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FORUM FOR NUCLEAR SECURITY

Roundtable

The Power to Act: Advancing Nuclear Security to Prevent the Unthinkable

Statement by
Executive Secretary Dr Lassina Zerbo

A Success Story: How the International Community Prevents Nuclear Weapons Testing

Secretary Shultz,
Secretary Perry,
[Under-Secretary Gottemoeller],
Distinguished guests,
Ladies and Gentlemen,

Starting the day with a “success story” may be run-of-the-mill at a Silicon Valley tech conference, but believe me when I tell you that in the world of arms control, it’s quite unusual. Yet this is the message I have for you today: 18 years ago, the international community created a means of ensuring that no nuclear explosion goes undetected. After more than 2000 nuclear tests from 1945 to 1996, the number of tests was quickly reduced to a dribble. In this century only one country – North Korea – has tested, and our verification regime has caught it every time.

The Comprehensive Nuclear-Test-Ban Treaty bans nuclear explosions on the Earth’s surface, in the atmosphere, underwater and underground. Everywhere. Time is short, so we can get into the arms control or disarmament benefits of that in the moderated discussion if you like. What I want to focus on right now is how we do what we do, and how we can work even better by linking up with new technologies and new scientific approaches.

The CTBT features a unique verification regime based on the collection and processing of data from a network of 337 facilities worldwide. Our International Monitoring System uses

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seismic, hydroacoustic, infrasound, and radionuclide technologies to monitor the planet for signs of nuclear explosions. The CTBTO International Data Centre in Vienna, Austria, receives data from stations. This is then processed and distributed to Member States in both raw and analyzed form.

There is nothing else like this in the world. No one country has access to this kind of data without CTBTO membership.

How do we measure success? I mentioned North Korea. When that country tested in 2006, 2009 and again last year, our Member States received accurate information about the location, magnitude, time and depth of the tests within two hours.

Our monitoring system is also kept on its toes by what we call its “civil and scientific applications”. Let’s face it; the CTBTO’s job is to be ready for something we hope never occurs. And there is a cost for that readiness. With an annual budget of about USD 120 million shared between 183 Signatory States, we know we provide good value. Nonetheless, civil applications such as seismic hazard analysis; scientific applications such as using our data to better understand the oceans and marine life; even industrial applications such as supporting the national mineral wealth management of a country, all provide added value to Member States while giving our stations and our data a workout.

Just to give you an idea of how the huge amount of data collected by our stations can be used, for some years we have provided earthquake detection and real time warning of tsunamis. Following the March 2011 East Japan earthquake, tsunami, and nuclear power plant accident, our network’s radionuclide stations tracked the dispersion of radioactivity on a global scale.

But our greatest success of all is, of course, a virtual end to nuclear testing. Testing has stopped because States adhere to the Treaty. States adhere to the Treaty – which, by the way, is still not in force until eight named countries, including the United States, take steps to ratify it through their national institutions – because they trust how it works and regard its output as credible.

The issue of trustworthiness has a lot to do with the multilateral, all-inclusive nature of the Treaty and a verification regime that serves all Member States equally. The CTBTO does not

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judge whether the data or data products we produce definitively point to a nuclear explosion. That is for Member States to do. When a potential event of this kind occurs, every State needs to have its own technical analysis of the data.

So in order to maintain this trust, we have to make sure that all countries have the capacity to render an opinion on the data. All should have access, and all should understand it. This is of major consequence to the majority of the world's nations which are still developing countries. For this we need to continually transfer tools and know-how to CTBT National Data Centres in all regions.

The second, related, issue is credibility. By this I mean scientific and technical credibility. In order to remain credible, we have to use methods that are regarded as credible by the scientific community. As the scientific community moves forward and introduces new methods, new understandings, new systems of measurement, we need to be – if not *leading* technology – then at least close to the crest of that wave.

That's why we in CTBTO regard technology foresight as the key to maintaining our verification system, and thus maintaining the credibility of the nuclear test ban. We need to keep abreast of new developments that can either enhance the four technologies we use, supplement them, or potentially even replace them in due course.

I have often encountered the attitude in highly-specialized companies – I'm an industry man myself – that "our business is unique. No-one else can do what we do". I have sympathy with that attitude. I do believe what we do in CTBTO is unique. But aspects of what we do are not. We are not the only entity with experience in a global monitoring network of some sort, or in handling and processing large volumes of data, or in meeting critical time deadlines for international stakeholders. I have no doubt that we can learn a lot from others with similar roles to play.

We can also learn from others who, when the Treaty was first drawn up, might not have had any obvious link with nuclear test monitoring. Some consider the potential use of social metadata of some sort as a promising supplement to our work, for example.

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One mechanism for technological outreach is our series of Science and Technology conferences. We hold these every two years in Vienna in order to engage participants from different disciplines – a cross-pollination of academia, IT, industry, and so on. Not only does this promote awareness of the CTBT, it also allows us to expand the pool from which we can draw new practitioners of our art. Most of all, it gives us the opportunity to harvest new ideas for our verification regime.

The next such Conference, SnT2015, will be in June next year, and I hope we can attract some people from the Silicon Valley community. I am passionate about technology, and what I've just described to you is a technology-based success story. As I said at the start, we don't have enough success stories in arms control. For that we need to learn more from the tech community here. I look forward to the discussions and to meeting you all individually.

Thank you.