The Commission offers States Signatories training courses and workshops on technologies associated with the three pillars of the verification regime – the IMS, the IDC and OSI – as well as on the political, diplomatic and legal aspects of the Treaty. These courses help to strengthen national scientific and decision making capabilities in relevant areas and assist in developing capacities in States Signatories to effectively confront the political, legal, technical and scientific challenges facing the Treaty and its verification regime.

In some cases, the Commission provides equipment to NDCs to increase their capacity to participate actively in the verification regime by accessing and analysing IMS data and IDC products. There is a need to update the knowledge and experience of national experts as technologies expand and improve. By enhancing the technical capabilities of States Signatories, these activities empower all stakeholders to participate in the implementation of the Treaty and to enjoy the civil and scientific benefits of its verification regime.

Training courses are held at the Commission headquarters in Vienna and at other locations, often with the assistance of hosting States. The capacity building programme is funded through the Regular Budget of the Commission and through voluntary contributions. All training activities have a well-defined target group, offer detailed content, and are complemented by the educational platform and other outreach activities to the broader scientific community and civil society.
INTEGRATED CAPACITY DEVELOPMENT

The Commission offered States Signatories a wide range of training courses and workshops aimed at strengthening capacities in areas relevant to the Treaty. Capacity development activities also included the provision of hardware and software to NDCs, especially those in developing countries, enabling them to access and analyse IMS data and IDC products.

Integrated capacity development and training activities in 2017 included 9 NDC training events, 11 station operator courses, 7 technical meetings/workshops, SnT2017 and an OSI Regional Introductory Course, as well as the participation of experts from developing countries in official technical meetings of the Commission.

The East Asia Regional NDC Workshop was held on 7-11 August 2017 in Hanoi, Viet Nam. Thirty-one experts from 11 States Signatories and the PTS attended the workshop, which focused on strengthening knowledge of the CTBT and the work of the Commission in order to build capacity of States Signatories in the region.

The International Hydroacoustic Workshop was held on 11-13 September 2017 in Vienna. Thirty-five experts from 18 States Signatories and the PTS attended the workshop, which covered three aspects of hydroacoustic monitoring of the CTBT: technological advancements in marine engineering, signal processing methods, and civil and scientific applications of IMS data and IDC products.

The Infrasound Technology Workshop was held on 23-27 October 2017 in Tromsø, Norway. Over 85 experts from 32 States Signatories and the PTS attended the workshop, the purpose of which was to create an international forum for presenting and discussing recent advancements in infrasound research and the operational capabilities of global and regional networks. The programme featured a visit to infrasound station IS37 in Bardufoss and, for the first time, a special session on atmospheric and space sciences that exhibit potential synergies with infrasound technology.

The Regional Seismic Travel Time Workshop was held on 13-17 November 2017 in Windhoek, Namibia. Thirty-four experts from 21 States Signatories and the PTS attended the workshop, the objectives of which were to strengthen knowledge of the CTBT and the work of the Commission, to build national and regional capabilities in implementing the Treaty and participating in the verification regime, to promote the civil and scientific applications of the verification technologies and to share data and develop the regional seismic travel time model in Africa through the acquisition of ground truth seismic locations.

The International Noble Gas Experiment Workshop was held from 27 November to 1 December 2017 in the United Kingdom. Approximately 100 experts from 26 States Signatories and the PTS attended the workshop, the purpose of which was to present and evaluate the most recent advances in noble gas monitoring in support of the CTBT. A major area of discussion was the acceptance process for new IMS noble gas monitoring systems.

Activities under the EU Council Decision VI project for 2016-2017 continued supporting capacity building in the South East Asia, the Pacific and the Far East and the Middle East and South Asia regions. PTS capacity building and training activities in all regions included advanced training courses in Vienna and expert visits in the field for on the job training.
The PTS installed three sets of basic NDC equipment to increase the capacity of States Signatories to participate fully in the verification regime and to enhance their civil and scientific activities by obtaining, analysing and reporting on IMS data and IDC products. Planning was initiated for the installation of another four sets in 2018. A technical maintenance plan for these capacity building systems was also launched.

Approximately 120 participants subscribed to the NDC e-learning course on access to and application of IMS data and IDC products in 2017.

A pilot training course for NDCs on infrasound data analysis was held on 4-8 December 2017 in Vienna. The new version of the NDC in a box virtual machine that was made available to NDCs in October 2017 was used during the course, which also included a component on the NPE. The upgraded virtual machine provides the capability to process data from IMS hydrophone stations in addition to SHI data.

**ON-SITE INSPECTION REGIONAL INTRODUCTORY COURSE**

Preparations for the OSI Regional Introductory Course 23 for the Latin America and the Caribbean geographical region were finalized. The objectives of the course, to be held in April 2018, are to acquaint national technical experts and personnel with the OSI regime, to broaden the pool of regional experts for participation in OSI related activities and to identify potential candidates for the roster of surrogate inspectors. The programme includes brief lectures, hands-on training, equipment demonstrations, tabletop exercises and a two day field exercise.

**PARTICIPATION OF EXPERTS FROM DEVELOPING COUNTRIES**

The Commission continued to implement the project to facilitate the participation of experts from developing countries in its official technical meetings. The aims of this project, which was initiated in 2007, are to strengthen the universal character of the Commission and to build capacity in developing countries. In November 2015, the Commission extended the project for three years (2016-2018), subject to the availability of sufficient voluntary contributions. A detailed annual report on the status of implementation of the project was issued in November 2017.

In 2017, the project supported the participation of experts from 12 States: Argentina, Ecuador, Iraq, Madagascar, Morocco, Myanmar, Namibia, Nepal, Niger, the Sudan, Tunisia and Viet Nam. These experts took part in the Forty-Eighth and Forty-Ninth Sessions of WGB, including formal meetings and meetings of the expert groups. They also benefitted from technical discussions with the PTS on key verification related issues.

Since its inception in 2007, the project has supported 42 experts from 35 States, including 13 women. Ten of these States are or were least developed countries. The participants came from 11 States in Africa (Algeria, Burkina Faso, Ethiopia, Kenya, Madagascar, Morocco, Namibia, Niger, South Africa, the Sudan, Tunisia), 1 in Eastern Europe (Albania), 8 in Latin America and the Caribbean (Argentina, Bolivia, Brazil, the Dominican Republic, Ecuador, Mexico, Paraguay, Peru), 6 in the Middle East and South Asia (Iraq, Jordan, Kyrgyzstan, Nepal, Sri Lanka, Yemen) and 9 in South East Asia, the Pacific and the Far East (Indonesia, Mongolia, Myanmar, Papua New Guinea, the Philippines, Samoa, Thailand, Vanuatu, Viet Nam).

Voluntary contributions from China, Germany, Kazakhstan, Turkey and the United Kingdom were used to finance the project in 2017, and part of these funds was carried over to 2018. The Commission continues to seek additional voluntary contributions to ensure the financial sustainability of the project.