This year on 27 September, foreign ministers will once again gather at the United Nations Headquarters in New York to promote the entry into force of the Comprehensive Nuclear-Test-Ban Treaty (CTBT). Participants will make a commitment at the highest political level regarding the urgency of securing this objective. The meeting will result in a Joint Ministerial Statement appealing to all States to make the utmost effort to establish a legally-binding, comprehensive prohibition on all nuclear explosions.

One of the conveners of the meeting, Finland’s Foreign Minister Erkki Tuomioja, argues in this issue of Spectrum that the CTBT’s entry into force will considerably strengthen the global security architecture and benefit the whole world. Nuclear scientist Siegfried S. Hecker comes to a similar conclusion, maintaining that nuclear possessor States stand to gain more than they lose from CTBT ratification. And former UN Under-Secretary-General for Disarmament Affairs, Jayantha Dhanapala, urges more countries to follow the example of Indonesia and ratify the Treaty, showing how Asian nations can lead by example.

By banning all nuclear explosions, the Treaty’s political benefits are evident. Less obvious is the contribution of CTBT monitoring data to disaster mitigation, such as tsunami warnings. State-of-the-art facilities making up the International Monitoring System (IMS) of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) have been sharing their data with tsunami warning centres around the world since 2005.

Chile’s Foreign Minister Alfredo Moreno describes in his article the important role of the IMS when the magnitude 8.8 earthquake struck Chile on 27 February 2010, claiming many lives. About 20 IMS seismic stations sent their data within less than one minute to the CTBT in Vienna, where they were forwarded immediately to tsunami warning centres in the Pacific Ocean. One of the stations that contributed to this early warning effort, hydroacoustic station HA03 on Juan Fernandez Island, around 600 kilometres off the Chilean coast, was itself subsequently destroyed by the tsunami wave and is currently being rebuilt.

Tatsuro Suzuki of the Japan Atomic Energy Commission highlights the significance of another application of CTBT data: monitoring the spread of radioactive particles and noble gases around the globe, as was the case after the Fukushima nuclear accident. The Foreign Editor of Hindustan Times, Pramit Pal Chaudhuri, also refers to the use of CTBT verification data for disaster mitigation, which, in his opinion, is an added incentive for India to join the Treaty.

The raison d’être of the IMS is, of course, to detect nuclear explosions, but nuclear testing will only be outlawed once the CTBT has entered into force. J-Bum Kang, the former Project Manager of primary seismic station PS31 in the Republic of Korea, describes the role the station played when North Korea conducted its first nuclear test on 9 October 2006. North Korea is one of eight countries that must sign and/or ratify the Treaty before it can enter into force.

While preparing for this, the CTBTO is carrying out a number of on-site inspection exercises and field experiments. In her article, former CTBTO staff member Kirsten Haupt takes an in-depth look at some of the exercises leading up to the next full-scale on-site simulation in Jordan in 2014. She provides readers with an impression of the vast technical and logistical challenges involved.

Non-proliferation training and education activities also play a pivotal role in promoting the Treaty and its verification regime. In this respect, the CTBTO launched the Capacity Development Initiative (CDI) in 2011 to train the next generation of experts in all legal, political, technical and scientific aspects of the CTBT and its verification regime. Elena Sokova of the Vienna Center for Disarmament and Non-Proliferation concludes that the availability of dedicated disarmament and non-proliferation programmes and courses falls short of demand and should be more comprehensive, sustainable, and global. The CDI is therefore a timely and welcome development in this field, she explains.

The cessation of all nuclear tests would be a monumental step towards the elimination of nuclear weapons, a goal which US President Ronald Reagan and Soviet General Secretary Mikhail Gorbachev came close to achieving at the 1986 summit in Reykjavik, Iceland. More than 25 years later, the meeting’s potential to fundamentally change the course of history continues to ignite the imagination. In order to stimulate debate on the lessons learned, opportunities missed and what is needed today to move forward with nuclear disarmament, the CTBTO is organizing a reading of the play ‘Reykjavik’ by Pulitzer Prize winner Richard Rhodes on 27 September 2012 in New York. The reading will be followed by a panel discussion entitled ‘25 years since Reykjavik – will we get it right in the next 25?’ Gorbachev will deliver a video message to open the discussion, which will feature key players from the 1986 summit. Progress towards the CTBT’s entry into force over the coming years will be a sure indicator of whether the lessons learned from the Reykjavik summit have been heeded.