin. In addition, the new computer centre was successfully moved to a new high technology facility, which now hosts all central computer systems, networking devices and related infrastructure.

An additional 69 users in States Signatories were authorized to access IMS data and IDC products, making a total of 737 authorized users at the end of 2005. Furthermore, during 2005, 5 States Signatories established secure signatory accounts, bringing to 90 the total number of States Signatories which have designated organizations to have access to IMS data and IDC products.

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. In response to the tragic devastation caused by the tsunami

1 HR

2 HRS

4 HRS

6 HRS

10 HRS

1 DAY

2 DAYS

1 WEEK

2 WEEKS

in the Indian Ocean in December 2004, the Commission tasked the PTS to explore and assess which data and products might be useful and could be provided by the PTS for tsunami warning purposes, and expressed its willingness to contribute to a tsunami warning system. Accordingly, the PTS is currently forwarding data on a test basis to tsunami warning centres in Japan and Hawaii, as well as to Malaysia.

During the year, we made important progress in on-site inspection (OSI) related activities. In light of guidance from the Policy Making Organs, OSI activities were re-oriented towards planning and preparing for the Integrated Field Exercise (IFE) to be held in 2008. The IFE will be an important part of our endeavours to address the concerns of delegations that progress in OSI should not fall behind progress in other areas. There was also a large step forward in the drafting of the OSI Operational Manual. The first reading of the initial draft rolling text was concluded at the Twenty-Fourth Session of Working Group B, with support provided by the PTS.

In 2005, the PTS conducted the performance testing phase of the first system-wide performance test (SPT1), where all of the 163 stations in IDC operations (about 50% of the entire monitoring system) and 5 certified radionuclide laboratories took part. This has resulted in the establishment of a baseline performance under the current provisional mode of operation against which future improvements can be compared. Lessons from these activities and their results have given us a wealth of data which will allow us to analyse the achievements and shortcomings of the verification network as an integrated system. I fully expect that this will lead to important improvements in the next few years.

The year also saw a further strengthening throughout the PTS in the coordination of verification related activities. The Operations Centre was established in March 2005 and involves staff from the IMS and IDC Divisions. The IMS Reporting System for logging and tracking operational incidents in the IMS was expanded beyond its original purpose to cover incidents in all parts of the data collection and distribution chain. Planning, implementation and evaluation of SPT1 involved considerable

resources provided by various verification related areas of the PTS.

In contrast to the first phase of build-up, which was characterized by the parallel construction of IMS stations, of the IDC and of OSI capacity, these increasingly coordinated activities represent the emergence of an integrated verification system. It is in this context that in November 2005 the Commission adopted the report by the external review team which, among other things, recommends structural changes to the IMS and IDC Divisions.

Activities in 2005 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 representatives from about one hundred States. I am grateful to Australia, Austria, Bolivia, France, Germany, Italy, Japan, Kazakhstan, the Republic of Korea, Slovakia and the United States of America for successfully hosting these events. In addition, I would like to express my appreciation to the Netherlands and the Czech Republic for their voluntary contributions of funds during 2005 in support of the Commission's international cooperation and outreach activities, as well as a pilot project on e-learning, the initial testing of which began in 2005 to complement the regular PTS training activities.

In relation to the continuing endeavours of ratifiers and signatories to promote the Treaty, one of the key events in 2005 was the Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty, which took place in New York on 21–23 September. Altogether 117 ratifying States and States Signatories, the greatest number to attend such a conference so far, and 3 non-signatory States were represented. About forty States were represented at the level of Minister or Deputy Minister, clearly indicating the strong political support for the CTBT in the international community.

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. The Commis-

FOREWORD BY THE
EXECUTIVE SECRETARY

2 WEEKS

1 WEEK

2 DAYS

1 DAY

10 HRS

6 HRS

4 HRS

2 HRS

1 HR

sion now has six relationship and cooperation agreements with various international organizations, including an agreement with the Association of Caribbean States, which was concluded on 7 March 2005.

As a result of the efforts described above, in 2005 two States signed and six States ratified the Treaty. In addition, in the early months of 2006 we have seen these efforts bear further fruit in the form of six more ratifications, including a ratification by one of the 44 States listed in Annex 2 to the Treaty, whose ratification is required for entry into force of the Treaty. Thus at the end of March 2006, the CTBT had 176 signatures and 132 ratifications and is even closer to achieving the status of universality.

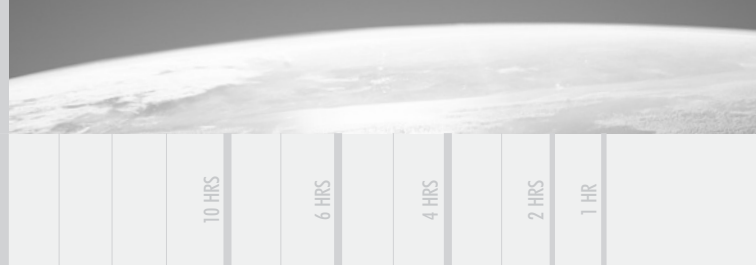
The above is a summary of what the PTS achieved in 2005 and the details are presented in this report. On the

basis of these achievements, I, together with all of the PTS staff, am determined to pursue our work with a commitment to the continuation of efforts to realize further efficiency and effectiveness.

Tibor Tóth
Executive Secretary

Preparatory Commission
for the Comprehensive
Nuclear-Test-Ban Treaty
Organization

Vienna
April 2006



2 WEEKS

1 WEEK

2 DAYS

1 DAY

10 HRS

6 HRS

4 HRS

2 HRS

1 HR

Contents

Major Programme 1: International Monitoring System

Highlights of the Activities in 2005	2
IMS Establishment	2
Integrated Logistics Support	6
Configuration and Information Management	6
Training	6
Operations Contracts	6
Unscheduled Maintenance	6

Major Programme 2: International Data Centre

Highlights of the Activities in 2005	8
Processing and Analysis	9
Software Development	10
Data Fusion, Review and Services	12
Computer Infrastructure	13
Management, Coordination and Training	14

Major Programme 3: Communications

Highlights of the Activities in 2005	16
GCI Implementation	16
Network Management	17
Connection to Polar Regions	17
Internet Communication	17
Next GCI Contract	17

Major Programme 4: On-Site Inspection

Highlights of the Activities in 2005	20
Revised Strategic Plan and Integrated Field Exercise	20
OSI Operational Manual	20
Methodology Experiments	21
Infrastructure	21
Training	21
Equipment	22

Major Programme 5: Evaluation

Highlights of the Activities in 2005	26
Evaluation	26
Quality Assurance	27
Cooperation with the United Nations Evaluation Systems	27

Joint Programmatic Activities

Highlights of the Activities in 2005	30
Organizational Structure of the PTS	30
Coordination of Operation and Maintenance	30
Development of Incident Tracking Systems	31
System-Wide Performance Test	31
Joint IMS and IDC Training Courses	32

Major Programme 6: Policy Making Organs

Highlights of the Activities in 2005	34
Policy Making Organs	34

Major Programme 7: Administration, Coordination and Support

Highlights of the Activities in 2005	36
Signatures and Ratifications	36
Facility Agreements	36
Relations with States	36
Relations with International Organizations	37
Training, Workshops and Other Capacity Building Activities	37
Voluntary Contributions	38
Financial Services	39
Procurement	39
Human Resources Management	40
Dissemination of Information	41
Support for Meetings	42
Internal Audit	43
Follow-Up to the Final Report on the Organizational Structure of the PTS	43
General Services	43

Supplementary Information

Conference on Facilitating the Entry into Force of the Comprehensive Nuclear-Test-Ban Treaty (Article XIV Conference)	46
States Whose Ratification is Required for the Treaty to Enter into Force	48
Status of Signature and Ratification of the Treaty	
Map	49
Table	50
Facility Agreements or Arrangements with States Hosting IMS Facilities	54
Relationship and Cooperation Agreements with Other International Organizations	55
Organizational Structure of the Provisional Technical Secretariat	56

Abbreviations

AG	Advisory Group	NDC	National Data Centre
ATM	atmospheric transport modelling	NMS	network management system
CD	continuous data	O&M	operation and maintenance
CIF	Capital Investment Fund	OSI	on-site inspection
DE05	OSI directed exercise in 2005	PMCC	Progressive Multi-Channel Correlation
DOTS	Database of the Technical Secretariat	PTS	Provisional Technical Secretariat
ECS	Experts Communication System	REB	Reviewed Event Bulletin
EIF	entry into force	SAINT	Simulation Assisted Interactive
GCI	Global Communications Infrastructure		Nuclide Review Tool
IDC	International Data Centre	SPT1	first system-wide performance test
IFE	Integrated Field Exercise	WGA	Working Group A
IMS	International Monitoring System	WGB	Working Group B
INGE	International Noble Gas Experiment	WMO	World Meteorological Organization
IRS	IMS Reporting System		