Capacity Building

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 (OSI), thereby assisting in the strengthening of national scientific capabilities in related areas. In some cases, equipment is provided to National Data Centres (NDCs) 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.

HIGHLIGHTS IN 2009

- NDC development workshops in the Dominican Republic and Mexico
- Advanced NDC capacity building courses in Chile, Morocco and the United Republic of Tanzania
- Infrasound, noble gas and laboratory workshops

TRAINING STATION OPERATORS

A diverse range of training events for station operators and NDC technical staff was provided in 2009. Station operators benefited from eight courses, largely on the use and maintenance of equipment.

TRAINING ANALYSTS

Review of data and generation of reviewed data products are core functions of the Commission. Analysts sift through volumes of data, providing an accurate accounting of all events that meet specific criteria. The job is demanding and requires a high degree of skill. The IDC analysts’ course is the longest of the training courses offered by the Commission; it lasts more than three months and requires a large commitment from the participants. From the numerous applicants, only 10 were chosen to come to Vienna in 2009 for the demanding course of instruction. Most of the course offered hands-on training with the analytical tools, preceded by a succinct theoretical introduction. By the end of such a course, the trainees leave in a much stronger position to apply for analyst posts in the organization.

NDC DEVELOPMENT WORKSHOPS

Two NDC development workshops were conducted in 2009, one from 25 to 27 May in Santo Domingo, Dominican Republic, and the other from 12 to 14 August in Mexico City. Each was attended by 20 persons. 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.

**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 60 NDC technical staff were trained during 2009 in three such courses held in Chile, Morocco and the United Republic of Tanzania.

**NDC CAPACITY BUILDING EQUIPMENT**

As part of the PTS capacity building strategy, several sets of equipment necessary for establishing an adequate technical infrastructure at NDCs were purchased. The equipment, including a server, workstation, uninterruptible power supply, backup system, rack and printer, has been delivered to six NDCs, and additional deliveries are pending. 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 according to the perceived needs.
INFRASOUND, NOBLE GAS AND LABORATORY WORKSHOPS

Brasilia

The 2009 Infrasound Technology Workshop, organized by the Seismological Observatory of the University of Brasilia with the support of the Commission and the Federal District Research Support Foundation, took place from 2 to 6 November in Brasilia. The current status of the IMS infrasound network and IDC processing was presented. Other major topics covered at the workshop included data processing and modelling, including detection algorithms, source categorization, propagation simulations and improvement of the existing atmospheric models, instrumentation and calibration techniques.

Daejeon

The Korean Institute of Nuclear Safety hosted the 10th International Noble Gas Experiment (INGE) Workshop in Daejeon, Republic of Korea, from 9 to 13 November with support from the Commission. The workshop focused on major topics related to noble gas measurements as an integral part of the verification regime, namely: developments in science and technology; data analysis techniques; operations, performance and new developments in noble gas systems; certification of IMS systems; requirements and applications in OSI; laboratory quality assurance/quality control and calibration; atmospheric transport modelling; and xenon spectrum and event categorization.

The workshop recommended the study by the PTS of resources needed to bring noble gas systems into provisional operation as requested by Working Group B. It further recommended that discussion continue on OSI related issues within the framework of INGE.

Seattle

The Pacific Northwest National Laboratory in Richland, Washington, USA, which also hosts a certified CTBT radionuclide laboratory (RL16), hosted the 2009 Informal Radionuclide Laboratories Workshop from 7 to 9 December in technical cooperation with the Commission. The workshop addressed issues related to the Proficiency Test Exercises organized by the PTS, in particular the criteria for evaluating the results and consequences for failing these criteria. Presentations were also given regarding laboratory operation, results of the network quality assurance/quality control programme, analysis by laboratories of Level 5 samples (which contain multiple anthropogenic nuclides and are therefore Treaty-relevant) and techniques in analysis of IMS samples. The workshop made several recommendations, including the introduction of a new grading scheme for Proficiency Test Exercises while retaining the principal tests used to evaluate results in previous exercises.

E-LEARNING

Traditional training activities by the Commission have been mostly typical classroom training and field exercises. To enhance the learning opportunities for States Signatories and staff of the Commission, e-learning is provided to complement classroom training and to broaden the reach of the training programmes for station operators, NDC technical staff and potential OSI inspectors. The e-learning platform can also be used to train staff of the Commission and to offer educational material to States Signatories.

The primary objectives of the e-learning project are as follows: (a) to increase the number of participants in training activities of the Commission; (b) to prepare individuals prior to their participation in traditional classroom training and field exercises; (c) to reduce lecture room time in favour of field activity or hands-on exercises; (d) to provide a means for individuals to learn at their own pace where appropriate; and (e) to broaden the base of potential candidates for posts with the Commission, thereby assisting recruitment.

The e-learning system benefited in 2009 from the development of several e-learning modules with support from the European Union. The modules cover topics ranging from the history of the CTBT and national implementation to verification technologies, data collection and processing, and data and product distribution. The modules were used for the first time in 2009 as an integral part of training courses and were well received. Many of the existing modules will be translated into the six official languages of the United Nations, and additional modules are scheduled for development in 2010.