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Subject: COUNCIL DECISION 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

COUNCIL DECISION (CFSP) 2015/...

of ...

**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**

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty of the European Union, and in particular Article 26(2) and Article 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), Chapter III of which contains a list of measures that need to be taken both within the Union and in third countries to combat such proliferation.
- (2) The Union is actively implementing the Strategy and is giving effect to the measures listed in Chapter III thereof, in particular through releasing financial resources to support specific projects conducted by multilateral institutions, such as the Provisional Technical Secretariat (PTS) of the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO).
- (3) On 17 November 2003, the Council adopted Common Position 2003/805/CFSP on the universalisation and reinforcement of multilateral agreements in the field of non-proliferation of weapons of mass destruction and means of delivery¹. That Common Position calls, *inter alia*, for the promotion of the signing and ratification of the Comprehensive Nuclear-Test-Ban Treaty (CTBT).

¹ 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).

- (4) The States Signatories of the CTBT have decided to establish a Preparatory Commission, endowed with legal capacity, and which has standing as an international organisation, for the purpose of carrying 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 of the CTBTO are important objectives of the Strategy. In this context, the nuclear tests carried out by the Democratic People's Republic of Korea in October 2006, May 2009 and February 2013 further underlined the importance of the early entry into force of the CTBT and the need for an accelerated building-up and strengthening of the CTBT monitoring and verification system.
- (6) The Preparatory Commission of the CTBTO is engaged in identifying how its verification system could best be strengthened, including through the development of noble gas monitoring capabilities and efforts aimed at fully involving States Signatories of the CTBT in the implementation of the verification regime.

- (7) In the framework of the implementation of the Strategy, the Council adopted three Joint Actions and two Decisions on support for activities of the Preparatory Commission of the CTBTO, namely Joint Action 2006/243/CFSP¹ in the area of training and capacity building for verification, and Joint Action 2007/468/CFSP², Joint Action 2008/588/CFSP³, Decision 2010/461/CFSP⁴ and Decision 2012/699/CFSP⁵ in order to strengthen the monitoring and verification capabilities of the Preparatory Commission of the CTBTO.

¹ 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).

² 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).

³ 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).

⁴ 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).

⁵ 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).

- (8) That Union support should be continued.
- (9) The technical implementation of this Decision should be entrusted to the Preparatory Commission of the CTBTO which, on the basis of its unique expertise and capabilities through the network of the International Monitoring System (IMS), comprising over 280 facilities in about 85 countries, and the International Data Centre, is the sole international organisation having the ability and legitimacy to implement this Decision. The projects as supported by the Union can only be financed through an extra-budgetary contribution to the Preparatory Commission of the CTBTO,

HAS ADOPTED THIS DECISION:

Article 1

1. For the purpose of ensuring the continuous and practical implementation of certain elements of the Strategy, the Union shall support the activities of the Preparatory Commission of the CTBTO in order to further the following objectives:
 - (a) to strengthen the capabilities of the CTBT monitoring and verification system, including in the field of radionuclide detection;
 - (b) to strengthen the capabilities of the States Signatories of the CTBT to fulfil their verification responsibilities under the CTBT and to enable them to benefit fully from participation in the CTBT regime.

2. The projects to be supported by the Union shall have the following specific objectives:
 - (a) to support the sustainment of the monitoring system in order to improve the detection of possible nuclear explosions, specifically by supporting: selected Auxiliary Seismic (AS) stations and the global radio-xenon background characterisation and xenon mitigation; the enhancements of virtual Data Exploitation Centre (vDEC) administration and associated activities; the implementation of Phase 2 of the International Data Centre (IDC) seismic, hydro-acoustic and infrasound (SHI) re-engineering programme; and the Increasing Test Coverage for IDC Applications;

- (b) to strengthen the verification capabilities of the Preparatory Commission of the CTBTO in the areas of on-site inspections, specifically by supporting the development of On-Site Inspection (OSI) operational capabilities through expanding and complementing the technical capabilities of the OSI Multi-Spectral and Infrared (MSIR) system;
- (c) to support the promotion of the universalisation and entry into force of the CTBT and the long term sustainability of its verification regime through outreach and capacity building, including through providing support for training and workshops in South-East Asia, the Pacific and the Far East (SEAPFE) and Middle East and South Asia (MESA) to promote effective participation in the CTBT; for the Capacity Building System Maintenance; for outreach to the scientific and policy-making/diplomatic communities to increase awareness and understanding of the CTBT; and for consolidating and expanding the extended National Data Centre (NDC) in-a-box (NDC-in-a-Box) offering/package.

Projects are also aimed at ensuring Union visibility in providing support to the above mentioned activities and the proper programme management in the implementation of this Decision.

These projects shall be carried out for the benefit of all States Signatories of the CTBT.

A detailed description of the projects 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 projects referred to in Article 1(2) shall be carried out by the Preparatory Commission of the CTBTO. It shall perform this task under the control of the High Representative. For this purpose, the High Representative shall enter into the necessary arrangements with the Preparatory Commission of the CTBTO.

Article 3

1. The financial reference amount for the implementation of the projects referred to in Article 1(2) shall be EUR 3 024 756.
2. The expenditure financed by the amount stipulated in paragraph 1 shall be managed in accordance with the procedures and rules applicable to the Union budget.
3. The European Commission shall supervise the proper management of the financial reference amount referred to in paragraph 1. For that purpose, it shall conclude a financing agreement with the Preparatory Commission of the CTBTO. The financing agreement shall stipulate that the Preparatory Commission of the CTBTO is to ensure visibility of the Union contribution, commensurate with its size.

4. The European Commission shall endeavour to conclude the financing 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 conclusion of the financing agreement.

Article 4

1. The High Representative shall report to the Council on the implementation of this Decision on the basis of regular reports prepared by the Preparatory Commission of the CTBTO. Those reports shall form the basis for the evaluation carried out by the Council.
2. The European Commission shall provide information on the financial aspects of the implementation of the projects referred to in Article 1(2).

Article 5

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

This Decision shall expire 24 months after the date of the conclusion of the financing agreement referred to in Article 3(3). However, it shall expire six months after its entry into force if no financing agreement has been concluded by that time.

Done at ...,

For the Council

The President

ANNEX

Union support for the activities of the Preparatory Commission of the CTBTO
in order to strengthen its monitoring and verification capabilities,
enhance the prospects for early entry into force and support
the universalisation of the CTBT
and in the framework of the implementation of the EU Strategy
against Proliferation of Weapons of Mass Destruction

I. INTRODUCTION

1. The building up of a well-functioning monitoring and verification system of the Preparatory Commission of the CTBTO (the Preparatory Commission) is a crucial element for preparing the implementation of the CTBT once it will have entered into force. The development of the capabilities of the Preparatory Commission in the area of noble gas monitoring is an important tool for assessing whether an observed explosion is a nuclear test. In addition, the operability and performance of the CTBT monitoring and verification system depends on the contribution of all States Signatories of the CTBT. Therefore, it is important to enable States Signatories of the CTBT to participate in and contribute fully to the CTBT monitoring and verification system. The work undertaken in implementing this Decision will also be important for enhancing the prospect for early entry into force and the universalisation of the CTBT.

The projects described in this Decision will significantly contribute to achieving the objectives of the EU Strategy against Proliferation of Weapons of Mass Destruction.

2. To that end, the Union will support the following nine projects:
- (a) Sustaining IMS AS stations hosted in countries that need support;
 - (b) Global radio-xenon background characterisation project;
 - (c) vDEC administration and associated activities;
 - (d) Support for Phase 2 IDC SHI re-engineering;
 - (e) Xenon mitigation;
 - (f) Increasing test coverage for IDC applications;
 - (g) Hardware enhancements to the OSI MSIR system;
 - (h) Training and workshops in SEAPFE and MESA, Capacity Building System Maintenance and Outreach to the Scientific and Policy-Making/Diplomatic Communities; and
 - (i) Extended NDC-in-a-Box.

The prospects of entry into force of the CTBT have improved due to a more favourable political environment, which is also demonstrated by recent new signatures and ratifications of the CTBT, including by Indonesia, one of the States listed in Annex 2 to the CTBT. Given this positive dynamic, in the coming years an increased and urgent focus needs to be put on both completing the build-up of the CTBT verification regime and ensuring its readiness and operational capability, as well as continuing work towards the entry into force and universalisation of the CTBT. The nuclear tests carried out by the Democratic People's Republic of Korea in October 2006, May 2009 and February 2013 not only demonstrated the importance of a universal ban on nuclear tests, they also underscored the need for an effective verification regime to monitor compliance with such a ban. A fully operational and credible CTBT verification regime will provide the international community with reliable and independent means to ensure that this ban is respected. Moreover, the CTBTO data also play a crucial role in timely tsunami warning and the assessment of the dispersal of radioactive emissions after the Fukushima nuclear accident of March 2011.

Supporting those projects reinforces the objectives of the Common Foreign and Security Policy. The implementation of those complex projects will contribute significantly to improving effective multilateral responses to current security challenges. In particular, those projects will further the objectives of the EU Strategy against Proliferation of Weapons of Mass Destruction, including to further universalise and strengthen the norms contained in the CTBT as well as its verification regime. The Preparatory Commission is building an IMS to ensure that no nuclear explosion goes undetected. Based on its unique expertise through a worldwide IMS AS network, comprising over 280 facilities in 85 countries, and the IDC, the Preparatory Commission is the sole organisation with the capacity to implement those projects, which can only be financed through an extra-budgetary contribution to the Preparatory Commission.

In Joint Action 2006/243/CFSP, Joint Action 2007/468/CFSP, Joint Action 2008/588/CFSP, Decision 2010/461/CFSP and Decision 2012/699/CFSP, the Union has supported the establishment of an E-learning training program, the Integrated Field Exercise 2008 in respect of OSI and the Integrated Field Exercise 2014 (IFE14), Radio-Xenon Assessment and Measurement, Characterisation and Mitigation, Technical Assistance and Capacity Building, Developing Capacity for Future Generations of CTBT Experts, Enhancing the Atmospheric Transport Model (ATM), AS stations, strengthening cooperation with the scientific community, strengthening the OSI capabilities with the development of a noble gas detection system, and the Pilot Project to support the participation of experts from developing countries in technical and policy making meetings of the Preparatory Commission. The projects under this Decision build upon the previous Joint Action projects and progress achieved through their implementation. The projects under this Decision are such as to avoid any potential overlaps with Decision 2012/699/CFSP. Some of the projects under this Decision contain elements that are similar to activities undertaken under previous Joint Actions, but differ in material scope or target different recipient countries or regions.

In addition to other voluntary contributions and contributions-in-kind received by the CTBTO in support of its activities from donors, such as EU and non-EU States, institutions, and others, the nine projects, mentioned above, in support of activities of the Preparatory Commission will be implemented and managed by the PTS.

II. DESCRIPTION OF THE PROJECTS

Heading 1: Sustainment of the monitoring system

This heading consists of the following six components:

- Component 1: Sustainment of IMS AS stations hosted in countries that need support.
- Component 2: Global Radio-xenon Background Characterisation Project
- Component 3: vDEC administration and associated activities
- Component 4: Support for Phase 2 IDC SHI re-engineering
- Component 5: Xenon mitigation
- Component 6: Increasing test coverage for IDC applications

Component 1: Sustainment of IMS AS stations hosted in countries that need support

1. Background

This project is to continue to provide assistance to local authorities to improve the operation and sustainability of certified stations in the IMS AS network that are hosted by countries that need support.

2. Project Scope

Meeting the high level of data quality and availability mandated for IMS AS stations poses significant challenges to some countries. Detailed assessments of specific local conditions, targeted improvements of station infrastructure (given past operational experience), resolving impending obsolescence issues, and assisting in setting up appropriate internal arrangements and agreements to support operations and maintenance will improve overall station sustainability and help the local station operator to ensure the required station performance in the future.

Work under this project would therefore consist, *inter alia*, of continuing to collect the necessary facts and reviewing sustainability conditions for those facilities of the AS network targeted within this project, station visits including system calibrations, minor repairs, and operator training, additional training to local station operators, infrastructure and security upgrades, upgrades of backup power systems and upgrade or replacement of obsolete equipment.

In addition, within this project, a series of targeted visits to the local authorities of AS host countries will also continue to be undertaken to raise awareness and acknowledgement of their IMS facilities operation and maintenance responsibilities under the CTBT, to assess current arrangements for station operation and maintenance, and encourage establishment or improvements to the national support structure and resources as required.

3. Benefits and Outcome

Maintain and improve data availability for AS stations.

Component 2: Global Radio-Xenon Background Characterisation Project

1. Background

The Preparatory Commission measures radio-xenon in the environment with very sensitive systems as an important part of the CTBT verification regime. With the contribution received from the Union within the framework of Joint Action 2008/588/CFSP, the CTBTO has purchased two transportable systems for measuring the noble gas radioisotopes, ^{133}Xe , ^{135}Xe , $^{133\text{m}}\text{Xe}$ and $^{131\text{m}}\text{Xe}$. Those systems have been used to measure the radio-xenon background in Indonesia, Japan and Kuwait. For this purpose cooperation agreements with partner institutes have been established.

2. Project Scope

To continue those measurement campaigns, funds are required for the shipment of the mobile noble gas systems to new locations, and to run the systems in a single location for at least 12 months to cover seasonal variation.

The location in Kuwait is in the middle of a void of IMS noble gas measurement systems. The portable station in Kuwait has great importance from a network coverage point of view in the Persian Gulf area. Since this location provides considerable information on the characterisation of the global xenon background, the objective is first to extend the measurement campaigns in Kuwait during the implementation period of this project.

The other system will start taking measurements under Decision 2012/699/CFSP in Manado, Indonesia. The extension of the measurement campaign would allow characterisation of this location throughout an entire 12-month cycle covering all seasonal conditions. After the end of this campaign, the CTBTO is planning to perform additional measurements in areas where the global radio-xenon background is not fully known and understood. Preferred locations are equatorial sites in Latin America, Asia and Africa.

3. Benefits and Outcome

The benefits are a better understanding of the global noble gas background variation, and better coverage of the noble gas monitoring network. Following these measurement campaigns, the systems will be available for use by the CTBTO for follow-up studies of the noble gas background on different geographical scales and as backup and/or training systems.

Component 3: vDEC Administration and Associated Activities.

1. Background

The IDC maintains the vDEC, which allows external researchers, NDCs, and PTS contractors to access IMS data, IDC products and IDC software. The vDEC was established under Decision 2010/461/CFSP.

2. Project Scope

The objective is to continue to support vDEC as a platform for collaborative research using IMS data and IDC products and software.

3. Benefits and Outcome

The vDEC supports research and development in advanced technologies for monitoring under the CTBT. In doing so, it provides opportunities for research by young scientists and engineers, as well as for researchers in less developed countries, where there are fewer resources.

Component 4: Support for Phase 2 IDC SHI Re-Engineering

1. Background

Based on an initial phase to re-engineer selected parts of the SHI system, and taking advantage of a significant contribution-in-kind from the USA, the PTS has begun a so-called Phase 2 IDC SHI Re-engineering programme. The goal of this programme is to develop a comprehensive software architecture to guide projects for new development and updates to the existing software over the next 5 to 7 years. The Phase 2 Re-engineering programme is divided again into several shorter phases following the Rational Unified Process for software development (RUP). The initial RUP phase, known as the inception phase was scheduled for completion in 2014, with system requirements and system specifications documents completed. The next RUP phase, elaboration, will go through 2016 and into 2017 and involve the development of a software architecture design and sufficient prototype development to mitigate the highest risks identified in the design. A key objective of specifying an overarching software architecture is to allow the PTS to prioritise sustainment activities. Although the contribution-in-kind from the USA is a significant part of this project, it is imperative that all CTBTO Member States be involved in the process. This will be achieved by regular briefings to the Working Groups and through technical meetings.

2. Project Scope

The objective is to: (1) support two technical meetings on software engineering; and (2) provide contracted services/short-term staff appointment for prototype development.

3. Benefits and Outcome

The overarching objective of this project is to provide a more modern and adaptable framework for software development and maintenance for the next 20 years. The result should be a system and support organisation that is more resilient to change and less expensive to operate and maintain.

Component 5: Xenon Mitigation

1. Background

The Preparatory Commission measures radio-xenon in the environment with very sensitive noble gas systems as an important part of the CTBT verification regime. Current radio-xenon emissions from Radiopharmaceutical Production Facilities (RPFs) significantly affect background levels at noble gas stations of the CTBTO IMS.

With the contribution received from the Union within the framework of Decision 2012/699/CFSP, the CTBTO has contracted a study for developing a technical solution which can be used for reducing radio-xenon emissions from RPFs. The study was carried out by SCK•CEN, Belgium and allowed the development of a trap system prototype based on silver zeolite material which demonstrated promising results.

2. Project Scope

In order to support ongoing efforts for xenon mitigation and as a follow up to the outcomes of work carried out under Decision 2012/699/CFSP, funds are required for further development of the xenon trap system with the following key objectives:

- (a) Carrying out a scaling-up study of the silver zeolites based trap prototype developed by SCK•CEN, Belgium, under Decision 2012/699/CFSP, under a wider range of operational conditions with the aim to further assess system performance.
- (b) Extending the testing to additional RPFs through specific design studies and demonstration exercises in various operational environments. The upcoming KAERI RPF in Busan, Korea is a suitable candidate for hosting such studies in cooperation with SCK•CEN, Belgium.
- (c) Assessing the long-term behaviour of selected materials in terms of resistance to high level of irradiation in real operational environment. This will be carried out as part of testing under operational conditions.

- (d) Integration of high performance stack monitoring systems at RPFs will allow high quality stack release data to be generated and shared with the CTBTO and States Signatories of the CTBT. Detection systems will be based on high purity germanium detectors with high performance for radio-xenon analysis at different activity levels.
- (e) Development of improved ATM tools for reliable assessment of radio-xenon emissions from RPFs on IMS stations. The tools will be used by the CTBTO and made available to States Signatories of the CTBT to allow independent assessment based on stack monitoring data. The tools will also support configurable configuration of the IMS noble gas network.

3. Benefits and Outcome

Full scale testing of xenon reduction systems under various operational conditions will allow a final design of a concrete technical solution for mitigating xenon emissions from RPFs. The improved performance of the IMS noble gas network will provide States Signatories of the CTBT with monitoring data of higher quality in terms of CTBT verification value.

Component 6: Increasing Test Coverage for IDC Applications

1. Background

Unit, integration and regression testing represents a recurring, highly specialised and time consuming task within the maintenance of waveform and radionuclide applications at the IDC. Extensive testing is required as part of deploying a new operating system version, releasing a new version of an application or changing the configuration of existing software.

As the software is quite complex, can be run in thousands of different configurations and often relies on both disk and database access to be able to perform, the development of tests is also complex. Most testing so far has been done by having a domain expert run the software in common configurations, examine the results and compare them with previous and expected results. This manual process is seldom repeatable and relies heavily on the availability of human resources as well as on domain expertise.

To address these problems, in November 2013 the Preparatory Commission started a project to identify and implement an open-source testing framework that would enable it to run tests in continuous automatic mode. This is a three-year contract that was initiated in November 2013 and is intended to end in November 2016. The Preparatory Commission has already contracted software development services for this work. Union funds are intended to be used to cover the last optional extension, of this existing contract, that will run from January to November of 2016. The Continuous Automatic Testing Framework (CATS) is intended to also facilitate creation and maintenance of test suites and to develop an initial set of integration tests for the automatic waveform processing components.

The project is currently progressing as planned. The system requirements document has been completed and two open-source software packages (Jenkins and FitNesse) have been identified that together satisfy the Preparatory Commission's requirements.

2. Project Scope

The objective of this project is to follow-up on the implementation of **CATS** by increasing code coverage through the development of unit, regression and integration tests in particular in the areas of waveform network processing, radionuclide software, and product and data dissemination.

3. Benefits and Outcome

This work will help put in place repeatable quality control processes and will increase the efficiency of IDC software deployment operations. This will result in higher quality automatic waveform and radionuclide software and ultimately in a better service to CTBTO Member States in particular with respect to dissemination of data, products and software.

Heading 2: Hardware and Software Enhancements to the OSI MSIR System

1. Background

The MSIR system, developed by the PTS through funding under Decision 2012/699/CFSP and complemented by a contribution-in-kind for IFE14, has the capacity to acquire spectral information from an airborne platform over the range from the visible to the thermal infrared. The system is an arrangement of sensors on a stabilised base, supporting instruments as well as processing tools to extract OSI-relevant information.

Furthermore, elements of the system including mission planning software, inertial measurement unit, system controller, auxiliary pilot and operator navigation system and video camera have been integrated and tested within the PTS airborne gamma spectrometer system enabling the acquisition of data along predefined flight lines. These elements are also available for other OSI airborne operations, including the initial overflight and the airborne magnetic survey.

2. Project Scope

The objectives are to expand the capabilities of the MSIR system and, as a consequence, to enhance the ability of an inspection team to detect OSI-relevant features. The MSIR system has been designed to be modular and additional components can be added as and when funds permit. Testing by the PTS has demonstrated the value of other MSIR sensors that would complement the existing system sensor array. This proposal seeks to complement the system through the addition of dedicated sensors:

(a) Multispectral sensor instrument

Testing by the PTS using a contribution-in-kind system has demonstrated the value of acquiring data in discrete spectral bands in both the near and short wave infrared. In addition, detection capability in this part of the spectrum was highlighted as a key requirement of an airborne MSIR system by participants at two OSI Experts Meetings in 2011 and 2012. As such, this element is a critical element of the proposal.

The contribution-in-kind hardware used during IFE14 is unavailable to the PTS as a long term loan and, given the near year-round use of such devices, there is a low probability of receiving a similar device through a loan agreement from a State Signatory of the CTBT. Consequently, the proposal is to purchase an off-the-shelf multispectral instrument fully integrated with existing components that is capable of detecting OSI-relevant features in the near and short-wave infrared.

(b) Distance measuring instrument

As demonstrated during various field tests, a laser distance measuring instrument with scanning functionality installed on an airborne platform offers considerable advantages to an inspection team. Currently, the MSIR system does not have the capability to generate terrain data but is well placed to deliver such data through the addition of a scanning laser distance measuring instrument. Such an instrument would:

- enable the rapid generation of surface and terrain elevation data that may identify OSI-relevant features obscured by vegetation;
- facilitate the correction of other MSIR data and facilitate the generation of orthorectified image products;
- enable the generation of 3D models further facilitating the decision-making process within the OSI inspection team and supporting mission planning.

In addition to serving the MSIR system, such an instrument could also be used as an auxiliary component of the radionuclide measurement system to provide accurate ground clearance data to correct gamma data acquired during overflights. Such an instrument would be particularly valuable in an area of high relief (as experienced during IFE14).

3. Benefits and Outcome

A more efficient and effective MSIR system will enhance the work of inspectors during an OSI. Consequently, this supports Union policy and the Union's determination for the CTBT to enter into force. Furthermore the project has the ability to complement and further enhance the airborne sensors industry in Europe. Several companies in the Union provide products in this field.

Heading 3: Outreach and Country-level Capacity Building

This heading consists of the following two components:

Component 1: Training and workshops in SEAPFE and MESA, Capacity Building System
Maintenance and Outreach to the Scientific and Policy-Making/Diplomatic
Communities

Component 2: Extended NDC-in-a-Box

Component 1: Training and workshops in SEAPFE and MESA, Capacity Building System Maintenance and Outreach to the Scientific and Policy-Making/Diplomatic Communities

1. Background

The PTS has successfully worked to build capacity in supporting NDCs and authorised users in a systematic way in the regions of Africa, Latin America and the Caribbean, Eastern Europe, and parts of SEAPFE. The positive results achieved have been greatly enhanced through Union support. Extending such country-level capacity building to more countries in SEAPFE and to the MESA regions would be a logical consequence. In addition, capacity building systems installed in a number of countries (40 systems, with 20 installations in preparation) are vital to maintaining capacity, but frequently suffer from technical difficulties, often due to harsh local climatic or infrastructural conditions. Some degree of maintenance of these systems is necessary to attain the full benefits of country-level capacity building. Expert-level interaction with the Preparatory Commission is a key means of maintaining both political support for, and technical expertise in, all aspects of the CTBT. A series of regular conferences and academic, diplomatic and scientific outreach events (such as the biennial CTBT Science and Technology Conference, Regional CTBT Workshops and Conferences, CTBT Public Policy courses, and Scientist-to-Scientist Workshops) have served to build and maintain confidence in the verification regime and to highlight the importance of the CTBT as a cornerstone of the global non-proliferation and disarmament regime. These activities also provide a useful avenue for engaging the States listed in Annex 2 to the CTBT but which have not ratified the CTBT with the aim of advancing the entry into force of the CTBT.

2. Project Scope

This sub-project strengthens earlier efforts to build technical capacities at the country level by supporting training and workshops in the SEAPFE and MESA regions to promote effective CTBT participation by countries in those regions. Special focus is put on training for radionuclide analysts based on the software added to the NDC-in-a-box in 2013. These two regions will receive appropriate attention when selecting recipients under the activities included in the ninth project on the extended NDC-in-a-box software and its core element, SeisComp3. One major objective of this is to support States Signatories of the CTBT in integrating the processing of IMS with national and regional seismic networks and merging of normal routine operations like local and regional seismic hazard monitoring with nuclear explosion monitoring by the establishments hosting NDCs. Linkages with the other two sub-projects under this proposal will be sought, for example through use of appropriate common materials in training and workshops and the collection of lessons learned at country level.

Remedial technical support for capacity building systems that are effectively utilised at country level but which fail due to minor technical obstacles, including securing appropriate internet accessibility, will be provided.

This sub-project will also increase awareness and understanding of the CTBT in the academic community and among policy practitioners and decision-makers, in particular within the States listed in Annex 2 to the CTBT but which have not ratified the CTBT by offering courses and training programmes on CTBT issues, particularly on the scientific and technical aspects of the CTBT. Developing countries and States listed in Annex 2 to the CTBT but which have not ratified the CTBT will be specifically targeted, in line with the strategies of the PTS for the entry into force and universalisation of the CTBT.

3. Benefits and Outcome

The activities are in line with Union objectives in promoting enhanced global security through increasing awareness and understanding of the CTBT and supporting Common Position 2003/805/CFSP, and through intensified outreach to States listed in Annex 2 to the CTBT, country-level capacity building, including through take-up in the SEAPFE and MESA regions.

Component 2: Extended NDC-in-a-Box

1. Background

In 2013, the Preparatory Commission engaged in an effort to expand its current NDC-in-a-Box offering with additional software, enabling users to more easily combine data from the IMS network with data from local and national stations and also to significantly improve the NDCs' processing capability. As part of this effort, a license agreement was signed in December 2013 with the Helmholtz-Centre Potsdam GFZ German Research Centre for Geosciences, enabling the Preparatory Commission to distribute the SeisComp3 software as part of the NDC-in-a-Box offering to its authorised users for purposes of IMS data processing and analysis. Software development work for the first release of Extended NDC-in-a-Box to Alpha Testers has currently been completed and testing by NDCs is on-going. The framework of the extended NDC-in-a-box was discussed, requirements refined and considered acceptable by NDC representatives during the DPSS sessions of the 2014 NDC workshop held in Vienna (12 to 16 May). At the end of the project, the same NDC representatives, acting as Alpha Testers, will have the opportunity to test the new software distribution at their sites. Interest from CTBTO Member States in requirements definition and testing has been overwhelming despite the time and equipment requirements placed upon NDC representatives that take part in the project.

2. Project Scope

This sub-project will also consolidate the new Extended NDC-in-a-Box package to facilitate its adoption among NDCs while ensuring consistency with IDC software re-engineering. This consists in the following components: (a) addressing feedback received during alpha testing by resolving identified problems and making small enhancements to the software as requested by Alpha Testers. The result of this work should be a first official release of the Extended NDC-in-a-Box distribution; and (b) addressing training needs among NDCs, in particular for the newly developed tools to be included in the Extended NDC-in-a-Box, and for the SeisComp3 package. This will be achieved through two NDC waveform analyst training courses and two training courses dedicated to SeisComp3 as well as through Expert-in-the-field missions to NDCs in need of on-site support.

3. Benefits and Outcome

The activities are in line with Union objectives by promoting enhanced global security through increasing awareness and understanding of the CTBT and supporting Common Position 2003/805/CFSP, and through intensified outreach to States listed in Annex 2 to the CTBT, country-level capacity building, including maintenance of capacity building systems as well as wider adoption of the NDC-in-a-Box software.

III. DURATION

The total estimated duration of the implementation of the projects is 24 months.

IV. BENEFICIARIES

The beneficiaries of the projects to be supported pursuant to this Decision are all the States Signatories of the CTBT, as well as the Preparatory Commission.

V. IMPLEMENTING ENTITY

The Preparatory Commission will be entrusted with the technical implementation of the projects. The projects will be implemented directly by staff of the Preparatory Commission, experts from the States Signatories of the CTBT and contractors. It is envisaged that funding will be used to contract a project management consultant who will be responsible to: assist the Preparatory Commission in the implementation of this Decision, of the reporting obligations during the entire implementation period, including the final narrative report and the final financial report; maintain an archive of all documents related to this Decision, especially in view of possible verification missions; ensure Union visibility in all its aspects; ensure that all activities involving finance, law and procurement are in line with the financing agreement referred to in Article 3(3) of this Decision; and ensure that all information, including budgetary information, is complete, accurate and provided in a timely manner.

The implementation of the projects will be in accordance with the Financial and Administrative Framework Agreement (FAFA) and the financing agreement, referred to in Article 3(3) of this Decision, to be concluded between the European Commission and the Preparatory Commission.

VI. THIRD PARTY PARTICIPANTS

Experts from the Preparatory Commission and from the States Signatories of the CTBT may be considered as third-party participants. They will work under the standard rules of operation for experts of the Preparatory Commission.
