The International Monitoring System will consist of 337 facilities around the world to monitor the planet for signs of a nuclear explosion. Around 90% of the facilities are already up and running.

The Comprehensive Nuclear-Test-Ban Treaty bans nuclear explosions by everyone, everywhere. The Treaty has been signed by 183 States, of which 164 have also ratified it, but it has not yet entered into force.

The Treaty has a comprehensive verification regime to make sure that any nuclear explosion is detected. The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization is building-up the verification regime so that it is operational when the Treaty enters into force. The regime has three pillars:

1. The International Data Centre at the Commission’s headquarters in Vienna receives gigabytes of data from the monitoring stations each day. The data are processed and distributed to the Treaty’s States Signatories.

2. After the Treaty enters into force, if the data from the International Data Centre indicate that a nuclear explosion has occurred, an on-site inspection could be sent to the area of the suspected explosion to collect evidence.

3. Putting an end to nuclear explosions

ANNUAL REPORT 2015

2015

Annual Report
The Treaty

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) is an international treaty that outlaws all nuclear explosions. By totally banning nuclear testing, the Treaty seeks to constrain the qualitative improvement of nuclear weapons and to end the development of new types of nuclear weapon. 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. The Treaty will enter into force 180 days after it has been ratified by all 44 States listed in its Annex 2.

When the Treaty enters into force, the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) will 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.

The 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.

The Commission, which is located at the Vienna International Centre, has two main activities. The first is to make all necessary preparations to ensure that the Treaty verification regime can be brought into operation at entry into force. The second is the promotion of signature and ratification of the Treaty in order to achieve entry into force.

The Commission is made up of a plenary body responsible for directing policy and comprising all States Signatories, and a Provisional Technical Secretariat to assist the Commission in its duties, both technically and substantively, and carry out such functions as the Commission determines. The Secretariat started work in Vienna on 17 March 1997. It is multinational in composition, with staff recruited from States Signatories on as wide a geographical basis as possible.
In 2015 States and civil society continued to manifest their strong support for the Comprehensive Nuclear-Test-Ban Treaty (CTBT) and the work of the Commission.

The ninth Conference on Facilitating the Entry into Force of the CTBT, on 29 September 2015, served as a platform for States Signatories to reaffirm their commitment to the Treaty and their desire for its universality. The conference was opened by the United Nations Secretary-General and chaired by the Foreign Ministers of Japan and Kazakhstan. Over 90 States Signatories attended the conference, many at the level of foreign minister or other senior levels. The participants included delegates from five of the Annex 2 States whose ratification is required for entry into force: China, Egypt, the Islamic Republic of Iran, Israel and the United States of America. The conference reviewed the progress towards bringing the Treaty into force and discussed strategies and efforts to achieve this. Its Final Declaration contains 14 practical measures to accelerate the ratification process and achieve entry into force.

The seventieth session of the United Nations General Assembly was another opportunity for States to highlight the important role of the Treaty in the international nuclear non-proliferation and disarmament regime.

Throughout the year, we increased our high level engagement with States. I met with President Michel Kafando of Burkina Faso, Pope Francis of the Holy See, President Hassan Rouhani of the Islamic Republic of Iran, President Mahamadou Issoufou of Niger, President Vladimir Putin of the Russian Federation, President Maithripala Sirisena of Sri Lanka, King Mswati III of Swaziland, President Gurbanguly Berdimuhamedov of Turkmenistan, and President Barack Obama of the United States of America.

I held talks with foreign ministers and other national cabinet ministers of States Signatories. They included Angola, Belgium, Costa Rica, Ethiopia, Finland, Gambia, the Holy See, Israel, Japan, Kazakhstan, Morocco, Myanmar, Niger, Romania, South Africa, Swaziland, Sweden and Turkmenistan. I also met with the High Representative for Foreign Affairs and Security Policy of the European Union. The powerful message of support that I received on all these occasions was very reassuring.

The senior statesmen, active and former politicians, and internationally recognized experts who make up the Group of Eminent Persons (GEM) continued their efforts to promote the Treaty. The group met twice in 2015, in Seoul, Republic of Korea, and in Hiroshima, Japan. During its meetings, GEM identified ways to advance the Treaty’s entry into force, including through a multilateral approach to engage the leadership of the remaining eight Annex 2 States with the aim of facilitating their ratification processes.
The Commission made further progress in strengthening its verification capabilities. Following successful outreach with host States, the Commission reached political agreements for the establishment of stations of the International Monitoring System (IMS) in a number of States in Africa and South America where there had been slow progress in the past. The organization also took major steps to complete some IMS facilities that were under construction. With additional certifications in 2015, the total number of certified IMS facilities reached 282, improving both the coverage and the resilience of the network. This figure represents 84% of the network foreseen by the Treaty.

The organization continued to provide States Signatories with near real time data from the IMS facilities and data products from the International Data Centre (IDC). It also took additional steps in commissioning the IDC. In this context, it developed a detailed road map for Phase 5b of the IDC Progressive Commissioning Plan and a new version of the validation and acceptance test plan.

The Commission’s activities in the area of on-site inspection (OSI) focused on evaluation of the 2014 Integrated Field Exercise. This helped in the preparation of a new OSI action plan for 2016–2019. Based on a review of its previous OSI training activities and inspection techniques, the organization also devised plans for the next OSI training cycle and for development of the inspection techniques.

CTBT: Science and Technology 2015, the fifth conference in the series, offered yet another occasion for the Commission to build on its partnership with the scientific community. By benefiting from cutting edge research, it can further improve the verification regime of the Treaty. Over 850 participants from 99 States – from the scientific and technology communities, academia, civil society and governments – attended the conference and engaged in its deliberations. Particular effort was made to ensure participation of young scientists through initiatives such as the citizen science panel, the young scientists evening and Academic Forum sessions.

Hundreds of nationals of States Signatories, in particular from developing countries, continued to benefit from our capacity building activities, workshops and educational programmes. We see this as an investment whose aim is to help States Signatories to better fulfil their Treaty obligations and to use the data and products of the verification system more efficiently.

States Signatories made a number of decisions that contributed to the further organizational development of the Commission and allow for better long term planning and budgeting. They decided to introduce biennial budgeting for the activities of the organization and to establish a multiyear funding modality. They also agreed on the procedures for the appointment of the Chairpersons and Vice-Chairpersons of the subsidiary bodies of the Commission.

These are just a few of our achievements in 2015. The following report provides more details on the many activities of the organization.

To close, I want to take this opportunity to thank States Signatories for their unconditional commitment to advancing the work of the organization.

Lassina Zerbo
Executive Secretary
CTBTO Preparatory Commission
Vienna, March 2016
Highlights of Activities

International Monitoring System Division
*Nurcan Meral Özel, Director*

- Preparations for the installation of new IMS stations
- Ability of radionuclide laboratories to analyse noble gas data

International Data Centre Division
*Randy Bell, Director*

- Further work in the progressive commissioning of the IDC
- Holding the CTBT: Science and Technology 2015 conference

On-Site Inspection Division
*Oleg Rozhkov, Director*

- Evaluation of the 2014 Integrated Field Exercise
- Development of a new OSI action plan

Legal and External Relations Division
*Genxin Li, Director*

- More high level engagement with States
- Promoting the nuclear test ban norm

Administration Division
*Thierry Dubourg, Director*

- Further improvement of the financial and budgetary arrangements of the organization
- Establishment of four multiyear funds
Contents

The International Monitoring System 1
Completing the International Monitoring System 2
Agreements for Monitoring Facilities 4
Post-Certification Activities 5
Sustaining Performance 5
IMS Technologies 11

On-Site Inspection 33
Policy Planning and Operations 34
Operations Support and Logistics 35
Training 36
Techniques and Equipment 39
Documentation and Procedures 41
On-Site Inspection Action Plan for 2016–2019 41

The Global Communications Infrastructure 17
Technology 18
Operations 19

Improving Performance and Efficiency 43
The Quality Management System 44
Performance Monitoring 44
Evaluation 45

The International Data Centre 21
Operations: From Raw Data to Final Products 22
Services 23
Build-up and Enhancement 23
Civic and Scientific Applications of the Verification Regime 27
CTBT: Science and Technology 2015 Conference 29

Integrated Capacity Building 47
Capacity Building Activities 48
Outreach 51
Towards Entry into Force and Universality of the Treaty 52
Group of Eminent Persons 52
Interacting with States 53
Outreach Through the United Nations System, Regional Organizations, Other Conferences and Seminars 54
Public Information 57
Global Media Coverage 58
National Implementation Measures 58

Facilitating the Entry into Force of the Treaty 59
Conditions for Entry into Force 60
New York, 2015 60
Shared Presidency 60
Expressions of Strong Support 61

Policy Making 63
Meetings in 2015 64
Supporting the Commission and Its Subsidiary Bodies 64
Participation of Experts from Developing Countries 65

Management 67
Oversight 68
Finance 68
Procurement 68
Voluntary Support Forum 68
Human Resources 68
Biennial Budgeting and Multiyear Funding 70

Signature and Ratification 71
States Whose Ratification is Required for the Treaty to Enter into Force 71
Status of Signature and Ratification of the Treaty 72
Abbreviations

3-C three component
ARAS alternative radionuclide analysis system
ARISE Atmospheric dynamics Research InfraStructure in Europe
ATM atmospheric transport modelling
AU African Union
CIF Capital Investment Fund
CNS James Martin Center for Nonproliferation Studies
CTBT Comprehensive Nuclear-Test-Ban Treaty
CTBTO Comprehensive Nuclear-Test-Ban Treaty Organization
DOTS Database of the Technical Secretariat
ECS Experts Communication System
ESMF Equipment Storage and Maintenance Facility
EU European Union
FIMS Field Information Management System
GCI Global Communications Infrastructure
GEM Group of Eminent Persons
IAEA International Atomic Energy Agency
IDC International Data Centre
IFE Integrated Field Exercise
IIMS Integrated Information Management System
INGE International Noble Gas Experiment
IMS International Monitoring System
ISTHAR Information System with Hyperlinks on Tasks Assigned by the Resolution Establishing the Preparatory Commission
IT information technology
ITF inspection team functionality
MPLS multiprotocol label switching
NDC National Data Centre
NGO non-governmental organization
NPT Treaty on the Non-Proliferation of Nuclear Weapons
NTI Nuclear Threat Initiative
O&M operation and maintenance
OPCW Organisation for the Prohibition of Chemical Weapons
OSC Operations Support Centre
OSI on-site inspection
PCA post-certification activity
PRTool performance reporting tool
PTE Proficiency Test Exercise
QA/QC quality assurance and quality control
QMS Quality Management System
REB Reviewed Event Bulletin
RRR Reviewed Radionuclide Report
SEL Standard Event List
SSD station specific documentation
UNIDO United Nations Industrial Development Organization
VDMS verification data messaging system
VIC Vienna International Centre
VPN virtual private network
VSAT very small aperture terminal
VSF Voluntary Support Forum
WGA Working Group A
WGB Working Group B
WMO World Meteorological Organization