Official Journal
of the European Union

EN
L series

2026/2615

24.11.2026

COUNCIL DECISION (CFSP) 2026/2615

of 23 November 2026

on Union support for the activities of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) in order to strengthen its monitoring and verification capabilities

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty on European Union, and in particular Articles 28(1) and 31(1) thereof,

Having regard to the proposal from the High Representative of the Union for Foreign Affairs and Security Policy,

Whereas:

(1) On 12 December 2003, the European Council adopted the EU Strategy against Proliferation of Weapons of Mass Destruction (the 'Strategy'), which identifies effective multilateralism and the universalisation and implementation of existing disarmament and non-proliferation norms as key elements of the Union's approach. The Strategy calls, inter alia, for the early entry into force and universalisation of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) and for strengthening international verification mechanisms. The Union is actively implementing the Strategy, including by providing financial resources to support projects conducted by multilateral institutions, such as the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO).

(2) On 21 July 2003, the Council adopted Council Decision 2003/567/CFSP ([1]), which provides that, within the framework of support for the early entry into force of the CTBT, the European Union is to encourage all States which have not yet done so to sign and ratify the CTBT without delay.

(3) On 17 November 2003, the Council adopted Common Position 2003/805/CFSP ([2]) on the universalisation and reinforcement of multilateral agreements in the field of non-proliferation of weapons of mass destruction and their means of delivery. That Common Position calls, inter alia, for the promotion of the early entry into force of the CTBT.

(4) The States Signatories to the CTBT have decided to establish a Preparatory Commission, endowed with legal capacity and which has standing as an international organisation, to carry out the effective implementation of the CTBT, pending the establishment of the CTBTO.

(5) The early entry into force and universalisation of the CTBT and the strengthening of the monitoring and verification system of the Preparatory Commission for the CTBTO are important objectives of the Strategy. The Union has consistently supported these objectives, including through financial contributions to the activities of the Preparatory Commission.

(6) The United Nations Secretary-General stated in 'Securing our Common Future: an Agenda for Disarmament' that, by constraining the development of advanced new types of nuclear weapons, the CTBT puts a brake on the arms race and serves as a powerful normative barrier against potential States that might seek to develop, manufacture and subsequently acquire nuclear weapons in violation of their non-proliferation commitments. These objectives are further reflected in the United Nations' 'Pact for the Future', in particular Action 25 entitled 'We will advance the goal of a world free of nuclear weapons', which reaffirms the goal of a world free of nuclear weapons and calls for strengthening the disarmament and non-proliferation architecture, preventing any erosion of existing international norms and implementing measures to avoid an arms race and prevent nuclear war. The CTBT is an essential instrument in advancing those objectives.

([1]) Council Decision 2003/567/CFSP of 21 July 2003 implementing Common Position 1999/533/CFSP relating to the European Union's contribution to the promotion of the early entry into force of the Comprehensive Nuclear Test-Ban Treaty (CTBT) (OJ L 192, 31.7.2003, p. 53, ELI: http://data.europa.eu/eli/dec/2003/567/oj).

([2]) Council Common Position 2003/805/CFSP of 17 November 2003 on the universalisation and reinforcement of multilateral agreements in the field of non-proliferation of weapons of mass destruction and means of delivery (OJ L 302, 20.11.2003, p. 34, ELI: http://data.europa.eu/eli/compos/2003/805/oj).

(7) The 2022 Strategic Compass for Security and Defence refers to the persistent threat of the proliferation of weapons of mass destruction and their means of delivery, the expanding nuclear arsenals, the development of new weapon systems as well as the use of nuclear threats by some countries, and expresses the Union's objective of reinforcing concrete actions in support of the goals of disarmament, non-proliferation and arms control.

(8) The United Nations General Assembly, in its Resolution 80/70 of 1 December 2025 on the CTBT, reaffirmed the importance of the CTBT and urged all States that have not yet done so to sign and ratify the CTBT as soon as possible, in particular the nine States whose ratification is required for its entry into force. The resolution also underlined the importance of maintaining momentum towards the completion of all elements of the verification regime and putting in place plans and adequate resources for its long-term sustainability.

(9) In the framework of the implementation of the Strategy, the Council adopted three Joint Actions and six Decisions on support for activities of the Preparatory Commission for the CTBTO, namely Joint Actions 2006/243/CFSP ([3]), 2007/468/CFSP ([4]) and 2008/588/CFSP ([5]), and Decisions 2010/461/CFSP ([6]), 2012/699/CFSP ([7]), (CFSP) 2015/1837 ([8]), (CFSP) 2018/298 ([9]), (CFSP) 2020/901 ([10]) and (CFSP) 2023/2064 ([11]). The Union's longstanding support should therefore be continued.

(10) The technical implementation of this Decision should be entrusted to the Preparatory Commission for the CTBTO which, on the basis of its unique expertise and capabilities through the network of the International Monitoring System (IMS), comprising over 337 facilities around the globe, and the International Data Centre (IDC), is the sole international organisation having the ability and legitimacy to implement this Decision. The action as supported by the Union can only be financed through an extra-budgetary contribution to the Preparatory Commission for the CTBTO,

([3]) Council Joint Action 2006/243/CFSP of 20 March 2006 on support for activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) in the area of training and capacity building for verification and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 88, 25.3.2006, p. 68, ELI: http://data.europa.eu/eli/joint_action/2006/243/oj).

([4]) Council Joint Action 2007/468/CFSP of 28 June 2007 on support for activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against the Proliferation of Weapons of Mass Destruction (OJ L 176, 6.7.2007, p. 31, ELI: http://data.europa.eu/eli/joint_action/2007/468/oj).

([5]) Council Joint Action 2008/588/CFSP of 15 July 2008 on support for activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 189, 17.7.2008, p. 28, ELI: http://data.europa.eu/eli/joint_action/2008/588/oj).

([6]) Council Decision 2010/461/CFSP of 26 July 2010 on support for activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 219, 20.8.2010, p. 7, ELI: http://data.europa.eu/eli/dec/2010/461/oj).

([7]) Council Decision 2012/699/CFSP of 13 November 2012 on the Union support for the activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 314, 14.11.2012, p. 27, ELI: http://data.europa.eu/eli/dec/2012/699/oj).

([8]) Council Decision (CFSP) 2015/1837 of 12 October 2015 on Union support for the activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 266, 13.10.2015, p. 83, ELI: http://data.europa.eu/eli/dec/2015/1837/oj).

([9]) Council Decision (CFSP) 2018/298 of 26 February 2018 on Union support for the activities of the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 56, 28.2.2018, p. 34, ELI: http://data.europa.eu/eli/dec/2018/298/oj).

([10]) Council Decision (CFSP) 2020/901 of 29 June 2020 on Union support for the activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) in order to strengthen its monitoring and verification capabilities and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction (OJ L 207, 30.6.2020, p. 15, ELI: http://data.europa.eu/eli/dec/2020/901/oj).

([11]) Council Decision (CFSP) 2023/2064 of 25 September 2023 on Union support for the activities of the Preparatory Commission of the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO) in order to strengthen its monitoring and verification capabilities (OJ L 238, 27.9.2023, p. 122, ELI: http://data.europa.eu/eli/dec/2023/2064/oj).

HAS ADOPTED THIS DECISION:

Article 1

1. With a view to the implementation of the Strategy, the EU Global Strategy for the European Union's Foreign and Security Policy and the Strategic Compass for Security and Defence, the Union shall further support the activities of the Preparatory Commission for the CTBTO through an operational action.

2. The objectives of the action referred to in paragraph 1 shall be to:

(a) strengthen the capabilities of the CTBT monitoring and verification system;

(b) strengthen the capabilities of the States Signatories to the CTBT to fulfil their verification responsibilities under the CTBT and to enable them to benefit fully from their participation in the CTBT regime.

Through those efforts, the action shall also support the universalisation and entry into force of the CTBT.

3. A detailed description of the action is set out in the Annex.

Article 2

1. The High Representative of the Union for Foreign Affairs and Security Policy (the 'High Representative') shall be responsible for the implementation of this Decision.

2. The technical implementation of the action referred to in Article 1 shall be carried out by the Preparatory Commission for the CTBTO.

3. The Preparatory Commission for the CTBTO shall perform that task under the responsibility of the High Representative. For that purpose, the High Representative shall enter into the necessary arrangements with the Preparatory Commission for the CTBTO.

Article 3

1. The financial reference amount for the implementation of the action financed by the Union referred to in Article 1 shall be EUR 5 199 996,70.

2. The expenditure financed by the reference amount set out in paragraph 1 shall be managed in accordance with the rules and procedures applicable to the general budget of the Union.

3. The Commission shall supervise the proper management of the expenditure financed by the amount referred to in paragraph 1. For that purpose, it shall conclude a contribution agreement with the Preparatory Commission for the CTBTO. The contribution agreement shall stipulate that the Preparatory Commission for the CTBTO is to ensure the visibility of the Union's contribution, appropriate to its size.

4. The Commission shall endeavour to conclude the agreement referred to in paragraph 3 as soon as possible after the entry into force of this Decision. It shall inform the Council of any difficulties in that process and of the date of the conclusion of the agreement.

Article 4

1. The High Representative shall report to the Council on the implementation of this Decision on the basis of regular reports by the Preparatory Commission for the CTBTO. The reports shall form the basis of the evaluation carried out by the Council.

2. The Commission shall provide information on the financial aspects of the implementation of the action referred to in Article 1.

Article 5

1. This Decision shall enter into force on the date of its adoption.

2. This Decision shall expire 36 months after the conclusion of the agreement referred to in Article 3(3). However, it shall expire six months after the date of the entry into force if no agreement has been concluded within that period.

Done at Brussels, 23 November 2026.

For the Council

The President

M. HEYDON

PROJECT DOCUMENT

SUPPORT FOR THE ACTIVITIES OF THE PREPARATORY COMMISSION OF THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION (CTBTO)

Background

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) bans all nuclear test explosions. Thirty years after its opening for signature, it remains a cornerstone of the international non-proliferation architecture, contributing to international peace and security. It serves as a security- and confidence-building measure by constraining the development of new nuclear weapons and the improvement of existing nuclear arsenals.

The Treaty is supported by a state-of-art verification regime. The International Monitoring System (IMS), together with the International Data Centre (IDC), provides a continuous flow of real-time data to enable the detection and assessment of events that could be indicative of a nuclear test explosion. The IMS comprises 337 facilities worldwide, while the IDC collects, processes and analyses the data and distributes the resulting information to States Signatories. In preparation for the Treaty's entry into force, the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter 'the Preparatory Commission') is also developing its On-Site Inspection (OSI) capability, while continuing efforts towards its universalization.

Maintaining and further strengthening CTBT's verification regime remains indispensable. As technological, scientific, and geopolitical conditions evolve, sustained investment and international cooperation are essential to preserve the effectiveness, credibility, and operational readiness of the verification regime, and to ensure its long-term sustainability.

Overall objective

The overall objective of the project is to contribute to international peace and security, confidence-building, and the strengthening of the global nuclear non-proliferation architecture through support for the CTBT, in line with Article 21 of the Treaty on European Union to 'preserve peace, prevent conflict, and strengthen international security'.

Specific objectives

The project will:

1. strengthen the CTBTO's international monitoring and verification regime;

2. strengthen the capabilities of the States Signatories to the CTBT to fulfil their verification responsibilities under the CTBT and to enable them to benefit fully from their participation in the CTBT regime;

Through these efforts, the project will also support the universalization and entry into force of the CTBT.

Approach

The project will be implemented through a coordinated, two pillar approach that strengthens both the technical foundations of the CTBT verification regime and the capacities of States Signatories to participate effectively in it.

The first pillar focuses on consolidating and advancing the technological and scientific infrastructure that underpins CTBTO international monitoring system, data analysis, and on-site inspection readiness. This includes the sustainment of auxiliary seismic (AS) stations, improvements to atmospheric transport modelling (ATM), and further development of on-site inspection tools – ensuring the reliability, resilience and long-term sustainability of the verification regime.

The second pillar focuses on strengthening capacity-building, enabling States Signatories – particularly developing countries – to actively contribute to and benefit from the CTBT verification regime and the work of the Organization. It also promotes inclusive engagement through targeted initiatives for women and youth.

Expected Outputs

— Minimum 6 AS stations are maintained or repaired. Authenticated data availability (DA) is improved as reflected in reduced downtime and stable performance of maintained or repaired stations.

— The Virtual Data Exploitation Centre (vDEC) software is modernized. This includes a dedicated vDEC web interface, FDSN-compliant waveform data access, enhanced user security with tailored permissions, simplified API integration, customized data request services, and upgraded server infrastructure with updated and optimized data management.

— Effective and reliable operational modelling configuration for ATM is established. Key outputs include updated operational benchmarking and recommendations, computational infrastructure guidance, a community reference framework, and stakeholder engagement and knowledge-transfer activities.

— The Source-Term Assessment and Reasoning Software (STARS) prototype is developed. Outputs include a benchmark case library, a technical documentation package and a training programme.

— Seismic event processing capabilities are enhanced through new functions of the NET-VISA software, thereby improving the timely release of daily bulletins (REB) and strengthening monitoring effectiveness.

— Hydroacoustic event processing capabilities are enhanced through new PMCC-based functions within NDC-in-a-Box, improving the ability of National Data Centres (NDC) to reproduce IDC hydroacoustic products.

— Three transportable radioxenon monitoring systems in Japan are operated and maintained, improving understanding of radioxenon background variability and supporting CTBT verification.

— Two new OSI Field Laboratory modules hosting the radionuclide component of the laboratory are developed. Outputs include standardized operational procedures and configurations developed for both the radionuclide and noble gas components of the OSI Field Laboratory.

— Three regional trainings/workshops, and two SeisComp trainings are organized to strengthen the capacities of NDC staff, with a particular focus on promoting the participation of women.

— Up to twelve Capacity Building Systems (CBS) are installed and maintained for acquisition, processing, and analysis of seismic, hydroacoustic and infrasound (SHI) and radionuclide data.

— One On-Site Inspection Regional Introductory Course (RIC-27) is delivered in the Latin America and Caribbean region, providing training to technical experts from States Signatories.

— Participation of at least 13 technical experts from developing States Signatories in each of the biannual session of the Working Group on Verification in 2027 and 2028.

— The CTBT Young Leaders Group is strengthened as a platform for engagement and outreach among young professionals and students. Over 50 youth are trained through targeted capacity-building initiatives and networking opportunities, and strategic partnerships are established with other organizations.

— At least 40 early-career women are supported through two cycles of the Mentoring Programme from 2027 to 2029, benefiting from one-to-one mentoring, professional development activities, networking opportunities, and engagement with CTBTO experts and partners.

— A series of Gender Equality and Women's Empowerment (GEWE) activities are undertaken by CTBTO on an annual basis.

Duration

The total estimated duration of the action is 36 months.

First Pillar: Strengthening the technological and scientific infrastructure

The first pillar aims at consolidating and enhancing the technological and scientific foundations of the CTBTO's International Monitoring System, data analysis capabilities, and readiness of on-site inspection.

Sustainment of Certified IMS Auxiliary Seismic Stations

Background

The project addresses the continuing challenge of sustaining the operational performance of the 120 Auxiliary Seismic stations of the International Monitoring System, which are an important component of the CTBT verification regime. While responsibility for station operation and maintenance rests with host countries, limited national resources can lead to the gradual degradation of station performance and reliability over time.

Activities will focus on targeted maintenance and troubleshooting at underperforming stations, with priority given to stations located in countries facing financial constraints (primarily OECD ODA recipients). Where justified, preventive maintenance measures will also be implemented to enhance resilience and reduce the risk of future outages. Interventions may include the replacement of obsolete or end-of-life equipment and improvements to power supply, grounding systems, and supporting infrastructure.

Through station visits and on-site technical support missions, operators will receive practical guidance and hands-on training to strengthen their capacity to operate, maintain, and troubleshoot stations independently. These efforts complement broader capacity-building activities, including technical training courses for station operators conducted at the Vienna International Centre.

Expected outcomes

— Improved performance and reliability of targeted IMS auxiliary stations through maintenance and equipment upgrades.

— Enhanced capacity of station operators to operate, maintain, and troubleshoot auxiliary stations.

Expected outputs

— Maintenance, equipment replacement, and infrastructure improvements implemented at minimum 6 IMS auxiliary stations.

— Improved authenticated data availability (DA).

Hydroacoustic station processing using DTK-PMCC

Background

The proposed work addresses a current limitation in the ability of National Data Centres (NDCs) to reproduce IDC hydroacoustic features and events. Hydroacoustic data are processed at the IDC using Detection and Features eXtraction (DFX), Station Processing (StaPro), and Hydro Azimuth and Slowness Estimator (HASE) algorithms, which generate hydroacoustic detections, features, and source parameters. While NDC-in-a-Box supports hydroacoustic data processing, it does not currently include HASE functionality, limiting the reproduction of IDC products.

Building on previous development work, the project will further adapt and validate the Progressive Multi-Channel Correlation (PMCC) algorithm for hydroacoustic applications. PMCC is already available in NDC-in-a-Box and has demonstrated the ability to reproduce IDC DFX and StaPro results, with promising results for hydroacoustic feature extraction and HASE outputs. The project will complete this capability, enabling NDCs to generate hydroacoustic features and events consistent with IDC processing and strengthening hydroacoustic analysis capabilities across the CTBT verification regime.

Expected outcome

— Enhanced ability of all NDCs to reproduce IDC hydroacoustic features and events using PMCC within NDC-in-a-Box, improving consistency with IDC products and strengthening hydroacoustic analysis capabilities across the CTBT verification regime.

Expected outputs

— Validated PMCC-based methodology for reproducing IDC hydroacoustic processing results.

— Evaluation of (G)PMCC performance for hydroacoustic phase classification, feature extraction, and event generation.

— Reproduction of StaPro and HASE.

— Implementation of PMCC hydroacoustic processing capabilities in IDC systems and NDC-in-a-Box.

— Upgraded (G)PMCC software capable of reproducing IDC hydroacoustic features and events.

— User documentation and practical guidance for hydroacoustic data processing using (G)PMCC.

Modernization of the CTBTO Virtual Data Exploitation Centre (vDEC)

Background

The CTBTO Virtual Data Exploitation Centre (vDEC) provides researchers and scientific institutions with access to IMS and IDC data for civil and scientific applications. Since its establishment in 2011 with EU support, vDEC has enabled more than 230 research projects worldwide, contributing to scientific publications, conference presentations, and advances in monitoring methodologies.

The current platform relies on outdated infrastructure and support processes. Users have limited self-service capabilities for accessing data and navigating the IDC database, resulting in significant demands for technical assistance. In addition, some data requests, particularly for radionuclide data, require manual processing and delivery by the Preparatory Commission, reducing operational efficiency.

The project will modernize vDEC through upgraded infrastructure, implementation of Federation Digital Seismograph Network (FDSN) services for waveform data access, enhanced user management and security, and a new web-based platform for submitting and managing data requests. These improvements will streamline data delivery, reduce administrative workload, and provide users with more efficient and secure access to CTBTO data resources.

Expected outcomes

— Improved user experience.

— Enhanced security and user management.

— Increased operational efficiency through streamlined data request and delivery processes.

— Contribution to scientific research and innovation.

Expected outputs

— New user interface.

— FDSN for waveform data.

— New, more secure user profiles.

— Customized service that provides data from the vDEC server to the user.

— Revamped server.

— Updated manual.

BEST-ATM – Benchmarking and Evaluation for Strategic ATM modelling

Background

Atmospheric Transport Modelling (ATM) simulates the transport and dispersion of gases and particles in the atmosphere and is a critical component of radionuclide monitoring. It supports treaty verification, situational assessment, and confidence-building measures by enabling the attribution of observed radionuclide concentrations to potential source regions. The current operational modelling framework has provided reliable support for many years; however, advances in modelling techniques, Data Assimilation DA), computational capabilities, and analytical requirements warrant a systematic reassessment of operational approaches.

The proposed work will benchmark and evaluate operational ATM configurations to identify the most effective approaches for radionuclide monitoring. This includes assessing the continued suitability of current methodologies, identifying opportunities for improvement, and evaluating complementary modelling strategies to enhance robustness and confidence in operational results. The work will also provide an evidence-based foundation for future computational infrastructure planning by assessing the relationship between modelling performance, operational requirements, and resource needs.

Expected outcomes

— Reinforced scientific and operational foundations of radionuclide monitoring.

— Strengthened confidence in operational modelling results.

— Increased resilience and future readiness of the monitoring system.

— Improved basis for strategic decision-making and infrastructure planning.

Expected outputs

— Operational benchmarking and assessment report.

— Recommendation package for future operational modelling.

— Computational requirements and infrastructure guidance.

— Community reference framework and documentation.

— Stakeholder engagement and knowledge-transfer activities.

Integrated Uncertainty Framework for Next Generation ATM-based IDC Products (IUF-ATM)

Background

ATM is used together with radionuclide measurements to identify potential source regions of detected radionuclides, providing an important tool for CTBT verification. However, both measurements and modelling results are subject to uncertainties, making uncertainty quantification essential for informed analysis and decision-making.

With support from the EU, the CTBTO developed an ensemble framework to quantify uncertainties related to meteorological conditions and ATM. Building on this foundation, the proposed work will integrate uncertainty information directly into ATM-based IDC products and functionalities. This responds to requests from States Signatories for ATM products that communicate uncertainty more explicitly and enhances the analytical value and operational relevance of radionuclide assessments and monitoring products.

Expected outcomes

— Broader use of uncertainty-aware ATM products for the assessment of radionuclide detections and network performance.

— Improved verification capabilities of States Signatories, which will be able to incorporate ATM uncertainty into their assessments of radionuclide detections, increasing robustness and reducing biased interpretations.

— Enhanced operational readiness of the IDC, with uncertainty-aware ATM functionalities integrated into routine workflows and reports.

Expected outputs

— Uncertainty-aware Fields of Regard (FORs) to support source-region identification.

— Source reconstruction products supplemented with uncertainty estimates for emission location, time and strength.

— Uncertainty-aware data fusion products integrating radionuclide and waveform information.

Source-Term Assessment and Reasoning Software (STARS)

Background

Expanding civilian nuclear activities are increasing global radioxenon background levels, making it more difficult to distinguish routine industrial emissions from signatures relevant to CTBT verification. At the same time, growing volumes of IMS noble-gas data are increasing analytical demands on expert staff.

To address these challenges, STARS will develop a prototype tool to support the initial characterization of likely source locations and release strengths of industry-related radioxenon emissions. By providing a structured and transparent analytical framework, the tool will improve consistency in source-term assessments and inform future operability evaluations.

Expected outcomes

— Improved capability to assess and interpret industry-related radioxenon sources using structured inverse-modelling workflows.

— Faster and more consistent assessments.

— Enhanced analytical capacity through staff training and application of STARS.

— Enhanced sustainability and knowledge transfer through documented, transparent, and maintainable methodologies.

— Strengthened collaboration framework for the evaluation and future integration of data-fusion approaches.

Expected outputs

— STARS v1.0 prototype for initial source-term characterization of industry-related radioxenon emissions using ATM and inference methods.

— Benchmark case library of historical and synthetic scenarios to support performance evaluation and operability assessment.

— Technical and user documentation supporting implementation, transparency, and long-term maintainability.

— Training programme enabling expert staff to apply STARS in analytical workflows and operational scenarios.

***Assisting analysts during aftershock sequences* – NET-VISA**

Background

IDC analysts typically review around 100 seismic events per day, with volumes increasing to 300 or more during major aftershock sequences. These surges create operational bottlenecks, limiting comprehensive event review and delaying the production of IDC bulletins.

To address this challenge, the project will introduce software that enables the rapid identification and processing of aftershock sequences using the well-established Empirical Matched Field Processing (EMFP) algorithm. By detecting clusters of similar seismic events, the tool will allow analysts to recognise and process aftershocks collectively rather than individually. This capability will improve workflow efficiency during high-volume periods, support the timely release of IDC products, and enhance the responsiveness of monitoring operations.

Expected outcomes

— Improved quality and reliability of automatic seismic bulletins, providing a stronger basis for analyst review.

— More efficient and timely processing of seismic events during high-volume aftershock sequences, supporting the timely release of daily IDC bulletins (Reviewed Event Bulletin).

— Improved seismic event association, resulting in more accurate and consistent event characterization prior to analyst review.

Expected outputs

— Analyst support tool integrated with the Analyst Review System (ARS), enabling efficient identification and processing of aftershock sequences.

— NET-VISA associator enhanced through integration of EMFP detections, improving signal association and the quality of automatic seismic bulletins.

Operation of Transportable Noble-Gas Systems in Japan

Background

Radioactive xenon isotopes are produced by both nuclear explosions and civilian nuclear facilities, making knowledge of the civil radioxenon background essential for CTBT verification. Understanding how radioxenon concentrations vary over time and across locations helps improve the interpretation of IMS detections and assessment of network performance.

With EU support, the CTBTO has established and operated a network of transportable radioxenon systems in three locations in Japan, namely at Honorobe, Mutsu and Fukuoka, which operate alongside the IMS station at Takasaki. Planned activities aim to continue data acquisition, building on anticipated financial support from the Government of Japan. Complementary funding is required to sustain operation and maintenance activities during the following two years to ensure uninterrupted data collection.

The resulting dataset will be shared with States Signatories and researchers, contributing to a better understanding of radioxenon background levels and their impact on CTBT verification activities.

Expected outcomes

— Improved knowledge of the spatial and temporal variability of radioxenon measurements, allowing to better understand how much information can be obtained from measurements at a single IMS station.

Expected outputs

— Sustained operation of the three radioxenon monitoring systems in Japan, providing continuous measurements.

— Dataset supporting the analysis of spatial and temporal variability in radioxenon background concentrations.

OSI Field Laboratory Infrastructure Upgrade

Background

The CTBT provides for the conduct of an On-Site Inspection (OSI) to clarify whether a nuclear explosion has occurred in violation of the Treaty. To support this capability, the Preparatory Commission develops and maintains the equipment, procedures, and deployment concepts required for effective inspection operations.

The OSI Field Laboratory is a key component of this capability, providing on-site measurement and analysis of environmental samples collected during an inspection. The current radionuclide (RN) laboratory infrastructure, developed in 2013, was deployed during the 2014 Integrated Field Exercise and has remained in service through refurbishment and maintenance activities.

Over the past decade, the Preparatory Commission has introduced a modular and standardized deployment concept based on specialized flight pods designed to improve transport efficiency and enable rapid deployment. While the Noble Gas (NG) component of the OSI Field Laboratory has already been successfully migrated to this new system and tested during a major field exercise in 2024, the RN component remains dependent on legacy infrastructure.

This activity will upgrade the RN component of the OSI Field Laboratory by integrating laboratory equipment into the standardized deployment system, improving transportability, equipment protection, and operational readiness for future OSI deployments.

Expected outcomes

— Enhanced readiness, credibility, and deployability of the OSI component of the CTBT verification regime.

— Improved protection, transport, deployment, and commissioning of laboratory equipment during OSI operations.

— Enhanced operational readiness through engineering solutions supporting the safe and efficient use of existing laboratory equipment.

— Harmonized deployment and operating concepts for radionuclide and noble-gas laboratory components, facilitating use by Inspection Teams.

Expected outputs

— Two upgraded OSI Field Laboratory modules for the radionuclide (RN) component, integrated into the standardized flight-pod deployment system to support safe transport and rapid deployment.

— Standardized operating procedures and deployment configurations for the radionuclide (RN) and noble-gas (NG) laboratory components.

Second pillar: Capacity building

The second pillar strengthens capacity-building, enabling States Signatories – especially developing countries – to contribute to and benefit from the CTBT verification regime.

Building Capacity of National Data Centres

Background

National Data Centres (NDCs) play a central role in receiving, processing, analysing, and interpreting IMS data and IDC products. While many States Signatories increasingly use these resources for verification, scientific, and civil applications, NDC performance is often constrained by limited technical capacity, insufficient training opportunities, infrastructure gaps, and underrepresentation of women in verification-related activities.

This project will strengthen NDC capabilities through regional and specialized training, expert technical support, deployment and maintenance of Capacity Building Systems (CBS), and targeted activities to increase the participation and expertise of women in CTBT verification. By addressing capability gaps and supporting knowledge retention, the project will improve NDC operations and enhance national contributions to the verification regime.

The work is structured around three components:

— Capacity-Building Trainings and Workshops

— Deployment and Sustainment of CBS

— She Shapes Science Initiative Bootcamp

Expected outcomes

— Strengthened NDC infrastructure and capabilities for data acquisition, processing, and analysis (SHI and RN), supported by deployed and maintained CBS solutions.

— Enhanced capacity of NDC personnel to independently analyse events, provide technical advice to national authorities, and contribute more effectively to regional and international verification activities.

Expected outputs

— 45 NDC personnel trained through regional and specialized trainings/workshops.

— Three regional workshops and training courses, and two SeisComp trainings are conducted.

— Up to 12 CBS deployed, upgraded, or maintained to support SHI and RN data acquisition, processing, and analysis.

— Technical support and follow-up assistance provided to strengthen NDC operational performance, including coaching, troubleshooting, maintenance, and knowledge retention activities.

— Eight women working in NDCs trained and mentored through the She Shapes Science Initiative Bootcamp, enhancing their participation and technical expertise in CTBT verification activities.

OSI Regional Introductory Course (RIC) – 2027 (Latin America and the Caribbean)

Background

The CTBT provides for the conduct of an On-Site Inspection (OSI) to clarify whether a nuclear explosion has occurred in violation of the Treaty. Pending its entry into force, the Provisional Technical Secretariat (PTS) maintains OSI operational readiness through a structured training and capacity-building programme.

OSI RICs provide foundational knowledge of the Treaty and OSI methodologies and serve as the main entry point to the OSI Linear Training Programme for surrogate inspectors. Experience has shown that hosting a RIC in a region increases nominations and participation, and contributes to greater geographical diversity, gender equality and representation of underrepresented groups within the OSI training pipeline.

Following the successful delivery of RIC-26 in Africa in 2024, and in line with the regional rotation model, RIC-27 is planned for the Latin America and Caribbean region. The activity will strengthen the sustainability, inclusiveness, and effectiveness of the OSI training system and support the long-term readiness of the CTBT verification regime.

Expected outcomes

— Strengthened OSI operational readiness through increased participation of experts from the Latin America and Caribbean region in the OSI training pipeline.

— Increased knowledge of CTBT and OSI requirements among technical experts from the Latin America and Caribbean region.

— Enhanced capacity of States Signatories to nominate qualified candidates to the OSI Linear Training Programme, supporting the sustainability of the surrogate inspector roster.

— Expanded pool of qualified surrogate inspector candidates, with improved geographical diversity, gender equality and representation of underrepresented groups within the OSI training pipeline.

— Strengthened regional engagement with CTBTO training activities and the CTBT verification regime.

Expected outputs

— One RIC delivered in the Latin America and Caribbean region.

— Preparatory e-learning modules developed and made available to all selected participants.

— Classroom instruction and practical OSI technique sessions conducted.

— Capstone field exercise implemented.

— Over 30 technical experts from States Signatories trained using a blended learning approach.

— Recommendations and lessons learned documented through a post-course evaluation report.

Technical Experts Support Programme

Background

Many developing States Signatories face financial constraints that limit the participation of their experts in the CTBTO's scientific and technical meetings. This can reduce their contribution to discussions and recommendations on issues related to the verification regime, despite their important role in hosting IMS stations and establishing NDCs.

Established in 2006, the Technical Expert Support Programme (TESP) supports the participation of qualified experts from developing countries in official CTBTO technical meetings. By facilitating their engagement in verification-related activities, the programme strengthens national technical capacities, promotes knowledge exchange, and enhances the inclusiveness and diversity of the Preparatory Commission's technical work. Gender balance and geographical representation remain key selection criteria.

Expected outcomes

— Increased participation of experts from developing States Signatories in the policy-making bodies of the Preparatory Commission.

— Enhanced technical capacity in developing States Signatories.

— Improved inclusivity, diversity, and geographical representation in the Commission's technical work.

Expected outputs

— 52 technical experts from developing States Signatories are supported to attend Working Group B meetings.

— Gender-balanced and geographically diverse expert participation is facilitated.

CTBT Young Leaders

Background

The CTBT Young Leaders (CYL) initiative builds on the success of the CTBTO Youth Group (CYG), which since 2016 has engaged nearly 2 000 young people from 137 countries through capacity-building, research, and outreach activities on nuclear non-proliferation and disarmament.

Marking the 30th anniversary of the CTBT and the 10th anniversary of the CYG, the initiative will transform the existing network into a more structured and sustainable global youth platform. Building on lessons learned and member consultations, CYL will strengthen youth engagement, leadership, and advocacy in support of the CTBT, while ensuring balanced regional representation and broad participation from States Signatories.

Expected outcomes

— Enhanced capacity of young leaders to promote CTBT objectives and lead youth-driven initiatives at national, regional, and international levels.

— Stronger and more diverse youth engagement in support of CTBT universalization and entry into force.

— Increased participation of young leaders in scientific, diplomatic, and policy fora addressing the CTBT, nuclear non-proliferation and disarmament.

— Expanded global outreach and visibility of CTBT-related messages through youth-led engagement and digital platforms.

Expected outputs

— Youth-led Steering Committee operational to guide the CYL network.

— Capacity-building programme delivered to strengthen members' knowledge, leadership, advocacy, and communication skills.

— Support provided for CYL participation in key scientific and diplomatic fora addressing the CTBT, nuclear non-proliferation and disarmament.

— Youth-led outreach and engagement initiatives implemented, including flagship CTBTO campaigns (e.g. Global Art Campaign, 'Be the Voice of SnT2025') and new youth-focused activities.

— CYL Alumni Network established to sustain engagement and preserve institutional knowledge.

— Communication and outreach products developed to enhance the visibility and reach of CYL activities.

— Strategic partnerships strengthened with international organizations, academic institutions, think tanks, and youth networks.

Fostering Equal Access to Opportunities

Background

In 2022, with support from EU, the CTBTO launched a mentoring programme for early-career women in STEM to mark the 25th anniversary of the CTBT. Since then, the programme has successfully completed four cycles and is currently implementing its fifth, supporting 141 mentees from all six CTBTO geographical regions, the majority from developing countries.

The programme connects early-career women with experienced technical experts, helping them expand professional networks, strengthen skills, and gain greater awareness of career opportunities in STEM, nuclear non-proliferation and disarmament, and CTBT-related fields. Mentoring is complemented by thematic seminars, workshops, and skills-development activities, contributing to a growing pipeline of qualified women professionals.

While these efforts support outreach and recruitment objectives, achieving gender balance also requires sustained action to attract, develop, and retain qualified women within the PTS. The project will therefore combine continued mentoring activities with targeted measures to strengthen the institutional framework for gender equality, women's empowerment, and workplace inclusion.

Expected Outcomes

— Extended pipeline of qualified early-career women for careers in STEM, nuclear non-proliferation and disarmament, and an expanded talent pool of women technical experts.

— Increased awareness of the CTBT verification regime and related professional opportunities.

— Strengthened institutional framework that promotes Gender Equality and Women's Empowerment (GEWE).

Expected Outputs

— At least 40 early-career women are supported through the Mentoring Programme from 2027 to 2029.

— GEWE activities undertaken and reported on within the United Nations inter-organizational process annually.

Action Implementation, Monitoring and Reporting

Background

Based on the experience gained from Council Decision (CFSP) 2023/2064 of 25 September 2023 and given the scope and complexity of the proposed activities, dedicated programme management support is required to ensure effective coordination, timely implementation, and continuous project monitoring and reporting. A dedicated non-staff member would serve as the central focal point for EU-funded activities, supporting coordination across all Division and ensure timely and accurate reporting to the EU.

Expected outcomes

— Improved coordination and oversight of EU-funded activities.

— Enhanced monitoring, reporting and communication with EU.