

EU Non-Proliferation and Disarmament Consortium

Promoting the European network of independent non-proliferation and disarmament think tanks

E-newsletter of the European Network of Independent Non-Proliferation and Disarmament Think Tanks

BOLSTERING THE GLOBAL NORM ON NUCLEAR TESTING - AN INTERVIEW WITH BEN DANDO



Ben Dando is Head of Department at NORSAR with responsibility for the verification of the Comprehensive Nuclear Test-Ban Treaty (CTBT), working on behalf of the Norwegian ministry of foreign affairs. He has extensive experience in seismic monitoring with application to explosions, natural seismicity and induced seismicity. He has designed, led, and implemented novel seismic monitoring strategies for both research projects and commercial operations, including at national and international scales. His research interests include seismic location methods, array processing and signal processing. Ben Dando has a PhD in earthquake seismology from the University of Leeds and a Master's degree from University College London. He has worked as a seismologist and geophysicist in Norway, USA and the UK.

NORSAR is specialised in seismology and seismic monitoring. What research activities is it carrying out in the field of nuclear test ban monitoring and verification?

NORSAR has been at the forefront of seismic monitoring since its establishment in 1968, particularly in supporting the Comprehensive Nuclear-Test-Ban Treaty (CTBT). In this capacity, NORSAR plays a crucial role within the International Monitoring System (IMS), which aims to detect nuclear explosions globally. NORSAR operates several advanced seismic arrays in Norway, contributing vital data to the CTBT Organization (CTBTO). These arrays help monitor seismic activity with high precision, distinguishing between natural seismic events like earthquakes and man-made explosions.

NORSAR is also involved in research that improves the detection and characterisation of potential nuclear tests. This includes developing algorithms for better signal processing and improving event discrimination. In recent years, we have had a focus on leveraging machine learning to take advantage of the unique data and instrumentation that we have in Norway. In addition, NORSAR is developing innovative methods for event detection using Distributed xAcoustic Sensing (DAS), a cutting-edge technology that uses fibre optic cables instead of traditional seismic sensors. These advancements help not only in monitoring compliance with the CTBT but also in contributing to the broader field of seismic event detection and analysis.

How would you assess the current situation of the CTBT and the CTBTO?

The CTBT, opened for signature in 1996, has not yet entered into force due to the lack of ratification by eight key nations (i.e. China, Egypt, Iran, Israel, Russia, the United States, India, North Korea and Pakistan). Despite this, the CTBT has established a strong international norm against nuclear testing, with most countries adhering to it. The CTBTO has made significant strides, particularly in the development of the IMS, which is almost fully operational and highly effective at detecting nuclear tests. This system has proven its capability in real-world events, such as the detection of North Korea's nuclear tests.

However, political challenges have intensified, especially with Russia's 2023 decision to de-ratify the treaty. This move raises concerns about the potential for a weakening of the international consensus against nuclear testing. Russia's decision, while not necessarily indicating an intent to resume testing, signals a shift in geopolitical dynamics, as it could embolden other nations to reconsider their stance on nuclear testing, further complicating the prospect of the treaty's entry into force. Despite these developments, the CTBTO continues to effectively operate its verification systems.

What future do you see for the CTBT and the international norm against nuclear testing?

The future of the CTBT largely depends on the political will of key nations to move towards ratification. While the technical framework for verification is in place and working efficiently, achieving full legal standing for the treaty remains a critical challenge. The international norm against nuclear testing is strong, with fewer nuclear tests being conducted in recent decades. However, this norm could face challenges if global geopolitical tensions increase or a nation decides to resume testing.

Looking ahead, it is essential for the international community to maintain pressure on the remaining non-parties to ratify the treaty. Strengthening the CTBT's legal status will reinforce the global norm against nuclear testing and contribute to global security. Even without full ratification, the CTBTO's verification system remains a critical tool for monitoring nuclear activity and promoting international peace and stability.

Laying The Groundwork for the Middle East WMD-Free Zone

The fifth session of the UNGA-mandated Conference on the Establishment of a Middle East Zone Free of Nuclear Weapons and Other Weapons of Mass Destruction (MEWMDFZ) took place on November 18-22, 2024, at the UN Headquarters in New York. Amidst heightened conflict and declining diplomacy in the region, it adopted a [final document](#) by consensus.

The rising threats of WMD in the region including threats of use or development of nuclear weapons, risks of attacks on nuclear installations, and shifts in nuclear doctrines, make the Conference's work both more challenging and more relevant than ever. However, it remains the only inclusive regional forum for addressing WMD threats as it brings together all states of the region, including Iran, and the P5 nuclear weapons States. It has also extended an open invitation to Israel, an absent member, to the United States, an observer.

Over the past five years, the Conference has laid the groundwork for negotiating the future MEWMDFZ treaty. In November 2019 the participating states issued a [political declaration](#) reaffirming their commitment to inclusive and constructive negotiations while avoiding actions that impede the Zone's prospects. It also adopted rules of procedure with consensus as the only way for decision-making. The conference has also discussed some elements and parameters of the future treaty and established a working committee to continue substantive deliberations between the annual sessions. Despite this modest progress, two interlinked challenges persist: Israel's continued absence and how to advance the Conference's substantive work.

At the fifth session participating states explored possible measures to address Israel's absence such as establishing a contact group and engaging the UN Secretary-General on the matter. Discussions also focused on strengthening the conference's work and methods, including improving substantive reporting and documentation and promoting sequenced and structured discussions. Furthermore, the Conference endorsed proposals to contribute to the [new UN study on nuclear-weapons-free zones](#), established a sponsorship program for wider participation of experts and officials, created a UN Group of Friends, and engaged further in relevant fora including NPT PrepComs and RevComs meetings.

These ideas help develop the organizational and substantive basis for future negotiations and may create opportunities to ensure full participation. Initiating the discussions on them is a good first step, and their inclusion in the final document increases the chances that future sessions will pick up on them.

While the Conference may not reach a legally binding treaty soon, it remains crucial to keep the initiative relevant, reinforce norms and commitments, and maintain dialogue between the states of the region on what the future treaty should look like and the ways to realize it. Sustaining such dialogue is especially critical in times of growing mistrust and declining diplomacy. Ongoing dialogue and engagement in the process could ultimately build trust and contribute to reducing future WMD risks. Furthermore, progress and efforts in the Conference could also have a positive impact on the NPT RevCon negotiations on the Zone issue, reducing the chances of disagreements that could frustrate the efforts to reach a consensus on the final document.

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Latest Publications

The Nexus of Non-Traditional Security and Nuclear Risks: Implications for EU Foreign Policy in the Indo-Pacific. Elin Bergner, Sarah Laderman and Marcy R. Fowler. Non-Proliferation and Disarmament Papers n.90. November 2024

Bringing the Space–Nuclear Nexus into Multilateral Discussions. Nivedita Raju and Sarah Erickson. Stockholm International Peace research Institute (SIPRI). October 2024

The Non-proliferation Considerations of Nuclear-Powered Submarines. Alexander Hoppenbrouwers. European Leadership Network (ELN). October 2024

Network Calls

The Peace Research Center in Prague (PRCP) is recruiting a first-year Ph.D. student to collaborate at the Institute of International Studies, Faculty of Social Sciences, Charles University, on the MICROCODE project on “Exploring the Role of Public Opinion in Military Alliances”.

More info: [Here](#)

The International Institute for Strategic Studies (IISS) is recruiting a Programme Administrator for its Middle East Programme. The Programme Administrator will support the research and operations teams by coordinating research output against the associated outreach, events and administrative operational requirements.

More info: [Here](#)

The Institut Barcelona d'Estudis Internacionals (IBEI) is recruiting a Research Assistant to join the team under the Jean Monnet Network “EULAS: United in Knowledge - EU-Latin America Academic Synergies”.

More info: [Here](#)

EU NEWS

THE EU RENEWS ITS COMMITMENT TO MINE ACTION AT THE FIFTH REVIEW CONFERENCE OF THE ANTI-PERSONNEL MINE BAN CONVENTION

The fifth Review Conference of the Anti-Personnel Mine Ban Convention, known as the Ottawa Convention, took place in Siem Reap, Cambodia, on 25-29 November 2024. The EU HRVP Josep Borrell addressed the Conference by underlining its commitment to the Anti-Personnel Mine Ban Convention. The EU and its Member States are the world's second largest donor and has also continuously provided support to the functioning of the Convention through supporting to the Convention's Implementation Support Unit and through dedicated bilateral projects.

Watch the full speech [here](#)

NETWORK NEWS

2024 EU NON-PROLIFERATION AND DISARMAMENT CONFERENCE

The Istituto Affari Internazionali (IAI), on behalf of the EU Non-Proliferation and Disarmament Consortium, organized the [EU Non-Proliferation and Disarmament Conference](#) in Brussels on 12-13 November. The Conference, in its 13th edition, gathered non-proliferation and disarmament experts from governmental and non-governmental institutions worldwide. Over the course of two days, participants engaged in an open discussion, covering issues related to arms control, disarmament, non-proliferation of Weapons of Mass Destruction (WMD), their delivery systems, and Small Arms and Light Weapons (SALW). As every year, the Conference served to highlight the role played by European think tanks specialising in non-proliferation and disarmament and the efforts undertaken by the EU Consortium to promote and coordinate their work.

Watch the sessions [here](#)

THE INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES (IISS) HAS LAUNCHED THE IISS CYBER POWER MATRIX

The International Institute for Strategic Studies (IISS) has launched the IISS Cyber Power Matrix, which demonstrates how states project power in cyberspace to achieve strategic objectives and exert influence globally. The IISS Cyber Power Matrix collates examples of state cyber power from 2001 onwards in the physical, logical and virtual layers of cyberspace.

More info: [Here](#)

PANEL DISCUSSION: THE IMPACT OF EMERGING TECHNOLOGIES ON THE NUCLEAR SUPPLY CHAIN

The Vienna Center for Disarmament and Non-Proliferation (VCDNP) will host a panel discussion entitled “The Impact of Emerging Technologies on the Nuclear Supply Chain”. The event will be held on Thursday, 16 January 2025 from 15:00 to 16:30. The panel will discuss the potential impacts emerging technologies could have on the nuclear supply chain now and in the future, as well as offer perspectives on strategies to prevent and mitigate possible risks.

More info: [Here](#)

