Putting down its digital feet

A CTBTO project offers Member States the keys to better use its knowledge

BY PETER RICKWOOD

INFRASOUND STATION IS32
Training at the infrasound station in Nairobi, Kenya

An automated global monitoring system upholds the Comprehensive Nuclear-Test-Ban Treaty (CTBT) by verifying the absence of nuclear explosions. As the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) expands its monitoring system, it is assisting more people develop the skills to make better use of the information it provides.

In the South Pacific islands of Samoa, Siosinamele Lui is seeking ways to complement the digital output of the CTBTO's International Monitoring System (IMS) with the Lali drum, a large traditional instrument made from the trunk of a tree.

TSUNAMI WREAKS HAVOC ON SAMOAN ISLANDS

The Samoan islands lie less than 200 km north of the Tonga Trench, a subduction zone where the Pacific and Australian plates collide and create one of the deepest undersea canyons on Earth. In September 2009, 143 Samoans died when a tsunami created by a powerful earthquake roared ashore.

The Lali's loud drumming is among the warning signals employed by Samoa, together with the pealing of church bells, radio and television alerts, and text messaging to warn of impending danger from the sea.

Samoa hosts one IMS auxiliary seismic monitoring facility, which transmits data to the CTBTO's International Data Centre (IDC) in Vienna. But the islands don't possess the capability to make use of the data it provides, said Lui, a technical officer in the Meteorology Division of the Samoan Ministry of Natural Resources and Environment and responsible for CTBT data communications and equipment maintenance for Samoa.

SAMOA TO MAKE BETTER USE OF CTBT MONITORING DATA

That's about to change and a pillar of the Samoan response will be to make use of IMS data. Under the terms of the CTBT, the 182 countries that have signed it have access to all the data provided by its four monitoring technologies – seismic, hydroacoustic, infrasound and radionuclide.

However, another Treaty requirement is that although the Vienna-based organization provides reviews of the 10 gigabytes of information that currently flow into its headquarters by satellite from over 250 monitoring facilities every day, it is up to its Member States to pass the final judgement.

NINE COUNTRIES REPRESENTED IN TECHNICAL PROJECT

Last year Lui was invited to represent Samoa at a technical meeting at the CTBTO's Vienna headquarters as part of a project. The project was launched in early 2007 to enable experts from developing countries to attend technical meetings organized by the CTBTO.

Open to CTBTO Member States, nine technical experts now participate from Ethiopia, Kenya, Mexico, Mongolia, the Philippines, Samoa, Sri Lanka, Tunisia and Turkmenistan. Funding is provided by contributions from 19 countries and the Organization of the Petroleum Exporting Countries (OPEC) Fund for International Development.

Meeting with three of the project's technical experts. from left to right Norbert Opiyo-Akech, Siosinamele Lui, Peter Rickwood, Xyoli Pérez-Campos

Photo: Pablo Mehlhorn

PROJECT OFFERS NUMEROUS BENEFITS

Participants gain important professional knowledge about the CTBTO's verification work by attending the meetings, e.g. they learn about the benefits of IDC data and products, including their application for broader civil and scientific purposes. The experts' home countries are thus able to make better use of the verification data and products. Participants and CTBTO technical staff are able to exchange views on a range of technical matters, including specific issues related to IMS stations and National Data Centres (NDCs). The experts' input to its technical meetings is invaluable for the CTBTO and can assist with plans for national implementation of the Treaty.

Lui returned in February 2010 to a second meeting at the CTBTO, when she spoke to *Spectrum*. "It is really opening my eyes," she said. "We didn't know we could get this support – products and programmes, It feeds into [the development of] our own internal structure."

"We had no knowledge about how to set up an NDC," said Lui. "We were sending data to Vienna but we didn't have direct access to our own data. We didn't get it automatically."

GREATER INVOLVEMENT AT THE TECHNICAL LEVEL

Among other technical experts taking part in the project is Xyoli Pérez-Campos, from Mexico, which hosts three auxiliary seismic stations, a hydroacoustic station and a radionuclide station. Pérez-Campos is a researcher for the Seismology Department at the Geophysics Institute of the National Autonomous University of Mexico.

"When I started coming here (in 2008) the relationship started to change. [Previously] my institution didn't know how to approach the CTBTO."

Without the technical expertise, said Pérez-Campos, Mexico "hadn't paid much attention to technical aspects of the CTBTO – we received documents and just looked at them and didn't know their context, the history. Now we comment on them, we are getting more involved in what is going on here [at the CTBTO's headquarters]."

There's also been a strengthening of regional ties as a consequence of her involvement, she said. "I hold meetings with Latin American Missions in Vienna and inform them about what is going on, from the point of view of technical expertise – what I think is important and what is not." As well, technical experts now have a direct line to Vienna, she added.

As point of contact with the CTBTO for Kenya, which hosts one IMS seismic and one infrasound station, Norbert Opiyo Akech said he had remained outside of technical discussions before joining the project. But that changed in 2007 when Opiyo-Akech, a geologist and then Dean of the Faculty of Science at the University of Nairobi and manager of the IMS stations in Kenya, joined the CTBTO's working group concerned with verification issues through the project. In 2008 he was appointed a Task Leader for issues related to NDCs.

REGIONAL WORKSHOP TO BE HOSTED IN KENYA

As a result of his participation in the project, Kenya is now more proactive and more fully involved in CTBTO activities. In May, an NDC evaluation workshop is to be held in Nairobi, Kenya, bringing together emerging NDCs from the region as well as including training activities and demonstrations from NDC operators in Italy, Germany and Austria.

Opiyo-Akech is also a reliable source of information to whom the public turns in a crisis. When Nairobi was affected by tremors associated with the Oldonyo Lengai volcanic activities in northern Tanzania in July 2007, he was woken up at four in the morning and later explained the event on national television in Kenya.

BIOGRAPHICAL NOTE

PETER RICKWOOD
worked for most of his career as a journalist before joining the International Atomic Energy Agency (IAEA) as a press officer in 2001 where he worked for eight years. He has been working in the Public Information section of the CTBTO since October 2009.