



**HANS BLIX**  
FORMER DIRECTOR GENERAL  
OF THE INTERNATIONAL  
ATOMIC ENERGY AGENCY

I can think of no treaty in which the assistance of the scientific community has been greater than the CTBT. Through patient, skilful and arduous work a crucially important monitoring system was designed relying on seismic, hydroacoustic, infrasound and radiation sensors all around the world. The system does not raise questions of reliability. Rather, the success of the system raises the question whether the scientific community can again be engaged to help disarmament, for instance solving problems around the verification.

As is well known, the CTBTO and the monitoring system provide even now practically useful services on a daily basis. The CTBT, one might say, is the rare case of a treaty that has entered into operation before it has entered into force! However, even though there is little risk of a breach of the moratorium on tests that is being observed by all except North Korea, the risk would be further reduced by a formal entry into force. The greatest help to achieve this would be support by those in the U.S. Senate who have so far prevented U.S. ratification to keep open a U.S. option to test. However, keeping the legal option open for the U.S. is keeping it open for all. I am not suggesting that U.S. ratification would automatically trigger all the other ratifications, but I am sure it would go a long way.



**ELLEN TAUSCHER**  
FORMER U.S. UNDER SECRETARY  
OF STATE FOR ARMS CONTROL AND  
INTERNATIONAL SECURITY

The National Academy of Sciences (NAS), a trusted and unbiased voice on scientific issues, released an unclassified report in 2012 examining the treaty from a technical perspective. The report looked at how the United States' ratification would impact our ability to maintain our nuclear arsenal and our ability to detect and verify explosive nuclear tests. The NAS report concluded that, without nuclear tests, "the United States is now better able to maintain a safe and effective nuclear stockpile and to monitor clandestine nuclear-explosion testing than at any time in the past."

Moving forward on the CTBT will be tough. No doubt. I recognize that a Senate debate over ratification will be spirited, vigorous and likely contentious. The debate in 1999 unfortunately was too short and too politicized. The treaty was brought to the floor without the benefit of extensive committee hearings or

## SCIENCE AND TECHNOLOGY 2013 KEYNOTE SPEAKERS

The main aims of the Conference were to advance the verification of the CTBT and to strengthen the CTBTO's relationship with the broader scientific community. Excerpts from the keynote addresses during the opening and closing sessions are featured below. The full addresses and more information about the conference are available on our website: [www.ctbto.org](http://www.ctbto.org)

significant input from administration officials and outside experts. We will not repeat those mistakes.

Just as we did with New START, the Obama administration can and should make a more forceful case when it is certain the facts have been carefully examined and reviewed in a thoughtful process. I know that Rose Gottemoeller is committed to taking a bipartisan and fact-based approach with the Senate.

For my Republican friends who voted against the treaty in 1999 and might feel bound by that vote, I have one message: Don't be. The times have changed.

As my good friend and fellow Californian, George Shultz, likes to say and repeated this year— those who opposed the treaty in 1999 can say they were right. But they would be more right to vote for the treaty today.



Hans Blix (left), Ellen Tauscher (centre) and Siegfried Hecker (right) during a panel discussion at the Science and Technology 2013 Conference.



**SIEGFRIED HECKER**  
FORMER DIRECTOR OF  
THE LOS ALAMOS  
NATIONAL LABORATORY

What are the benefits of CTBT ratification and the treaty entering into force? The CTBT constrains nuclear weapons development although that is less important for the United States or Russia with 1,054 and 715 tests [respectively] and applies more to countries that have conducted fewer tests. It constrains the sophistication of nuclear arsenals: North Korea is a case in point. The CTBT is consistent with Article VI of the Nuclear Non-Proliferation Treaty and the eventual elimination of nuclear weapons. It supports the whole non-proliferation regime. And even though the health and ecological effects are much less now than they were during the atmospheric testing era, there is of course still that concern... A return to testing would increase the risk of an arms race and a nuclear confrontation. That's what we have to keep in mind today... In today's security and political environments, the benefits of not testing therefore significantly outweigh the risks.

The international community must, in my opinion, increase the barriers to the resumption of testing and one of the most important barriers is indeed ratification by the United States and the entry into force of the CTBT. But that's not enough. It's also essential to create the security conditions that convince countries to refrain from testing or to refrain from developing nuclear weapons in the first place.



**MICHEL MIRAILLET**  
DIRECTOR OF  
STRATEGIC AFFAIRS,  
FRENCH MINISTRY OF DEFENSE

Today the CTBTO delivers almost the best of what is possible in terms of verification. ... We should not forget that all the events in North Korea in 2006, 2009 and 2013, despite low-energy levels, were detected, localized and identified, [allowing] Member States to exercise their verification capabilities in order to define whether these events were nuclear tests or not... The CTBTO is today providing what is at the heart of the Treaty: ensuring that no nuclear test would go unnoticed worldwide. And today, no one can reasonably challenge the technical capacity of the CTBTO to maintain this level of performance that already fits the needs...

I must commend the scientists: the older generation who placed the keystones that established the principles of the verification system, and the younger

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ones who today stimulate reflection on the future of the system... Verification technologies are attractive from a scientific perspective... the performance of the system will continue to improve... The decision makers are interested in the results, and should provide funds to support innovative research and development in these areas...

In fifteen years the CTBTO, through the contributions of Member States, spent a little more than one billion U.S. dollars. If we now look at the other benefits provided directly by the system (tsunami warnings, earthquakes surveillance, radionuclide monitoring, etc.) and less directly (education, science, engineering, etc.) there is no doubt here again that benefits for the States are much higher than costs.



Michel Miraillet (left), Patricia Lewis, Research Director at Chatham House (centre) and Siegfried Hecker (right) on the final day of the Science and Technology 2013 Conference.