Message
from the Executive Secretary

I am pleased to share with you, in this report, the results of the work of the CTBTO Preparatory Commission in 2009. The year generated a strong momentum for nuclear disarmament and non-proliferation in which support for the early entry into force of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) was prominent.

The Treaty was placed in the spotlight at the sixth Conference on Facilitating the Entry into Force of the CTBT, which was held in New York on 24–25 September. With an impressive attendance, this conference offered further opportunities for a renewal of commitment to the Treaty and support for the work of the Commission. Media coverage of the Treaty and the work of the Commission was unprecedented. The United Nations Security Council summit on 24 September, chaired by President Obama of the United States of America, recognized the importance of the Treaty and called on all States to sign and ratify so as to bring it into force at an early date.

Additional countries joined the ranks of the signatories and ratifiers. With 182 signatures and 151 ratifications, the Treaty now stands among the international norms that enjoy the greatest number of adherents.

Significant progress was also achieved in development of the Treaty’s verification system, increasing its capabilities to detect a nuclear test explosion. In this respect, build-up and certification of facilities in the International Monitoring System continued. By the end of the year, 83% of the entire network was installed.

The reliability of operation of the International Data Centre and the capacity to transmit the ever increasing volume of monitoring data and data products were similarly improved. A state of health system was installed in the Operations Centre. This is to help ensure accuracy of the information from the stations and the proper working of all parts of the verification system.

The Commission conducted a thorough review of the 2008 Integrated Field Exercise. Following the review, a comprehensive on-site inspection (OSI) action plan was developed. This plan will guide further development of the Treaty’s OSI regime in the coming years.

The International Scientific Studies Conference, held in June, was a platform for strengthening the interaction of the Commission with the world scientific community. It assisted in making an independent assessment of the capabilities and readiness of the verification regime and in identifying developments that might enhance these capabilities.
On 25 May, the Democratic People’s Republic of Korea announced that it had conducted a nuclear test. Though presenting a major challenge to the established international norm against nuclear tests, the event prompted a strong rallying of support for the Treaty. It equally served as a performance test for the verification system. The system proved its true value by performing in a timely, coherent and effective manner.

I have given here just a brief account of some of our collective achievements. I am confident that the Commission’s progress in 2009, as detailed in this annual report, sets a solid ground for further advances in 2010.

Tibor Tóth
Executive Secretary
CTBTO Preparatory Commission
Vienna, February 2010
Treaty

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) is an international treaty outlawing nuclear explosions in all environments. In providing for a total ban on nuclear testing, the Treaty seeks to constrain the development and qualitative improvement of nuclear weapons and end the development of new types of nuclear weapon. In doing so, it constitutes an effective measure of nuclear disarmament and non-proliferation in all its aspects.

The Treaty was adopted by the United Nations General Assembly and opened for signature in New York on 24 September 1996. On that day, 71 States signed the Treaty. The first State to ratify the Treaty was Fiji on 10 October 1996.

Under the terms and provisions of the Treaty, the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) is to be established in Vienna, Austria. The mandate of this international organization is to achieve the object and purpose of the Treaty, to ensure the implementation of its provisions, including those for international verification of compliance with it, and to provide a forum for cooperation and consultation among States Parties.

Preparatory Commission

In advance of the entry into force of the Treaty and the establishment of the CTBTO proper, a Preparatory Commission for the organization was established by the States Signatories on 19 November 1996. The Commission was given the mandate of preparing for entry into force and is located at the Vienna International Centre.

The Commission has two main activities. The first consists of undertaking all necessary preparations to ensure the operationalization of the CTBT verification regime at entry into force. The second is the promotion of Treaty signature and ratification to achieve entry into force. The Treaty will enter into force 180 days after it has been ratified by all 44 States listed in its Annex 2.

The Preparatory Commission is made up of a plenary body responsible for directing policy and comprising all States Signatories, and a Provisional Technical Secretariat (PTS) to assist the Commission in its duties, both technically and substantively, and carry out such functions as the Commission determines. The PTS started work in Vienna on 17 March 1997 and is multinational in composition, with staff recruited from States Signatories on as wide a geographical basis as possible.
Summary

The year 2009 was a crucial one for the Comprehensive Nuclear-Test-Ban Treaty (CTBT). It was characterized by strengthened efforts to achieve universalization of the Treaty and by the significant progress made in advancing the operational readiness of the verification system.

The sixth Conference on Facilitating the Entry into Force of the CTBT, which was held in New York on 24–25 September, provided an opportunity for ratifying and signatory States and civil society to voice the call of the international community for the early entry into force and universality of the Treaty. The conference enjoyed the attendance of an unprecedented number of high level dignitaries, with representatives from 103 States – comprising 87 ratifying States, 13 signatory States and 3 non-signatory States – taking part. The United Nations Security Council summit, held on 24 September, and its unanimously adopted resolution which called for the entry into force of the CTBT, served to further promote the importance of the Treaty as one of the core components of the international security agenda. Owing to the high level attention and a carefully crafted public information strategy, media coverage of the CTBT was comprehensive.

The year also saw Liberia, the Marshall Islands and Saint Vincent and the Grenadines ratify the Treaty, with Trinidad and Tobago joining the ranks of the States Signatories. As of 31 December 2009, the CTBT had been signed by 182 States and ratified by 151 States. The ratifying States included 35 of the 44 States listed in Annex 2 to the Treaty, whose ratification is required for it to enter into force.

As the work on sustainment of the International Monitoring System (IMS) continued, significant progress in all four of its technologies was achieved. By the end of 2009, 268 IMS stations were installed, representing 83% of the entire network. A total of 24 noble gas systems were also established, corresponding to 60% of the total planned. Station design, especially in infrasound technology, also evolved, resulting in an increased capability of detection. The total number of certified IMS stations and laboratories, which was zero in 2000, had risen to 254 by the end of 2009. Such a sharp increase has been a source of much improved coverage and network resilience.

In 2009, operation and maintenance activities for the Global Communication Infrastructure (GCI) focused on consolidating the enhanced capabilities of the new GCI network, whose availability continued to improve. The volume of data traffic carried by the GCI and by special links to the IDC and in the other direction, from the IDC to remote sites, increased during the year.

Through new software applications, the detection capacity of the IDC and the reliability of IDC operation were strengthened, and the means of access of authorized users in States Signatories to IDC data and data products were developed further.
A major achievement was the installation of the state of health system in the Operations Centre. This system collects and manages information on the state of health from all components of the IMS, including stations, GCI links, IDC programs and servers and any other source of data that may be relevant to the operation and maintenance of the IMS.

In response to the announced nuclear test of 25 May 2009 by the Democratic People’s Republic of Korea, the monitoring system operated satisfactorily. The key components of the system, including the IMS network, the GCI and the IDC, as well as National Data Centres (NDCs), performed in accordance with established standards. The event was detected and automatically located using 23 primary seismic stations, as reported in the initial list of events (Standard Event List 1 or SEL1) issued by the IDC. SEL1 was made available to authorized users within about one hour. Owing to the interest in this event, the IDC expedited the production of its Reviewed Event Bulletin (REB) for the events of 25 May. The REB included observations from 31 primary seismic stations and 30 auxiliary seismic stations. Publicity was generated worldwide on an unprecedented scale by the performance of the monitoring system.

As a follow-up to the 2006 “Synergies with Science” symposium, the International Scientific Studies (ISS) Conference was held from 10 to 12 June in the Hofburg, Vienna. The ISS project aims to help the CTBTO Preparatory Commission keep pace with the latest advances in science and technology and to forge long term cooperative links with the scientific community. The conference attracted over five hundred scientists from about one hundred countries, together with diplomats and journalists. The results of the conference, as well as the final publication and the more than two hundred scientific posters presented at the meeting, were made available on the public web site and distributed to target audiences worldwide.

In the area of on-site inspection (OSI), a comprehensive review of the 2008 Integrated Field Exercise was conducted. This resulted in the collection of almost nine hundred observations, from which recommendations for subsequent implementation were developed. The exercise culminated in the preparation of a comprehensive action plan for further development of the OSI regime, which was approved by the Commission at its Thirty-Third Session. The action plan has five core projects: policy planning and operations, operations support and logistics, techniques and equipment, training, and procedures and documentation.

The achievements of 2009 and the renewed momentum in favour of the Treaty and the work of the Commission provided a strong stimulus to reinvigorate the political determination to achieve entry into force and universality of the Treaty.
## Abbreviations

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<tr>
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<tbody>
<tr>
<td>CIF</td>
<td>Capital Investment Fund</td>
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<td>DOTS</td>
<td>Database of the Technical Secretariat</td>
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<td>GCI</td>
<td>Global Communications Infrastructure</td>
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<td>IAEA</td>
<td>International Atomic Energy Agency</td>
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<td>IDC</td>
<td>International Data Centre</td>
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<td>IFE</td>
<td>Integrated Field Exercise</td>
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<td>IMS</td>
<td>International Monitoring System</td>
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<td>INGE</td>
<td>International Noble Gas Experiment</td>
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<td>IRS</td>
<td>IMS Reporting System</td>
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<td>ISS</td>
<td>International Scientific Studies</td>
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<td>KPI</td>
<td>key performance indicator</td>
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<td>MPLS</td>
<td>multiprotocol label switching</td>
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<td>NDC</td>
<td>National Data Centre</td>
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<td>NGO</td>
<td>non-governmental organization</td>
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<td>NPT</td>
<td>Treaty on the Non-Proliferation of Nuclear Weapons</td>
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<td>OSI</td>
<td>on-site inspection</td>
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<td>PCA</td>
<td>post-certification activity</td>
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<td>PTS</td>
<td>Provisional Technical Secretariat</td>
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<td>REB</td>
<td>Reviewed Event Bulletin</td>
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<td>SAMS</td>
<td>Seismic Aftershock Monitoring System</td>
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<td>SEL</td>
<td>Standard Event List</td>
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<td>SOH</td>
<td>state of health</td>
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<td>VPN</td>
<td>virtual private network</td>
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<td>VSAT</td>
<td>very small aperture terminal</td>
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<td>WMO</td>
<td>World Meteorological Organization</td>
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(31 December 2009)
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