The CTBTO Preparatory Commission offers States Signatories training courses and workshops in technologies associated with the International Monitoring System (IMS), the International Data Centre (IDC) and on-site inspection, thereby assisting in the strengthening of national scientific capabilities in related areas. In some cases, equipment is provided to National Data Centres to increase their capacity to participate actively in the verification regime by accessing and analysing IMS data and IDC products. Such capacity building serves to enhance the technical capabilities of States Signatories throughout the globe, as well as those of the Commission. As technologies expand and improve, so too do the knowledge and experience of designated personnel. Training courses are held at the Headquarters of the Commission, as well as in numerous external locations, often with the assistance of hosting States. The European Union also continues to contribute to the capacity building programme of the Commission.

**Highlights in 2010**

Development of country profiles and analyses for use in capacity building and training efforts for all geographical regions

Further development and use of e-learning modules as prerequisites for NDC training events

Delivery of capacity building systems to 14 NDCs
Country Profiles

A standard country profile for all States Signatories has been developed. This profile contains the information available at the PTS regarding the number of authorized users that the State has, the use of IMS data and IDC products, and participation in previous training events. The profiles serve as a reference before and during events and meetings with States.

Capacity Building Phases

The capacity building programme of the Commission for States Signatories includes training courses and workshops, equipment donations and technical follow-up visits. The programme, which continues to be supported by contributions from the European Union, consists of various phases:

- Development of country profiles for all States Signatories
- Provision of a regional NDC development workshop
- Provision of a two week training course for NDC technical staff
- Provision of one or more experts
- Provision of basic NDC computer equipment

The programme has been considerably enhanced with e-learning, which is being used on a routine basis and as a prerequisite for all training events for NDC technical staff, station operators and OSI inspectors.

Participants in a technical training course for station operators held in Vienna in 2010. Left: calibration of an infrasound barometer. Right: replacing the bearings and the air sampler in a radionuclide monitoring unit.
NDC DEVELOPMENT WORKSHOPS

Three NDC development workshops were conducted in 2010, in Australia (29 participants), in Jordan (19 participants) and in Vienna for the Eastern Europe region (12 participants). Their purpose was to promote understanding of the Treaty and the work of the Commission, to enhance national capabilities of States Signatories in the implementation of the Treaty, to promote the exchange of experience and expertise among States Signatories in the establishment, operation and management of an NDC, and to promote the application of verification data for civil and scientific purposes. The workshops included presentations from the Commission emphasizing the information needed to build and sustain NDCs, and presentations from representatives of NDCs in all stages of development. They also provided opportunities to collect additional information for the country profiles.

TRAINING NDC TECHNICAL STAFF

Following an NDC development workshop, NDC technical staff are trained over a two week period in accessing IMS data and IDC products, downloading and installing the NDC in a box software, and analysing data with the tools provided. A total of 62 NDC technical staff were trained in three two-week advanced courses held during 2010 in Malaysia, Spain and Vienna.

NDC CAPACITY BUILDING EQUIPMENT

As part of the capacity building strategy of the Commission, several sets of equipment necessary for establishing an adequate technical infrastructure at NDCs were purchased by means of the Regular Budget and Joint Action Projects III and IV of the European Union. The equipment has been delivered to 14 NDCs, and several more deliveries are planned for 2011. The equipment, provided as part of the technical assistance given to States Signatories to establish or strengthen their NDCs, enhances the capacity of an NDC to participate in the verification regime and to develop civil and scientific applications in accordance with the perceived needs.

NDC TECHNICAL VISITS

Following an advanced training course, a consultant is provided to the recipient country to assess how the participants are making use of what was learned at the course. The objective is to ensure that the trainees can routinely use data and products of the Commission. Specific needs and interests are also addressed during this visit.

TRAINING STATION OPERATORS

A diverse range of training events for station operators and NDC technical staff was provided in 2010. A total of
73 station operators benefited from nine courses, largely on the use and maintenance of equipment, but also covering procedures relating to reporting and communication with the PTS.

**WORKSHOPS ON MONITORING TECHNOLOGIES**

Infrasound Technology Workshop 2010, organized by the Tunisian NDC, the Centre national de la cartographie et de la télédétection, with the support of the Commission, took place in Tunis from 18 to 22 October. Highly acclaimed scientists from approximately 25 countries presented their work on the latest advances in infrasound technology. Major topics covered at the workshop included the status of the IMS infrasound network, the status of the IDC infrasound projects, sensor technology, network detection capabilities, data processing, modelling, comparison of infrasound and seismic signals, and volcanic signal analysis.

The Nuclear Regulatory Authority of Argentina hosted the 2010 Workshop on Noble Gas Monitoring and IMS Radionuclide Laboratories in Buenos Aires from 1 to 5 November with the support of the Commission. A total of 80 experts from around the globe in the field of noble gas monitoring and radionuclide laboratories attended the workshop. Research results, operational experience and information on procedures were exchanged and recommendations formulated on the following topics: science and technology, data analysis, the background xenon level, operation and failure analysis, certification, new and future developments in atmospheric transport modelling, OSI, laboratory quality assurance/quality control with respect to noble gas monitoring, the 2009 Proficiency Test Exercise and laboratory techniques.

**E-LEARNING**

The e-learning system was put into preliminary operation at the end of 2009 and its use increased throughout 2010. The development of e-learning modules with support from the European Union continued and with the available funds it was possible to expand the number of courses from that originally planned. By the end of 2010, 26 courses were available and 12 of them had been translated into the official languages of the United Nations.