



VOICES

The CTBT and China's New Security Concept

BY XIA LIPING

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) is non-discriminatory in nature and embodies the principles of mutual trust, mutual benefit, equality and coordination, particularly with regard to equality in international security. Those principles are similar to China's New Security Concept, which was put forward by the Chinese government in 2002. China has held that the ways of thinking about security in the past are outdated, and "new concepts and means to seek and safeguard security" are required. According to China's New Security Concept, to ratify the CTBT will be in the strategic interests of China.

CTBT ENTRY INTO FORCE WILL ENHANCE CHINA'S SECURITY INTERESTS

To obtain lasting peace, it is imperative to abandon the Cold War mentality and seek new ways to safeguard peace. China stresses in its New Security Concept that countries should trust one another, work

together to maintain security and to resolve disputes through dialogue and cooperation, and should not resort to the use or threat of use of force.

In the realm of arms control, the New Security Concept relies on broad international participation based upon justice, comprehensiveness, rationality, and balance in order to prevent the proliferation of weapons of mass destruction and uphold the international arms control and disarmament regime, of which the CTBT is a core element.

The CTBT's entry into force will enhance China's security interests by preventing an arms race that would provoke instability and threaten the global and regional strategic balance. China's ratification of the CTBT would help to solidify China's image as an open, transparent, and responsible nation, committed to following the road of peaceful development.

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Some opponents of the CTBT in the United States have cited concerns over China's nuclear ambitions as specific examples of why the CTBT does not serve U.S. security interests. However, what they want is to use China as an excuse for the United States not to ratify the CTBT. So delinking China from the conservative



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arguments against the CTBT by proceeding with ratification would underscore China's non-proliferation and disarmament credentials and help bolster the arguments being put forth by proponents of the test ban in the United States.

REINFORCING THE NPT REGIME

China's ratification of the CTBT would also strengthen the Nuclear Non-Proliferation Treaty (NPT) regime, and along with U.S. ratification, would provide the non-nuclear weapon States (NNWS) with a clear signal that the five nuclear weapon States (NWS) — China, France, Russia, the United Kingdom, and the United States — intend to fulfill their obligations under Article VI of the NPT. At the same time, moving forward with China's ratification would demonstrate to the world that Beijing understands the stakes involved in addressing nuclear proliferation and will

respond to the challenge as a responsible global partner in the fight against it. CTBT ratification is one simple way to restore confidence in the grand bargain that promised access to nuclear power and progress towards nuclear disarmament in exchange for cooperation and participation in the objective of preventing nuclear proliferation.

EFFECTIVE MEASURES OF INTERNATIONAL VERIFICATION ARE KEY TO DISARMAMENT AGREEMENTS

With the evolving of the world order into a multi-polar system, multilateral verification mechanisms must become the new standard-bearer in arms control. The CTBT verification regime provides an ideal platform with which to progress towards multilateralism in arms control and international relations. The verification regime of the CTBT falls squarely in line with

one of the principles outlined in the "Proposal on Essential Measures for an Immediate Halt to the Arms Race and for Disarmament," submitted to the United Nations by China in June 1982, which identified "strict and effective measures of international verification" as essential for any disarmament agreements. China's ratification of the CTBT, enhanced participation in the development of the international verification regime, and promotion of the Treaty's entry into force would demonstrate China's commitment to multilateralism in nuclear non-proliferation and disarmament, as well as buttress the United Nations based international system.

CHINESE INSTITUTIONS BENEFIT FROM CIVIL AND SCIENTIFIC APPLICATIONS OF VERIFICATION TECHNOLOGIES

Tongji University, one of leading universities in China, and many other

universities and technical institutes in China, are poised to benefit greatly from the potential civil and scientific applications of verification technologies.

The data provided by the various elements of the International Monitoring System (IMS) have wide ranging applications which can be explored by the scientific community in China in order to enhance sustainable development, expand scientific knowledge, and improve human welfare. China's enormous population and fragile environment mean that it is a constant victim of climate change-induced natural disasters. Due to its reliance on agricultural food production as a fundamental element of its economy, China is particularly vulnerable to significant physical and socio-economic impacts of warming trends and wetter conditions across the country.

With extra bandwidth capacity at IMS facilities, additional sensor data could be transmitted for global climate monitoring, thereby creating an infrastructure specially calibrated to support sensors targeting the problem of climate change. IMS data which are archived in the process of monitoring for Treaty compliance and are not related to nuclear explosions would be relevant for research into phenomena that are affected by climate change, such as atmospheric shifts, severe storm systems, mountain waves, etc.

The four IMS technologies can play a role in climate change research in the following ways:

- Infrasound technology utilizes microbarographs to detect low-frequency sound waves that could contribute to climate change research by providing systematic studies on glacier movements, signals generated by landslides and avalanches, and seasonal and yearly variations of atmospheric properties, which will improve China's management of natural resources and decision-making on adaptation policies.

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- Radionuclide technology uses air samplers to detect radioactive particles and noble gases that are created by nuclear explosions. However, the air samplers also measure concentrations of specific natural radionuclides, which can increase understanding of the long-range exchange of pollutants through the atmosphere. The air samplers also provide information about the impact of megacities on climate change, which is particularly valuable for China, by determining the evolution of chemical contents in dust.
 - Hydroacoustic technology collects data rich in background noise that can help improve weather prediction, support research on ocean processes and marine life, and measure ocean temperatures through the process of "acoustic thermometry", all contributing to research into climate change and its impact on the environment.
 - Seismic technology is most useful for enhancing our understanding of the Earth's structure, but can also be utilized in the study of glacial melting and differences in wave travel time in the lower atmosphere, which are applicable to climate change research.
- The IMS technologies can also be used for disaster mitigation in the following ways:
- The IMS data provided to Member States can assist with disaster management and response efforts by rapidly acquiring and disseminating data on earthquakes, in particular on potentially tsunami-generating earthquakes.
 - Accurately identifying the location and magnitude of earthquakes allows for more efficient and timely emergency responses to affected areas and improves the capability to estimate the extent of the hazard.



Noble gas system, SPALAX, installed at radionuclide station RN20, Beijing, China.

Utilizing the seismic data collected and distributed through the IMS will enhance China's capability to mitigate the damage caused by earthquakes throughout its territory.

- Infrasound technology is uniquely suited to detect and locate volcanic ash plumes that have the potential to make jet engines malfunction or even stall completely. Data generated by infrasound stations are also useful in monitoring and tracking severe storms, which can enhance preparedness efforts by Chinese central and local authorities.

OPPORTUNITIES FOR CAPACITY DEVELOPMENT

The highly complex nature of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban

Treaty Organization (CTBTO) and its verification regime require that the organization commands a variety of specialized technical capabilities.

The capacity development activities will expand the CTBTO's virtual training activities through comprehensive e-learning modules with access to internet based lectures and tutorials. The objective is to encompass a broader audience with interests in certain specific areas, thereby providing users with different programme modules that meet their respective needs.

This is a participatory and dynamic process that will rely on reaching out to relevant institutions in Member States, where scientists, engineers, and other technicians will obtain practical experience and enhance their expertise through a knowledge exchange programme, all while providing a valuable contribution to the CTBTO.

By participating in the capacity development activities and utilizing the various monitoring data provided by the CTBTO's verification regime, Tongji University could strengthen its scientific capabilities and enhance the prestige of Tongji University's Schools and Departments, such as the School of Ocean and Earth Science.

BIOGRAPHICAL NOTE

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is Dean and Professor of the School of Political Science & International Relations at Tongji University in Shanghai, China. He is also General-Secretary of the Shanghai Institute for International Strategic Studies (SIISS), Vice Chairman of the Shanghai Association of International Studies, and Vice President of the Shanghai Center for RimPac Strategic and International Studies (CPSIS). Professor Xia specializes in Asian security and nuclear non-proliferation and China's foreign policy strategy

A 6.9 magnitude earthquake on 14 April 2010 caused devastation in Yushu county in western China's Qinghai province.

