Editorial

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It's been a while since we brought you CTBTO Spectrum, and much has happened in the meantime.

The COVID-19 pandemic has thrust the world into an unprecedented crisis – one that underscores more than ever the vital need to tackle global threats with a unified, multilateral approach, infused by solid science. For several weeks the vast majority of CTBTO colleagues worked remotely, after our headquarters closed to all but a skeleton presence in line with our Host Country's measures to slow the spread of the virus.

Yet I'm proud to say that thanks to the tenacity and dedication of both our own staff in Vienna and the network of member-state colleagues who maintain International Monitoring System (IMS) facilities across the globe, the CTBTO's core operations have been maintained without interruption. The data has kept flowing and the analysis has continued unabated, keeping our promise to ensure no nuclear explosion can go undetected.

We will emerge from this pandemic into a changed world. We do not yet know exactly what form it will take, nor whether the crucial need for preparedness, international collaboration and science-driven policies that COVID-19 has so clearly demonstrated will regalvanise shared approaches to other urgent global challenges.

Few of those challenges are more pressing than nuclear non-proliferation and arms control, which in recent years has seen a clear and dangerous erosion of treaty-based norms. Tensions are high and trust is low as we mark the 50th anniversary of the landmark Treaty on the Non-Proliferation of Nuclear Weapons (NPT) and approach its 10th Review Conference. This special issue of CTBTO Spectrum throws a spotlight on issues vital to the 10th Review Conference – postponed because of the pandemic and now due to take place by April 2021 – and the essential place of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) within the nuclear non-proliferation and disarmament framework.

STRENGTHENING AND PERFORMING

Since our last edition of CTBTO Spectrum in September 2015, four more states – Myanmar, Eswatini, Thailand and Zimbabwe – have ratified the CTBT, and Tuvalu has signed. The total of States Signatories now stands at 184, reinforcing the CTBT's continued status as one of the world's most widely supported arms control treaties.
In the same period, North Korea has conducted three more nuclear tests, bringing its total to six. The IMS detected all of them, with the most recent, on 3 September 2017, picked up by over 134 IMS stations.
The CTBTO has continued to build up its verification network and strengthen other important infrastructure. In December 2019 we reached the milestone of 300 certified IMS facilities, with the addition of infrasound station IS01 in Argentina and radionuclide laboratory RL14 in South Africa.
Just over a year ago we inaugurated our brand-new Technology Support and Training (TeST) Centre in Seibersdorf, Lower Austria, a hub for storage, maintenance and testing along with top-level training facilities. The TeST Centre contributes to all elements of the verification system of the CTBT: the IMS, the International Data Centre (IDC) and the On-Site Inspection (OSI) capability. We also opened our fully refurbished, state-of-the-art Operations Centre at our Vienna headquarters.

The 2019 Science and Technology (SnT) Conference was our largest SnT conference yet, with 1200 participants convening to support the exchange of knowledge and strengthen the engagement of the scientific communities working in test-ban monitoring. And in the spirit of my personal commitment to the International Gender Champions campaign to break down gender barriers, I'm heartened to report that the CTBTO's Provisional Technical Secretariat has reached gender parity at the directors' level.

BOLSTERING THE SCIENCE-DIPLOMACY NEXUS

Given the importance of the 10th NPT Review Conference and the delicate state of the regime, for this issue of CTBTO Spectrum we have interviewed a broad range of experts – including several members of our Group of Eminent Persons (GEM) – for their reflections on the enduring role of the CTBT and its potential to rebuild trust in an atmosphere of international tension. A core theme that emerges is growing mistrust between states, and the erosion of the classic arms control architecture rooted in negotiated treaties and agreements.

Ahead of the Review Conference, we must remind ourselves that these carefully crafted treaties are not just pieces of paper. These negotiated compromises, and the robust verification regimes that have been built around them, foster confidence and trust in the international system of states, which ultimately provides long-term security to all.

To address these global challenges effectively, we urgently need to strengthen the nexus between science and diplomacy. The importance of science and scientific knowledge in informing diplomatic discussions, and providing apolitical facts for decision-making and negotiations, cannot be overstated. I firmly believe that science diplomacy can foster trust between nations at these times of heightened tension. Finding common ground is difficult, particularly if national positions harden against a background of strategic competition. Science can be an avenue to open up cooperation, reach beyond political differences and help to build trust and understanding. It can serve as an efficient tool for dialogue in times of relative distance or disagreement, and offer platforms for new forms of interaction and resolution on topics that are politically sensitive. Even at the height of the Cold War, adversaries were able to maintain scientific links and even active scientific cooperation.

Science can unite countries to address cross-border challenges such as pandemics, climate change, energy supply and poverty eradication, which are simply out of reach for any single nation to address independently. The 2015 Sustainable Development Goals (SDGs) provide a solid endorsement of global scientific cooperation on issues that are vital for all human beings, irrespective of region, culture or identity. In many areas, no solutions are possible without the contribution of scientists. The COVID-19 pandemic is proof of this.

THE CTBT AS BRIDGE-BUILDER

The CTBT itself is one of the greatest examples of science diplomacy. A Group of Scientific Experts brought together scientists from different countries to conduct joint research into possible monitoring technologies and data analysis methods for the verification of a test ban. It was the work of these scientists that made the negotiation of the CTBT possible, by proving that a comprehensive, zero-yield nuclear test ban could be verified.It is scientists and technicians who have established the world's only global monitoring system for nuclear tests. The IMS is an impressive feat of science and diplomacy: a technological network located worldwide that can catch signs of nuclear explosions, while also yielding a range of civil and scientific benefits.

There is every reason for science to continue helping to maintain crucial channels of communication in the face of global geo-political tensions. Today's challenges to the non-proliferation regime and the global security environment require continued dialogue, increased cooperation and a genuine restoration of trust. I strongly believe that science and verification regimes can serve to reassure states about the implementation of commitments vis-a-vis nuclear non-proliferation and disarmament.

I'm encouraged by evolving initiatives on dialogue between nuclear weapons states and non-nuclear weapons states on disarmament verification and non-proliferation. Frank and constructive exchanges should be encouraged and continued in order to maintain channels of communication that can foster relationships of respect, empathy and trust. And I profoundly hope that when the States Parties are finally able to gather for the NPT Review Conference, they will re-commit to multilateral, cooperative measures.

It is my goal to ensure that our great scientific endeavour of the CTBT is secured for all time. Eight countries need to complete their ratification procedures before we can say the CTBT and its monitoring system are secure. The situation in the Korean Peninsula offers a potential path to help make this a reality. The CTBTO stands ready to make its assets and expertise available to contribute to denuclearization efforts, should States Signatories call upon us to do so. There are a number of ways we could contribute. Our real value-added would be in test-site closure activities; in helping to verify a nuclear test moratorium; and in securing signature and eventual ratification of the CTBT by North Korea as a confidence and trust-building measure.

The CTBT is and can continue to be a common denominator among states, especially when other agreements are eroding, expiring or even losing relevance. The value and the contributions to international security that the CTBT and its verification regime provide are irrefutable. It is our collective duty to reaffirm our global commitment to the norm of non-testing and the technical treasure that is the CTBT verification regime, in order to shore up this key element of the international security framework. When other elements of this regime are weakened, the CTBT and its verification regime need to be reaffirmed and strengthened, for our own security and the security of our children.

The tragedy of COVID-19 has thrown a stark light on the need for cooperation and preparedness. But to prepare for nuclear weapons to be used is too late. The only option is prevention.