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**NUCLEAR WEAPONS TESTING:  
HISTORY, PROGRESS, CHALLENGES**

Commemorating United Nations International  
Day Against Nuclear Testing

**Executive Secretary Lassina Zerbo  
Monday, September 15, 2014**

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I would like to first acknowledge and thank the organizers and co-sponsors for putting this important event together. The people of Kazakhstan understand all too well the disastrous consequences of nuclear testing, and I commend them and the government of Kazakhstan for their dedicated efforts to achieve the discontinuance of nuclear testing for all time.

I would also like to thank the presenters who have already spoken for their contributions to the discussion on the security and human dimensions of nuclear testing, as well as the role of the CTBT in putting an end to nuclear explosions. That we have heard from such distinguished representatives from governments and civil society today is a testament to the continued salience of the CTBT within the framework of international peace and security.

We have heard from the previous speakers about the need to achieve progress on the entry into force of the CTBT, as well as the current challenges facing the international community in securing the necessary ratifications from the remaining Annex 2 States. We face the undeniable fact that the political complexities preventing these States from completing the ratification process will not be resolved overnight.

These issues are multi-layered and fundamentally intertwined with other competing national objectives, and I believe that it is up to each non-ratifying State to determine the value and contribution of the Treaty to its own national interest. However, I see our role as one that provides a constructive framework for that national debate; one which will hopefully lead to the decision to ratify the Treaty.

What I can say with certainty is that with more than 180 signatory States and 163 ratifying States, the CTBT enjoys virtually-universal support in the international community. I can also say with confidence that we have achieved great success in the build-up of the Treaty's verification regime in the last decade. Made up of 337 monitoring facilities and 250 communication assets, the International Monitoring System has truly global reach and is nearly 90% complete. Although still labelled as a "*preparatory*" organization, we are anything but preparatory in our work. There is still much work to be done, but with regard to both the political and technical challenges of implementing the Treaty, we are well on our way.

Then where do we find ourselves today? At the CTBTO, we are continuing to focus on the core missions at hand and carrying out the mandate of the organization. Namely, we are working diligently on the formidable tasks of establishing the Treaty's verification system and preparing for the Treaty's entry into force. Understanding that there is a credible and trustworthy assurance that no would be violator can be confident in carrying out a clandestine nuclear test will be a vital part of the decision making process for those Annex 2 States that have yet to ratify the Treaty.

This is precisely why one of the two overarching mission of the CTBTO that I've outlined in our Mid-term Strategy is just that: a credible and trustworthy verification system. At the same time, the Treaty can only be fully implemented after its entry into force, when the prohibition becomes legally binding for all States Parties. This is also true of the final verification measure of the Treaty, the provisions for on-site inspections. Therefore, the second overarching mission of the CTBTO is support and preparation for entry into force.

Within these guiding principles and under the overarching missions of the organization, I've set forth the two strategic goals: the Operation and Sustainment of the Verification System, and Development of OSI Operational Capabilities.

Enormous investments have already been made in the system by member States, and it is imperative that these investments be protected. Moreover, as more stations come online and the volume of data increases, it is crucial that the international community continues to recognize the importance of sustaining the IMS and IDC operations in order to improve the provision of data, products and services.

Demonstrating the credibility of the IMS and IDC by maintaining their readiness to provide timely response to suspicious events directly aligns with the overall objective of achieving the Treaty's entry into force. In order to achieve this objective, we will continue to work with States to promote understanding and increase awareness of the Treaty and its verification regime. In other words, continuing to demonstrate the effective and efficient detection capabilities of the verification system serves as the bedrock foundation of the added value that the Treaty provides for ratifying states and those considering its ratification.

The verification regime has continued to evolve over the past decade as the number of monitoring stations steadily increased and the technologies used continue to improve. The system's reliability and sustainability has also improved as our operational experience with the system increases over time.

This has been demonstrated by the performance of the system in detecting the nuclear tests announced by the Democratic People's Republic of Korea. In 2006 the identified test area was 880 km<sup>2</sup>, whereas in 2013 the increased accuracy of our system allowed us to narrow the test area down to 181 km<sup>2</sup>, well within the 1000 km<sup>2</sup> that the Treaty mandates for an on-site inspection. In addition, analysis of the ratios of Xenon gasses detected by our Noble gas

station in Japan 55 days after the 2013 announced DPRK nuclear test were consistent with a late release of the gasses from the DPRK test site.

Even with a comparatively small estimated yield, the 2013 event was detected by 94 IMS seismic stations and 2 infrasound stations. 88 of those were used in the event location. The more stations that are used in the location, the smaller the size of the error ellipse, which increases the probability of a successful OSI in the event of a Treaty violation.

It is also important to prepare for the final verification measure of the Treaty, the provision for on-site inspections, which will only take place once the Treaty is in force. We need to be ready, and to this end, we will hold an Integrated Field Exercise (IFE14) in Jordan in November and December this year.

IFE14 will provide the opportunity to practice newly acquired skills, test our capacity and refine our competencies. This will test crucial aspects of the launch, pre-inspection, inspection and post-inspection phase in an integrated manner over 5 weeks. This will further strengthen confidence in the entire verification regime and assure that the OSI capability will be ready following the Treaty's entry into force. I am particularly pleased that Under Secretary Rose Gottemoeller and Deputy Administrator Anne Harrington, as well as Daryl Kimball of the Arms Control Association, will join us in Jordan for the high level visit.

When the IMS is combined with an effective on-site inspection regime, no potential violator would be confident that a militarily significant nuclear test could go undetected. We've proven that the Treaty is verifiable through an international monitoring system that is unique, reliable and efficient. And we've built a deterrent that gives countries' peace of mind.

However, in order to ensure that the verification regime remains current, we must also strive to identify key scientific and technological developments that could affect its future operations. We have sought to strengthen our relationship with the broader scientific community, through the Science and Technology Conferences, which are organized for scientists and experts from the broad range of the CTBT's verification technologies.

The S&T conferences attract participants from national agencies involved in the CTBTO's work, as well as those from independent academic and research institutions. Members of the diplomatic community, international media and civil society are also actively participating. Four conferences have been held to date in Vienna and the next S&T Conference will take place in June 2015.

While many Treaty supporters find themselves frustrated over the lack of progress on the political front vis-à-vis prospects for ratification by the United States and the other outstanding Annex 2 States, we recognize the fact that the United States has reengaged on the CTBT in a major way. This engagement has been instrumental in supporting the establishment of the Treaty's verification system. The United States provides invaluable

support for the build-up and maintenance of the verification regime as a whole, as well as with regard to the certification of the US IMS stations.

An important aspect of the relationship between the organization and the United States is the opportunity that is provided for shared learning and mutual benefit, which significantly contributes to the development of the verification system and its associated technologies.

The United States is also actively supporting all elements of the OSI CTBT verification regime development. The US National Labs and their experts and scientists are deeply involved in developing the methodology and equipment for the OSI regime, contributing greatly to the technical viability of the Treaty in the area of OSI.

On the political level, the picture is much the same. The administration strongly supports the Treaty at public events and multilateral security forums. President Obama made clear in his speech last year in Berlin, Germany, that his administration will work to build support in the United States to ratify the CTBT. More recently, we have heard Under Secretary Gottemoeller eloquently address the human and environmental effects of US nuclear testing in the Marshall Islands, and make a compelling case for the entry into force of the CTBT.

One testament to the major achievement of the Treaty and of the organization is that since opening for signature, nuclear testing has nearly ceased. The Treaty has imposed a de-facto norm that needs to be transformed into law. The Treaty is working, and the verification system has the proven capability to detect tests at a fraction of the yield of the first nuclear weapon test in the desert near Alamogordo in July 1945.

Nonetheless, without a legally binding and effectively verifiable test ban in place, the international community has no insurance against a return to an era of unrestrained nuclear testing, which would have disastrous implications for regional stability, international peace and security, as well as detrimental consequences for human health and the environment.

The longer it takes for the Treaty to enter into force, and the longer it remains in legal limbo, the more difficult it will become to sustain the momentum so many have fought so hard to achieve. As more time passes without substantial progress on EIF, there will be an increased likelihood that that States will be less inclined to honour their commitments to the Treaty and the organization.

For this reason, I've established a Group of Eminent Persons (GEM) that will seek to identify and seize upon opportunities to advance the Treaty's entry into force, thus complementing the Article XIV process currently co-chaired by Indonesia and Hungary. GEM will leverage the wealth of experience of its members to advise on ways to promote the Treaty in the remaining Annex 2 States. The group will also utilize regional understanding and expertise to facilitate dialogue among leaders in various regions and carry out the message of the CTBT in international conferences and other events.

AS PREPARED FOR DELIVERY

There are some reasons for cautious optimism. During my first visit as Executive Secretary of the CTBTO last year brought me to China, upon personal invitation of Foreign Minister Wang Yi. The visit was a breakthrough. With the backing of Minister Wang Yi, China decided to provide data from its monitoring stations to the CTBTO. This was a major step forward, which brings us closer to the completion of the verification regime, improves our detection capabilities in the region, and enhances overall confidence in the system.

More importantly, as the capabilities of the verification regime improve, so do the prospects for the Treaty's entry into force. The remaining Annex 2 States must have trust and confidence in the verification system as they consider ratification of the Treaty. I hope that China's example will serve as inspiration for other countries, such as Egypt, Iran and Saudi Arabia, to follow China's lead and take the important step to participate fully in the build-up of the verification regime. I have been engaging Egypt and Iran on this issue, and hope to engage the Saudis as well.

I would also like to highlight the very inspiring visit I made to Israel last March, during which I met with Foreign Minister Avigdor Lieberman. I emphasized to both Foreign Minister Lieberman and Minister of Intelligence, International Relations and Strategic Affairs, Yuval Steinitz, that I truly believe that Israel could be the first of the remaining Annex 2 States to ratify the CTBT, and I have committed to further enhancing conditions of confidence in the verification regime that could pave the way for Israel to play a leadership role in the region on the Treaty. Israel can play a pivotal role in strengthening our efforts to achieve entry into force and universalization of the Treaty, and in the process enhance regional and international peace and security. With the support of GEM and the Article XIV Coordinators, this is a message that I hope will resonate with key role players in Israel.

While the road ahead may not be clear, we must remain vigilant and determined in the pursuit of our final goal. We must always remember the lessons learned from the past, and strengthen our resolve to ensure that nuclear testing is remembered only as a remnant of a bygone era. With your help and support, I am confident we will reach this objective.

Thank you.