

REQUEST FOR PROPOSAL

To: ALL BIDDERS

CTBTO Ref. No.: 2023-0144/RAHMAN 
(PLEASE QUOTE ON ALL COMMUNICATIONS)

Tel. No.: +43 (1) 26030-6350

E-mail: procurement@ctbto.org

Attn:

Phone:

Date: 5 Oct 23

Fax:

Email:

Subject: PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE
MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING
PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND
DISSEMINATION ON A CALL-OFF BASIS

Deadline for Submission: 6 Nov 23

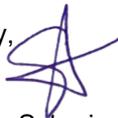
Vienna Local Time: 17:00

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (hereinafter referred to as the 'Commission') hereby invites you to submit a proposal that meets the requirements of the attached documents.

You are kindly requested to complete and return the acknowledgement form by email as soon as possible.

If you have any questions you should contact the email address indicated above.

Yours Sincerely,



Sally Alvarez de Schreiner
Chief, Procurement Services Section

ACKNOWLEDGEMENT FORM

Solicitation No: 2023-0144 Title: PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS	Closing Date: 23 Oct 23 Vienna Local Time: 17:00
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Procurement Staff: Fazal Rahman

CTBTO Req. No.: 0010022772

Please complete 'A' or 'B' or 'C'
and Return

WITHIN FIVE (5) DAYS

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

by email to
procurement@ctbto.org

A: We shall submit our proposal	
By: _____ (date)	Company Name: _____ Contact Name: _____ Email/Tel: _____

B: We may submit and will advise	
By: _____ (date)	Company Name: _____ Contact Name: _____ Email/Tel: _____

C: We will not submit a proposal for the following reason(s)	
<input type="checkbox"/> our current workload does not permit us to take on additional work at this time; <input type="checkbox"/> we do not have the required expertise for this specific project; <input type="checkbox"/> insufficient time to prepare a proper submission; <input type="checkbox"/> other (please specify) _____	
	Company Name: _____ Contact Name: _____ Email/Tel: _____

INSTRUCTIONS FOR PREPARATION AND SUBMISSION OF PROPOSALS

1. General

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (the Commission) with its headquarters in Vienna is the International Organization mandated to establish the global verification system foreseen under the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which is the Treaty banning any nuclear weapon test explosion or any other nuclear explosions. The Treaty provides for a global verification regime, including a network of 321 stations worldwide, a communication system, an International Data Centre and on-site inspections to monitor compliance with the Treaty.

This Request for Proposal (RFP) is for the ***PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS*** (hereinafter referred to as the “Services”) as described in the Terms of Reference.

The Proposal shall meet all requirements stated in the Terms of Reference and be submitted in accordance with these Instructions for Preparation and Submission of Proposals. For this project, the Commission is seeking capabilities, which will ensure that the services are delivered and the tasks are accomplished expeditiously and at a reasonable cost.

2. Documents included in this RFP

This RFP consists of the following documents:

- (a) Letter of Invitation
- (b) These Instructions for Preparation and Submission of Proposals and Bidder’s Statement and the following Attachments:
 - Attachment 1: Mandatory Table of Contents and Format of the Technical Proposal, including the Technical Compliance Sheet
 - Attachment 2: Evaluation Criteria and Method
 - Attachment 3: Procedure for submission of electronic offers in 2 sealed files
 - Attachment 4: Price Schedule Format
- (c) List of CTBTO States Signatories
- (d) Statement of Confirmation
- (e) Vendor Profile Form
- (f) The Commission’s Model Contract and its Annexes A – C;
 - o The Commission’s General Conditions of Contract (Annex A)
 - o The Commission’s Terms of Reference (Annex B)

Note: In the event of award, the Proposal will be incorporated as Annex C to the Contract.

3. Amendment of RFP Documents

At any time prior to the closing date for submission of Proposal, the Commission may, for any reason, modify the RFP documents by amendment. The Commission may consider extending the deadline in order to allow adequate time for considering the modifications in the preparation of the Proposal.

4. **Language of the Proposal**

The Proposal and all correspondence and documents relating to it shall be in English.

Format and Submission of the Proposal

The Proposal shall be typed, dated and signed by an official legally authorized to enter into contracts on behalf of your organization. The Proposal shall not contain any interlineation, erasures or overwriting except as necessary to correct errors, in which case such corrections shall be initialed by the authorized person(s) signing the Proposal.

The Proposal shall be submitted electronically according to the attached “PROCEDURE FOR SUBMISSION OF ELECTRONIC OFFERS IN 2 SEALED FILES”.

The Proposal shall be received not later than the closing date indicated in the Letter of Invitation.

5. **Request for Clarifications and Contacting the Commission**

The Commission will issue clarifications, if required. Bidders are requested to e-mail any questions pertaining to this RFP as soon as possible after receipt of the solicitation documents, but in any case, no later than **10 business days prior to the Closing Date**. No requests for clarifications will be entertained after this time. Questions will only be accepted via e-mail sent to:

E-mail: procurement@ctbto.org
Subject: Request for Clarifications re RFP No. 2023-0144/RAHMAN

The Commission will make all reasonable efforts to issue the clarifications not later than **7** business days prior to the Closing Date.

Except in the case of responding to an RFP clarification, no bidder shall contact the Commission on any matter relating to the Proposal after its submission and until the award of the Contract. Any attempt to influence the Commission in its evaluation of the Proposal or the contract award decision may result in the rejection of the Proposal.

6. **Eligible Goods and Services**

The services and goods (if any) to be rendered under the Contract shall have their origin in the States Signatories of the Comprehensive Nuclear-Test-Ban Treaty (CTBT), the list of which is attached to this RFP. For purposes of this paragraph, "the origin" means the place from where the materials, goods and/or from which the services are supplied.

7. **Type of Contract and Payment**

The Commission intends to conclude firm fixed unit prices Call-off Contract based on the attached Model Contract. The terms and conditions of payment for services are described in Clause 13 of the attached Model Contract.

8. Preparation of the Proposal

The Proposal shall contain, but not necessarily be limited to, the information described below.

The Proposal shall be composed of the following separate parts:

- I. **Technical Proposal;** and
- II. **Financial Proposal;**

providing, but not limited to, the following information:

PART I: TECHNICAL PROPOSAL

Please state the reference number and the date of this RFP in the Proposal and any correspondence relating to it.

The Technical Proposal shall be submitted in accordance with Attachment 1 (Mandatory Table of Contents and Format of the Technical Proposal) and including the following:

Point of Contact

The Proposal shall state the contact details and address (name, telephone and fax numbers, and e-mail address) of the person/point of contact in your company dealing with this RFP.

Bidder's Statement, Statement of Confirmation and Vendor Profile Form

The attached Bidder's Statement, Statement of Confirmation and Vendor Profile Form shall be duly filled-in, signed and submitted as part of the Technical Proposal.

Description of Services

An explanation of the bidder's understanding of the services to be provided and an overall preliminary operational plan for the execution of the services by providing section-by-section response to the Terms of Reference.

The Proposal shall also provide any other relevant issue which the bidder would like to bring to the attention of the Commission whether or not having cost implications.

Specifications

The Proposal shall include a detailed description of the items proposed and include relevant technical literature.

Commission's Inputs

A description of the expected inputs/resources to be made available by the Commission and at what stage of the services.

Qualifications

Documentary evidence of the bidder's qualifications to provide the Services, which shall establish to the Commission's satisfaction that the bidder has technical capability necessary to perform the Contract and other necessary ongoing services as required.

Personnel

The Technical Proposal shall include:

- (a) A statement that the capacity of the Contractor, in terms of qualified manpower resources, is adequate to conduct the Work.

- (b) A statement of availability of the personnel, and the minimum period required before starting the work under the Contract;
- (c) A list of capable and experienced personnel, including their function and duration of assignment as key staff to work under this Contract (such as Project Manager or Team Leader, etc);
- (d) Curriculum vitae of the key staff proposed for this contract, including experience with standards and technical experience to perform the Work.

Please note that it is the bidder's responsibility alone to obtain **work permits or visa or similar** for the personnel proposed to implement this project. The Commission will make no effort nor accept any responsibility for obtaining work permits or visa or similar for the Contractor's personnel.

Use of former Preparatory Commission for the CTBTO ("Commission") employees in the preparation of Quotations:

A bidder must not, in the absence of prior written approval from the Commission, permit a person to contribute to, or participate in, any process relating to the preparation of a Quotation or the procurement process if the person:

- a. At any time during the 12 months immediately preceding the date of issue of the Solicitation was an official, agent, servant or employee of, or otherwise engaged by the Commission;
- b. At any time during the 24 months immediately preceding the date of issue of the Solicitation was an employee of the Commission personally engaged, directly or indirectly, in the definition of the requirements, project or activity to which the Solicitation relates.

Sub-Contractors

Names, legal status, address and qualifications of subcontractor(s), if any, and the scope of the subcontracted services. The Proposal shall provide a statement that your organization shall be fully responsible for the performance of sub-contractors. All sub-contractors shall be legally established in one of the CTBTO Member States.

PART II: FINANCIAL PROPOSAL

The Financial Proposal shall be prepared in **United States Dollars or Euro** and shall breakdown, separately, the costs for each task required by the Terms of Reference.

Note that clear and detailed explanations would enable us to evaluate the Proposal promptly and proceed with fewer requests for clarifications/justifications in a later stage. This is also a factor influencing the decision for Contract award.

The Financial Proposal shall be submitted as per Attachment 4 "Price Schedule Format" and shall contain, at the minimum, the following:

- (i) Firm fixed unit prices for the Services required by Terms of Reference for the total contract duration (one (1) year with a possibility of two optional extensions of one (1) year each.

The firm fixed labor rates, with information on the category and number of staff proposed. This section must further include proposed person-hours/person-day including estimated man-power effort for each of the tasks required under the Terms of Reference. Please do note, that the firm fixed labor rates shall include costs and expenses for the full and proper performance of all obligations under the contract (including travel, allowances, management and remuneration of the personnel, national income tax, medical, insurance and social security contribution, if applicable) for the provision of the services in accordance with the Terms of Reference.

- (ii) Any other applicable costs, such as travel (if applicable) with relevant breakdown and justifications.

Indirect Taxes

In principle the Commission is exempt from taxes. Since the arrangement under which such exemption is respected varies from country-to-country, the selected bidder will be informed by the Commission whether tax exemption will occur at source or whether taxes paid by the selected bidder will be reimbursed by the Commission upon submission of the original supporting documentation. **“Taxes”** means all direct and indirect taxes (including value added tax, general sales tax or goods and services tax), assessments, fees, customs duties, liens and charges in as much as they are levied in conclusion or implementation of the Contract, including customs restrictions and charges of similar nature in respect of articles imported or exported for the Commission’s official use.

For Austrian companies

The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or be separately identified on the Proposal together with information on the nature of the tax and its method of calculation.

For European Union (EU) Companies

The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or separately identified on the Proposal together with information on the nature of the Tax and its method of calculation. Due to the VAT exemption applicable to the Commission, no VAT will be charged to the Commission by the EEC Suppliers under the Contract (Ref. EU VAT Council Directive 2006/112/EC, Article 151).

For Non-EU Companies

The price quoted shall be net of Taxes. All applicable Taxes payable by the selected bidder at the conclusion or implementation of the Contract in respect of the goods/services shall be quoted separately or be separately identified on the Proposal together with information on the nature of the tax and its method of calculation. For deliveries to Vienna, Austria, and due to the tax exemption at source applicable to the Commission, no Taxes shall be charged to the Commission under the Contract.

9. Completeness and Correctness of the Proposal

The Commission reserves the right to verify all information furnished by you in the Proposal through a source of its choice. Any inaccurate information so given may lead to the rejection of the Proposal.

10. Validity of the Proposal

The Proposal shall be valid for 90 (ninety) days after the deadline for its submission to the Commission, unless an extension of validity has been requested by the Commission.

11. Correction of Errors

The Commission will check the Proposal for any arithmetic errors. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected.

12. Evaluation of the Proposal

The Commission, based on the evaluation criteria and method given in Attachment 2, will determine the Proposal that ‘most effectively satisfies the technical and operational requirements set out in the solicitation documents’ in accordance with the criteria specified in Attachment 2. The Commission reserves the right, as it deems appropriate, to award to a single bidder, to award to multiple bidders in any combination or not to award to any of the bidders as a result of this RFP.

13. Negotiations of the Proposal

The Commission reserves the right to request clarifications on the Proposal and to enter into negotiations regarding technical or commercial aspects of the Proposal before awarding the contract under this RFP.

14. Modification and Withdrawal of Proposal

Bidders may modify or withdraw their Proposals after their submission, provided that written notice of the modification or withdrawal is received by the Commission by the closing date for the submission of the Proposal. The Proposal may not be modified subsequent to the closing date.

15. The Commission’s Right to Reject the Proposal

The Commission reserves the right to accept or reject the Proposal or to annul this procurement process at any time prior to the award of contract without having to inform the bidders of the grounds therefore, without thereby incurring any liability to the bidders.

16. Costs of preparation and submission of the Proposal

Bidders shall bear all the costs associated with the preparation and submission of their Proposal and the Commission will not be responsible or liable for those costs, regardless of the outcome of this RFP.

17. Proprietary Information

All documentation and information contained in this RFP are proprietary to the Commission and shall not be duplicated, used or disclosed -in whole or in part- for any purpose other than to evaluate them and respond to the Commission's request for Proposal or otherwise without prior written agreement of the Commission.

BIDDER'S STATEMENT
PLEASE STATE BELOW & SUBMIT WITH PROPOSAL

Delivery Time:

Shipping weight (kg) and Volume (m³) – if applicable:

List of recommended consumables and spares including prices and details on local availability, if applicable (please tick):

For one year period For a period of

Warranty period applicable (it shall be for a **minimum of 24 months**, starting from the acceptance of the goods/services by the Commission) – please tick below:

For a two year period For a period of

Availability of local service in Vienna, Austria (if any):

State country of origin or assembly of all items quoted:

Quantity discount and early payment discount (if any):

Include documentary evidence of qualifications to perform the order, which shall establish to the Commission's satisfaction that the bidder has the financial, technical and production capability necessary to perform the order in its entirety and to provide spare parts and other necessary on-going services as required.

Included in the Proposal: **Yes** **No**

Confirmation that the bidder has reviewed the Commission's General Conditions of Contract, Draft Model Contract, and agreed to all terms and conditions.

Yes **No**

Remarks:

With regards to the software provided with the equipment, state and confirm whether the software licenses are transferable to third parties, i.e. the Commission or the Commission's State Signatories (Member States).

Yes No Not applicable

Remarks:

Name:

Name & Title of Contact Person:

Signature & date:

**Attachment 2
Evaluation Criteria and Method**

**E ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE
DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS**

Ref No. in TOR	1.QUALIFICATION REQUIREMENTS (PASS/FAIL)	PASS/FAIL
	Requirements for the Contractor (PASS /FAIL)	PASS/FAIL
4.2.3	ATM products must be available 99% of the time	PASS/FAIL
6.2 a)	The Contractor shall have a minimum experience of six (6) years of managing software of similar scope and complexity. A list of projects (with details) proving such experience should be provided.	PASS/FAIL
6.2 c)	Confirmation that the staff turnover has been below 20% per year over the past three (3) years.	PASS/FAIL
6.2 d)	Confirmation of a warranty period of two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes should be available and clearly specified.	PASS/FAIL
6.2 e)	Confirmation that the Contractor adjusts the working hours of the assigned Team for a Sprint Meeting that overlaps at least two hours with the Commission's working hours (9 a.m. to 5 p.m. CET/CEST).	PASS/FAIL
6.2 f)	Confirmation that the Contractor will be able to provide support on 24/7 basis during critical situations.	PASS/FAIL
	Requirement for the Contractor's Personnel on the team level (PASS /FAIL)	PASS/FAIL
6.3 a)	Advanced university degree in Computer Science or Mathematics, Physics, or a related scientific/ technical subject.	PASS/FAIL
6.3 b)	A minimum of eight (8) years of relevant experience in providing services for the development of Unix and Linux-based client/server systems.	PASS/FAIL
6.3 c)	A minimum of two (2) years in the last five (5) years of professional experience with one or more Agile frameworks, preferably Scrum.	PASS/FAIL
6.3 d)	A minimum of two (2) years in the last five (5) years of practical experience with Git and GitLab.	PASS/FAIL

Only bidders who pass all above criteria will be considered for the point system evaluation (2nd stage)

Ref No. in TOR	2. TECHNICAL REQUIREMENTS - EVALUATION CRITERIA AND METHOD	Points		
		Max Points	Factor	Weighted score
	Quality of the Proposal			
Overall	Extent to which all aspects of the ToR have been addressed in sufficient detail and clarity.	5	2	10
4	Understanding of the scope of work and the responsibilities of the Contractor	5	4	20
	Subtotal	10		30
	Requirements for the Contractor			
6.2 b)	The Contractor shall have relevant experience with four or more (4+) (software) projects in scientific computing. A list of projects (with details) proving such experience should be provided.	5	3	15
	Subtotal	5		15
	Requirements for the Contractor's Personnel on the team level			
6.3 e)	Excellent communication skills in English are essential.	5	0.3	1.5
6.3 f)	Relevant professional experience of five or more (5+) years in providing software maintenance and support services for complex and custom software systems in operational use (this includes troubleshooting and issue fixing). A list of software/projects proving such experience should be provided.	5	3	15
6.3 g)	Professional experience of five or more (5+) years in developing software to automatically process data in near-real-time. A list of software/projects proving such experience should be provided.	5	2	10
6.3 h)	Professional experience of five or more (5+) years (hands-on) with all elements of the software development lifecycle: eliciting and documenting business process flows, use cases, requirements, quality management plans, user acceptance testing, and end-user training.	5	1	5
6.3 i)	Professional experience of five or more (5+) years as a software developer with Fortran, Perl and Python. A list of software/projects proving such experience should be provided.	5	3	15
6.3 j)	Demonstrated experience of two or more (2+) years in software testing.	5	1	5
6.3 k)	Demonstrated experience of two or more (2+) years in using and building a CI/CD pipeline.	5	2	10
6.3 l)	Demonstrated knowledge of the data formats GRIB, NetCDF, JSON, and XML in at least one (1) project.	5	1	5
6.3 m)	Demonstrated experience with PyQt in at least one (1) project.	5	1	5
6.3 n)	Advantage: Demonstrated experience in programming languages SQL and C/C++ with at least one (1) project. The languages can be covered by different projects.	5	0.2	1
6.3 o)	Advantage: Demonstrated experience in developing and working on High-Performance Computers in at least one (1) project.	5	0.5	2.5
6.3 p)	Advantage: Demonstrated experience in scientific GPU computation in CUDA, OpenCL, or OpenACC in at least one (1) project.	5	0.2	1
6.3 q)	Advantage: Demonstrated experience with machine learning or deep learning with at least one (1) project.	5	0.2	1
6.3 r)	Advantage: Demonstrated experience with Atmospheric Transport Modelling (ATM) in at least one (1) project, preferably with the ATM model FLEXPART used at the CTBTO.	5	1	5
	Subtotal	70		82
	TOTAL - Technical Evaluation	85		127

The minimum **scoring weight** to pass the technical evaluation is 90 points.

The maximum number of points is 85 with 127 in scoring weight.

EVALUATION METHOD:

1. Technical Evaluation:

The technical evaluation process will be done in two stages:

- 1) **Stage 1:** Technical proposals will first be evaluated against the mandatory requirements outlined in section 1 above, on a PASS/FAIL basis. Compliance with all mandatory requirements is required in order to pass stage 1 of the technical evaluation and to be further considered for stage 2 of the evaluation process;
- 2) **Stage 2:** The technical proposals that have passed stage 1 of the technical evaluation process, will be evaluated against the weighted criteria set forth in the evaluation matrix above.

In order to pass this stage, bidders must obtain a **score** of at least **90** and in accordance with the scoring table indicated below:

Points	Scoring
0	Response incomplete, inadequate and/or non-responsive
1 - 2	Does not meet the minimum requirements
3	Meets the minimum requirement
4	Above minimum requirements
5	Substantially exceeds the minimum requirements

2. Financial evaluation

Once the technical evaluation is finalized, the financial offers of the technically compliant bidders will be evaluated in accordance with the formula given below:

$$X = \text{Max Available Points} * Y/Z$$

Legend:

- X= points to be assigned to the offer being evaluated
- Y= price of the lowest priced, technically compliant offer
- Z= price of the offer being evaluated

3. Award

The weight of the technical and financial components is **60%** and **40%** respectively
The Contract will be awarded to the bidder who receives the highest combined score resulting from the technical and financial evaluations, subject to contractual acceptability.

ATTACHMENT 1

Contents and Format of the Technical Proposal

PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS

Bidders are requested to demonstrate compliance with the requirements and add any further information in support of their Proposal. Please refer to the relevant section of the Terms of Reference for further explanation of the requirements. The information provided will form an integral part of the technical evaluation process. Part II of this document must be completed.

Part I - Contents and Format of the Technical Proposal

Item	Minimum content
1. Executive Summary	Provide an overview of the proposal
2. Experience, Resources and Project Management	
2.1 Corporate Profile and Values	<ul style="list-style-type: none">• Brief background of the company, mission/vision, ownership, size, location, number of personnel by type profile, etc.• Company business structure and its authority to execute all Work under the Contract.• If a consortium, provide a clear explanation of the business relationship between the members and governance for the execution of this project.• In case the Bidder requires the services of subcontractors, the Proposal shall include:<ul style="list-style-type: none">a) Relationship of the Bidder's business to any subcontractor(s) that will be used.b) Names, addresses, legal status and qualifications of major sub-contractor(s) proposed by your organization.c) The scope of work and nature of subcontracting.d) A statement that any subcontractors are legally established in one of the CTBTO state signatories (see list attached to the RFP).e) A statement that the Bidder's organization shall act as the main contractor, bearing full responsibility for the performance of its subcontractors.
2.2 Corporate Experience	The proposal should detail the Bidder's experience in executing work of similar scope and complexity.

2.3 Experience with Software development methodologies	Describe the software development methodologies (full development lifecycle incl. software testing) used in past and current projects, insisting on experience with Agile software development methodologies, in particular Scrum, and the way the company may have customized Scrum to address challenges posed by individual projects. Describe experiences working with modern issue tracking and ticket management systems, preferably JIRA. The descriptions should also consist of Git/GitLab and CI/CD experiences and programming languages used (as a minimum, describe experiences with Fortran, Python and Perl).
2.4 Experience with operational and scientific Software	The proposal should detail the Bidder's experience in providing software maintenance and support services for complex and custom software systems in operational use (this includes troubleshooting and issue fixing) and automatically processing near-real-time data. The proposal should also describe the experience in using and developing scientific software.
2.5 Experience in High-Performance Computing and Parallelization	The proposal should detail the Bidders' experience in using and developing on High-Performance Computing systems and using and developing parallelized code, preferably in Fortran and Python. Experience with MPI/OpenMP and GPU should be described.
2.6 Experiences in any extra skill listed as an "advantage"	The proposal should detail the Bidders' experiences with atmospheric transport modelling, machine or deep learning, specific data formats used in this project, rclone and the PyQt framework. The Bidder may add any additional experience they may find appropriate.
2.7 Availability of resources	Please address in detail what resources the company will make available for the successful implementation of the project in terms of: <ul style="list-style-type: none"> – key personnel; – hardware; – software; – other resources. Please describe how the requirements for the Contractor's personnel in Section 6 of the Terms of Reference (ToR) are satisfied.
3. Meeting the Requirements	
3.1 Understanding of the ToR	<ul style="list-style-type: none"> • Please describe your understanding of the services that are to be provided under this ToR, detailing key assumptions that impact the Technical Proposal. • In particular, please discuss how you propose to address some of the sample tasks listed in Section 4 of the ToR.
3.2. Warranty	Confirm a warranty period of at least two years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes should be available and clearly specified.

3.3. No-obligation to call-off	Provide a written acknowledgement and acceptance of the Commission's no obligation clause i.e. the Commission reserves the right, at its sole discretion, to call-off more, less or no person-days at all under the Contract.
4. Skills and Experience of key staff	
4.1. Key Personnel Experience	<p>Include the CVs of key personnel meeting the requirements in Section 6 of the ToR.</p> <ul style="list-style-type: none"> • Describe the proposed role of key personnel and their expected contribution; how long each of the key personnel has been employed with the Bidder; how their qualifications match the requirements in Section 6 of the ToR; • Identify the key point(s) of contact for the full scope of the Contract.
4.2. Visa & Work Permits	Provide written confirmation that the Bidder understands and agrees to take responsibility for obtaining any Visa and/or work permits, which may be required to perform the Work under the Contract. The CTBTO does not sponsor work permits for contractors.
4.3. Documentation and Reporting	<ul style="list-style-type: none"> • Provide written assurance that all reports, documentation, and communication (written and oral) supplied to the Commission shall be in English and submitted in electronic form. • Provide written assurance that all documentation will adhere to the IDC Documentation Standards, samples of which will be provided to the successful Contractor.
5. Attachments (as set out in the Instructions for the Preparation of Proposals)	
<ul style="list-style-type: none"> • Statement of Confirmation • Vendor Profile Form • Statement regarding Model Contract 	

Part II - Compliance Matrix

Ref No.of ToR	Requirements	Bidder's Response		Indicate the section in your proposal
		<i>Please tick whichever is applicable</i>		
		"Yes"	"No"	
General				
	A section-by-section response to each section of the Terms of Reference is included in the Proposal			
3.1.2	Completion and Acceptance - List of tasks and Deliverables			
4	Confirmation of resources, methodology, standards and technology. Familiarization of ATM Pipeline environment (ATM pipeline) to be able to perform the Services specified in Section 4 of the Terms of Reference.			
4.2.3	Operational support			
6.2 a)	The Contractor shall have a minimum experience of six (6) years of managing software of similar scope and complexity. A list of projects (with details) proving such experience should be provided.			
6.2 b)	The Contractor shall have relevant experience with four or more (4+) (software) projects in scientific computing. A list of projects (with details) proving such experience should be provided.			
6.2 c)	Confirmation that the staff turnover has been below 20% per year over the past three (3) years.			
6.2 d)	Confirmation of a warranty period of two (2) years after the completion of the user acceptance testing. Terms			

	and conditions of post-warranty support and bug fixes should be available and clearly specified.			
6.2 e)	Confirmation that the Contractor adjusts the working hours of the assigned Team for a Sprint Meeting that overlaps at least two hours with the Commission's working hours (9 a.m. to 5 p.m. CET/CEST). ✓ A monthly sprint meeting is foreseen, but this might change to any time frame as deemed necessary by the Commission.			
6.2 f)	Confirmation that the Contractor will be able to provide support on 24/7 basis during critical situations.			
Requirement for the Contractor's Personnel				
6.3 a)	Advanced university degree in Computer Science or Mathematics, Physics, or a related scientific/ technical subject.			
6.3 b)	A minimum of eight (8) years of relevant experience in providing services for the development of Unix and Linux-based client/server systems.			
6.3 c)	A minimum of two (2) years in the last five (5) years of professional experience with one or more Agile frameworks, preferably Scrum.			
6.3 d)	A minimum of two (2) years in the last five (5) years of practical experience with Git and GitLab.			
6.3 e)	Excellent communication skills in English are essential.			
6.3 f)	Relevant professional experience of five or more (5+) years in providing software maintenance and support services for complex and custom software systems in operational use			

	(this includes troubleshooting and issue fixing). A list of software/projects proving such experience should be provided.			
6.3 g)	Professional experience of five or more (5+) years in developing software to automatically process data in near-real-time. A list of software/projects proving such experience should be provided.			
6.3 h)	Professional experience of five or more (5+) years (hands-on) with all elements of the software development lifecycle: eliciting and documenting business process flows, use cases, requirements, quality management plans, user acceptance testing, and end-user training.			
6.3 i)	Professional experience of five or more (5+) years as a software developer with Fortran, Perl and Python. A list of software/projects proving such experience should be provided.			
6.3 j)	Demonstrated experience of two or more (2+) years in software testing.			
6.3 k)	Demonstrated experience of two or more (2+) years in using and building a CI/CD pipeline.			
6.3 l)	Demonstrated knowledge with the data formats GRIB, NetCDF, JSON, and XML in at least one (1) project.			
6.3 m)	Demonstrated experience with PyQt in at least one (1) project.			
6.3 n)	<i>Advantage:</i> Demonstrated experience in programming languages SQL and C/C++ with at least one (1) project. The languages can be covered by different projects.			

6.3 o)	<i>Advantage:</i> Demonstrated experience in developing and working on High-Performance Computers in at least one (1) project.			
6.3 p)	<i>Advantage:</i> Demonstrated experience in scientific GPU computation in CUDA, OpenCL, or OpenACC in at least one (1) project.			
6.3 q)	<i>Advantage:</i> Demonstrated experience with machine learning or deep learning in at least one (1) project.			
6.3 r)	<i>Advantage:</i> Demonstrated experience in Atmospheric Transport Modelling (ATM) in at least one (1) project, preferably with the ATM model FLEXPART used at the CTBTO.			

Attachment 3

“Procedure for Submission of Electronic Offers in 2 Sealed Files”

The Commission invites you to submit your sealed offer (Bid, or Proposal) in response to the solicitation forming part of this request.

Please be sure to follow the instructions below very carefully, so that the documents you submit are encrypted, and cannot be opened without an encryption key (password). If the documents are not encrypted, they will not be accepted as part of this tender process.

CRITICAL INFORMATION:

Create separate zip files for the technical offer and the financial offer (labeling them clearly in the title) with different encryption keys. Instructions for how to do this are provided below.

Step 1: You provide the encryption key (password) for the *Technical Offer only* (in accordance with the below instructions)!

Step 2: After the Commission has performed the evaluation of the Technical Offer, if your Technical Offer is considered to be acceptable, the Commission will request the encryption key (password) for the Financial Offer you have already submitted by the tender Deadline.

Should you have any questions, please send an email to procurement@ctbto.org.

We recommend that you leave yourself plenty of time to complete the below process (including getting any necessary assistance from the Commission), as late offer will not be accepted.

INSTRUCTIONS:

1. In a **WINDOWS** environment, one way of meeting the requirements is as follows.

We recommend using the open-source, free software **7-zip**, but if you are comfortable with other tools, the result should be the same, as long as you can apply encryption to the archive.

In the below, we'll use 7-zip as an example.

(You can download the 7-zip code for Windows at: 7-zip.org)

2. In **LINUX** environment, you can use, for instance, “sha1sum” on the command line.

Creating the archives for submission

Regardless of whether the offer is a single file, or a collection of files, the files are easier to manage if delivered as a single, compressed file. Compressing the archive is a common way to meet size limitations in email systems.

As an example of how to submit your offer in the required format: assuming you are supplier “SOFTCOMP” and have the following files related to the offer for “RFP 2020-0010/EDWALD”. (*You will need to replace these elements with the real information for your actual offer in line with the relevant Instructions for Preparation and Submission of Proposals/Bids.*) Assuming further that you have installed the 7-zip software on the Windows system you are using.

We will only go through the creation of the Technical Offer (Proposal/Bid) component; the Financial Offer (Proposal/Bid) component is similar.

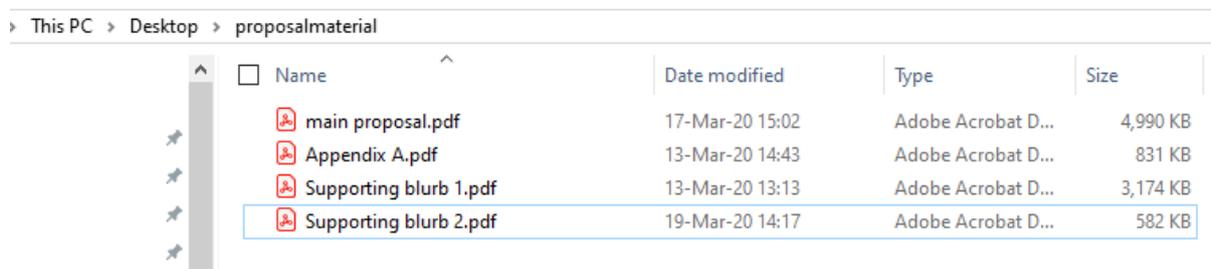


Figure 1 An example set of files to be submitted

Select the four files and right-click; a Dialog box pops up, with one of the options being “7-ZIP >”. Hover your cursor over the “>” part and a few more options appear, select the “Add to archive” option.

Another dialog box pops up (see ‘Figure 2, Creating an Archive’, next page):

Using the standard Windows methods, select a suitable location for the archive (if you don’t change it, the archive gets created right where the selected files are), and give it a name in the form of: “SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID”, of course replacing all the elements with the true values for the offer in question: the actual company indicator, and the actual RFP/ITB identification string. Note that it is not possible to put a slash “/” in the filename, and therefore put a dash “-” instead. Leave the file extension “.zip” as is.

Leave all the other settings as is, except: **add a password to the encryption** (see figure 2 below). This is done by typing the same password (of your choosing) twice in the two text fields in the lower right hand corner.

Make a note of this password. You must choose different passwords for the two zip archives, that is, the Technical and the Financial Proposal/Bid.

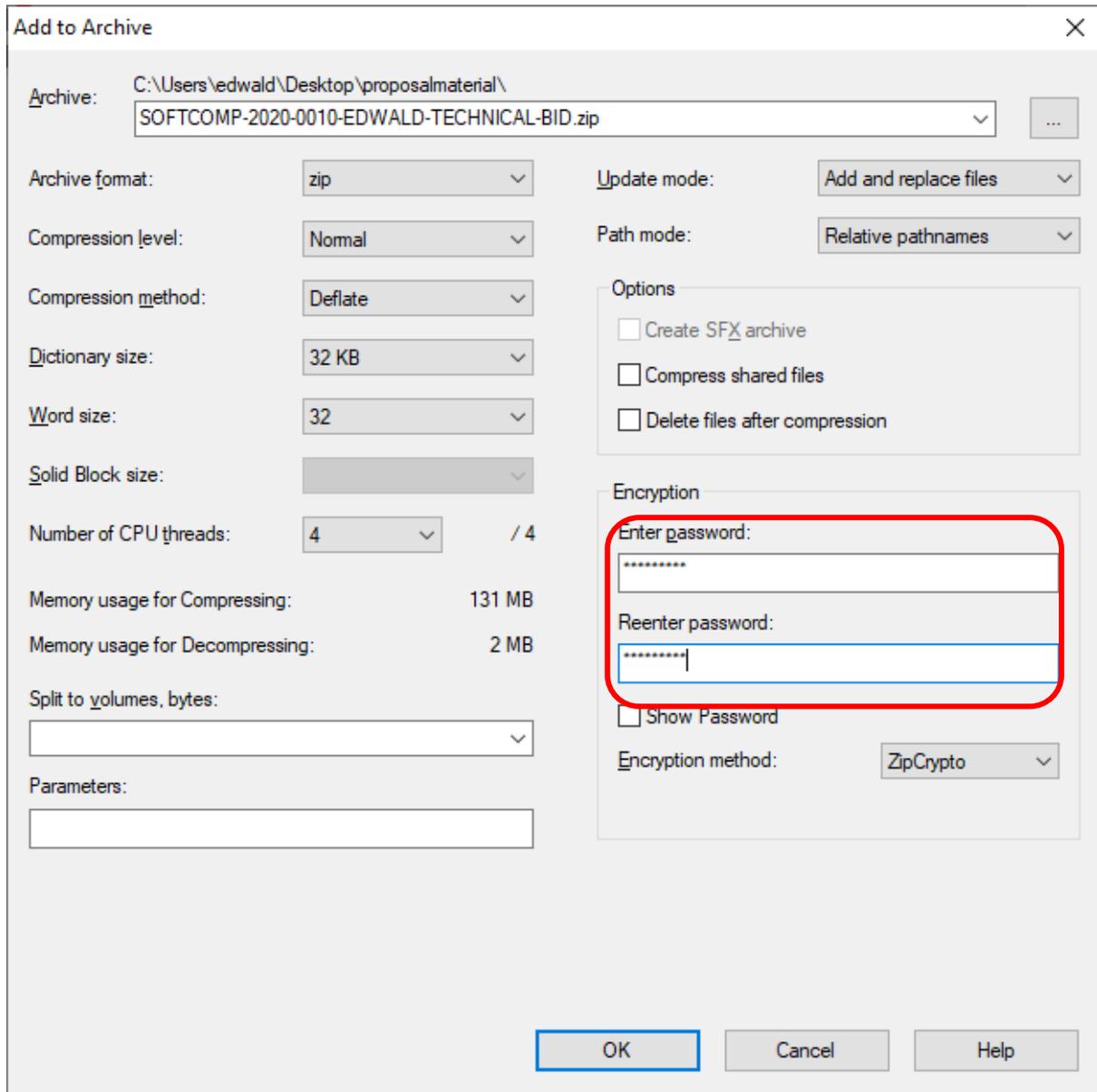


Figure 2 Creating an Archive

Now, we seek the “SHA1 Hash”, and electronic fingerprint of the archive you have just created. The hash is a string calculated from your file(s) and can be used to guarantee that the file has not been modified since you created it. Any change to the file will result in a different hash value.

There are many ways of calculating this; two common options are described below.

If the appropriate functionality is available in your Windows environment: Select the compressed archive in the Windows file manager, (eg. SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID.zip) and right click. One of the options to select is “CRC SHA >”. Hovering over the “ >” brings a few more options to light, select the **SHA-1** option. A smaller dialog pops up: (see Figure 3, SHA1 below).

Clicking Ctrl-C grabs the contents of this box. You can close the box after copying the contents. (You can paste the contents into a mail message, for instance.)



Figure 3 SHA1

If this CRC SHA function is not available by 'right-click' on your Windows version, you can also do this from 'the command line', a slightly more complicated way. Open a CMD window (see sidebar below), move to the folder where your archive is, and execute the command:

`"certutil -hashfile SOFTCOMP-2020-0010-EDWALD-TECHNICAL-BID.zip sha1"`
where you obviously replace the name of the file with your real file name. The output of this command is the SHA1 "hash". You can copy-and-paste the string for use in the email (below).

Sidebar: How to open a CMD window in Windows:

The way to open a Command window (or 'terminal') depends on the version of Windows you have. The different methods are very clearly described in the following article, but a quick internet search will find multiple descriptions.

<https://www.lifewire.com/how-to-open-command-prompt-2618089>

Finally,

1. Create a new email, Subject: example- "SOFTCOMP-2020-0010-EDWALD". Add the two compressed archives, that is, the Technical Offer and the Financial Offer archives as attachments. The text of the email should contain the SHA1 information for both archives. **SEND THIS TO:** sealed_bids@ctbto.org (note that there is an underscore "_" between "sealed" and "bids"). (Should the email become larger than your mail system allows, you can try sending the two archives in separate emails. Take care to include the right SHA1 information with each file.)
2. Create a new email, Subject: example- "SOFTCOMP-2020-2010-EDWALD-Technical Offer" the contents of which must contain the Encryption Key for the Technical Offer (the password

you used when creating the Technical Offer). (Again, note the underscore between 'bid' and 'keys'.)

SEND THIS TO: bid_keys@ctbto.org

IMPORTANT NOTE: As stated above, only send the Encryption Key for the Technical Offer to the bid_keys@ctbto.org mailbox when sending your Technical and Financial Offer to the sealed_bids@ctbto.org mailbox. **You shall only send the Encryption Key for the Financial Offer to the Commission if and when informed by the Commission that your Technical Offer had been evaluated as “technically acceptable”.**

The Financial Offer Encryption Key will need to be provided by you to the same e-mail (bid_keys@ctbto.org) within 48 hours of the Commission’s request, clearly marked in Subject: Encryption Key for (example):“SOFTCOMP 2020-2010 EDWALD-Financial Offer”. If your Offer is not considered “technically acceptable”, the Commission will not request an Encryption Key for your Financial Offer, and it will remain unopened.

As mentioned above, should you have questions or difficulties, please send an e-mail to procurement@ctbto.org.

We recommend that you leave yourself plenty of time to complete the above process (including getting any necessary assistance from the Commission), as late offers will not be accepted.

Attachment 4 - Price Schedule Format

		MAX QUANTITY UNDER EACH PERIOD	INITIAL CALL-OFF PERIOD 1 (FIRM) - 12 months for max of 160 days	CALL-OFF PERIOD 2 (OPTIONAL) - 12 months for max of 160 days	CALL-OFF PERIOD 3 (OPTIONAL) - 12 months for max of 160 days
	Unit		Rate** Total	Rate** Total	Rate** Total
Fees					
Staff fee - off site/on site	Person-Day	160			
Subtotal fees					
Ancillary costs					
Travel costs					
Transportation (if applicable)#	Lump Sum	2	-	-	-
Allowances (if applicable)##	Day	10			
...*)					
Other costs					
...*)					
...					
Subtotal ancillary costs	-		-	-	-
Overall total	-		-	-	-

*) Please change/add categories as appropriate and adjust in order to arrive at total of 600 person-days for the initial and 400 person-days for the optional periods

***) Please specify currency (USD or Euro only).

#) Airfares shall be based on the least costly Economy Class ticket on the most direct route

##) Daily Subsistence Allowance (DSA) shall be calculated based on the values provided by the International Civil Service Commission (ICSC) for Vienna, Austria (<https://icsc.un.org/>).

CTBTO Member States

Afghanistan	Ethiopia	Mozambique	Tuvalu
Albania	Fiji	Myanmar	Uganda
Algeria	Finland	Namibia	Ukraine
Andorra	France	Nauru	United Arab Emirates
Angola	Gabon	Nepal	United Kingdom
Antigua and Barbuda	Gambia	Netherlands (Kingdom of the)	United Republic of Tanzania
Argentina	Georgia	New Zealand	United States of America
Armenia	Germany	Nicaragua	Uruguay
Australia	Ghana	Niger	Uzbekistan
Austria	Greece	Nigeria	Vanuatu
Azerbaijan	Grenada	Niue	Venezuela
Bahamas	Guatemala	North Macedonia	Vietnam
Bahrain	Guinea	Norway	Yemen
Bangladesh	Guinea-Bissau	Oman	Zambia
Barbados	Guyana	Palau	Zimbabwe
Belarus	Haiti	Panama	
Belgium	Holy See	Papua New Guinea	
Belize	Honduras	Paraguay	
Benin	Hungary	Peru	
Bolivia (Plurinational State of)	Iceland	Philippines	
Bosnia and Herzegovina	Indonesia	Poland	
Botswana	Iran (Islamic Republic of)	Portugal	
Brazil	Iraq	Qatar	
Brunei Darussalam	Ireland	Republic of Korea	
Bulgaria	Israel	Republic of Moldova	
Burkina Faso	Italy	Romania	
Burundi	Jamaica	Russian Federation	
Cambodia	Japan	Rwanda	
Cameroon	Jordan	Saint Kitts and Nevis	
Canada	Kazakhstan	Saint Lucia	
Cabo Verde	Kenya	Saint Vincent and the Grenadines	
Central African Republic	Kiribati	Samoa	
Chad	Kuwait	San Marino	
Chile	Kyrgyzstan	Sao Tome and Principe	
China	Lao People's Democratic Republic	Senegal	
Colombia	Latvia	Serbia	
Comoros	Lebanon	Seychelles	
Congo	Lesotho	Sierra Leone	
Cook Islands	Liberia	Singapore	
Costa Rica	Libya	Slovakia	
Cote d'Ivoire	Liechtenstein	Slovenia	
Croatia	Lithuania	Solomon Islands	
Cuba	Luxembourg	South Africa	
Cyprus	Madagascar	Spain	
Czech Republic	Malawi	Sri Lanka	
Democratic Republic of the Congo	Malaysia	Sudan	
Denmark	Maldives	Suriname	
Djibouti	Mali	Sweden	
Dominican Republic	Malta	Switzerland	
Ecuador	Marshall Islands	Tajikistan	
Egypt	Mauritania	Thailand	
El Salvador	Mexico	Timor-Leste	
Equatorial Guinea	Micronesia, Federated States of	Trinidad and Tobago	
Eritrea	Monaco	Togo	
Estonia	Mongolia	Tunisia	
Eswatini	Montenegro	Türkiye	
	Morocco	Turkmenistan	

STATEMENT OF CONFIRMATION

On behalf of (name of firm or organization): _____, I hereby attest and confirm that:

- a) The firm/organization possesses the legal status and capacity to enter into legally binding contracts with the Commission for the supply of equipment, supplies, services or work.
- b) The firm/organization is not insolvent, in receivership, bankrupt or being wound up, and not under administration by a court or a judicial officer, and that it is not subject to the suspension of its business or legal proceedings for any of the foregoing reasons.
- c) The firm/organization has fulfilled all its obligations to pay taxes and social security contributions.
- d) The firm/organization has not, and that its directors and officers have not, within the last five years been convicted of any criminal offense related to professional conduct or the making of false statements or misrepresentations as to their capacity or qualifications to enter into a procurement or supply contract.
- e) The Commission, in the event that any of the foregoing should occur at a later time, will be duly informed thereof, and in any event, will have the right to disqualify the firm/organization from any further participation in procurement proceedings.
- f) The firm/organization did not/will not attempt to influence any other bidder, organization, partnership or corporation to either submit or not submit a proposal/bid/quotation.
- g) The firm/organization will not, in the absence of a written approval from the Commission, permit a person to contribute to, or participate in, any process relating to the preparation of a Quotation/Bid/ Proposal or the procurement process if the person:
 - a. at any time during the 12 months immediately preceding the date of issue of the Solicitation was an official, agent, servant or employee of, or otherwise engaged by the Commission;
 - b. at any time during the 24 months immediately preceding the date of issue of the Solicitation was an employee of the Commission personally engaged, directly or indirectly, in the definition of the requirements, project or activity to which the Solicitation relates.
- h) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) have been identified on, or associated with any individual, groups, undertakings and entities identified on, the list established pursuant to the UN Security Council Resolution 1267 (Consolidated Sanctions List).¹
- i) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) are subject to any form of sanction imposed by an organization or body within the United Nations System, including the World Bank.

¹ The Consolidated United Nations Security Council Sanctions List can be found on the following website:
<https://www.un.org/securitycouncil/content/un-sc-consolidated-list>

- j) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any), is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development.
- k) Neither the organization/firm, its parent entities (if any), nor any of its subsidiary or affiliated entities (if any) will use the funds received under contracts/purchase orders with the Commission to provide support to individuals, groups, undertakings or entities associated with terrorism.
- l) The prices in the firm/organization's proposal/bid/quotation have been arrived at independently, without consultation, communication or agreement with any other interested companies, competitor or potential competitor with a view to restricting competition.
- m) The Commission shall have the right to disqualify the firm/organization from participation in any further procurement proceedings, if it offers, gives or agrees to give, directly or indirectly, to any current or former staff member of the Commission a gratuity in any form, an offer of employment or any other thing of service or value, as an inducement with respect to an act or a decision of, or a procedure followed by, the Commission in connection with a procurement proceeding.
- n) The Commission shall have the right to disqualify the firm/organization from participation in any further procurement proceedings if it does not disclose to the Commission any situation that may appear as a conflict of interest, and if it does not disclose to the Commission if any official or professional under contract with the Commission have an interest of any kind in the firm/organization's business or any kind of economic ties with the firm/organization.
- o) The firm/organization expressly agrees to abide by the United Nations Supplier Code of Conduct.¹

Name (print): _____

Signature: _____

Title/Position: _____

Place (City and Country): _____

Date: _____

¹ <https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct>

VENDOR PROFILE FORM (VPF) – FOR PRODUCTS/SERVICES/WORK

1. Name of Company:		
2. Street Address:	3. Telephone:	
P.O. Box: City:	4. E-Mail:	
Zip Code: Country:	5. Website:	
6. Contact Person:		Title:
7. Legal Status (e.g. Partnership, Private Limited Company, Government Institution) PLEASE INCLUDE A COPY OF THE CERTIFICATE OF INCORPORATION		
8. Year Established:	9. Number of Employees:	
10. Gross Corporate Annual Turnover (US\$m)*:	11. Annual Export Turnover (US\$m)*:	
12. Type of Business/Products: Manufacturer <input type="checkbox"/> Sole Agent <input type="checkbox"/> Supplier <input type="checkbox"/> Other <input type="checkbox"/> (please explain)		
13. Type of Business/Services/Work: Engineering <input type="checkbox"/> Civil Work <input type="checkbox"/> Governmental Institution <input type="checkbox"/> Other <input type="checkbox"/> (please explain)		
14. References (your main customers, country, year and technical field of products, services or work): **		
15. Previous Supply Contracts with United Nations Organizations (over the last 3 years)**		
Organization:	Value in US\$ Equivalent:	Year:
Organization:	Value in US\$ Equivalent:	Year:
16. Summary of any changes in your company's ownership during the last 5 years:		

* Please provide a copy of the most recent audited annual report and accounts. Note: Export includes services or work performed abroad or for foreign clients.
 ** Please provide supplementary documentation on these items.

MODEL CONTRACT

(Shopping Cart No.)
(SAP No.)

between

THE PREPARATORY COMMISSION

FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY

ORGANIZATION

and

THE NAME OF THE CONTRACTOR

for

**THE PROVISION OF SERVICES PERTAINING TO SOFTWARE
DEVELOPMENT AND MAINTENANCE OF NET-VISA ON A CALL-OFF
BASIS**

This Contract comprises this cover page, a table of contents, 9 (nine) pages of text, a signatories page, a List of Annexes and 3 (three) Annexes (A to C)

October 2023

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MODEL CONTRACT

This CONTRACT is entered into between the PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION (hereinafter referred to as the “Commission”), having its office located at Wagramer Strasse 5, 1400 Vienna, Austria, and [NAME OF THE CONTRACTOR] (hereinafter referred to as the “Contractor”), having its registered office located at _____ [address] (both hereinafter individually referred to as the “Party” and collectively as the “Parties”).

The Parties hereto mutually agree as follows:

1 DEFINITIONS

In this Contract, words and expressions shall have the same meanings as respectively assigned to them in the General Conditions of Contract and the Terms of Reference. In addition, the following words and expressions shall have the meanings hereby assigned to them:

“**Annex A**” means the Commission’s General Conditions of Contract.

“**Annex B**” means the Commission’s Terms of Reference.

“**Annex C**” means the Contractor’s Proposal.

“**Contract**” means this document, its Annexes and any further modifications or such further documents as may be expressly incorporated in this Contract by the Parties in accordance with Clause 21 (Contract Amendment) below.

“**Contractor**” means the legal entity named in the preamble of this Contract or its successors. The Contractor shall be the only interface for all matters pertaining to execution of the Work under this Contract.

“**Party(ies)**” means the Commission and/or the Contractor, as the context requires.

“**Rule(s)**” means any regulation(s), official directive(s), ordinance(s), guideline(s), customs and practices.

“**Services**” means the activities or tasks to be performed by the Contractor under the Contract as requested by the Commission under the WO.

“**Work**” means all the goods and services to be provided by the Contractor, including its affiliates and/or subcontractors, in order to fulfil all its obligations under the Contract, and the remedying of any defects therein.

“**Work Orders (‘WO’)**” mean orders issued by the Commission which specify the (parts or portions of) Work to be performed by the Contractor upon request by the Commission in accordance with Annexes B and C.

“**Software**” means the software and the source code described in Annex B and developed by the Contractor under this Contract.

2 AIM OF THE CONTRACT

The aim of this Contract is to provide Services namely, Provision of Software Engineering Services for the Maintenance of the Atmospheric Transport Modelling Pipeline With its Data Acquisition, Processing and Dissemination on a Call-off Basis (hereinafter referred to as the “Work”) to the Commission.

3 ENTRY INTO FORCE AND DURATION OF THE CONTRACT

The Contract shall enter into force upon the date of the last signature by the authorized Representatives of the Parties (hereinafter referred to as the “**Effective Date**”) and shall be valid until the Parties fulfill all their obligations hereunder.

4 COMMENCEMENT AND COMPLETION OF THE WORK

- (a) The Commission shall have the right, but not obligation, to call-off the Works in the form of WO within a period of 12 months from the Effective Date or the performance of a maximum of 160 (one hundred and sixty) person-days by the Contractor, whichever occurs first (hereinafter referred to as the “**Call-off Period**”). The commencement and completion date for the performance of the Works (hereinafter referred to as “**Commencement Date**” and “**Completion Date**”, respectively) will be set out in the respective WO.
- (b) The Commission shall have the option to extend the Call-off Period two (2) times, subject to the availability of funds, under the same terms and conditions as those of this Contract. The Commission will inform the Contractor about its intention to extend the Work at least one (1) month prior to the expiry of the relevant Call-off Period. The optional extensions will be implemented through a written notification to the Contractor by the Commission.

5 STANDARD OF WORK

The Contractor shall perform the Work in a workmanlike manner in conformity with standard professional practices, using qualified personnel and in strict accordance with the Contract. The Contractor shall furnish the highest skill and judgement and cooperate with the Commission, including all the Commission's consultants and agents, in best furthering the interests of the Commission and the aim of this Contract. The Contractor shall provide efficient business administration and supervision, and it shall perform the Work in the best way and in the most expeditious and economical manner consistent with the requirements of the Contract.

6 RESPONSIBILITIES OF THE CONTRACTOR

- (a) The Contractor shall provide the Work described in Annexes B and C.
- (b) The Contractor shall provide qualified English-speaking personnel as necessary to perform the Work under this Contract. The key persons shall be available for possible tasks related to the Work throughout the duration of the Contract period. Any replacement of the key personnel shall be made in accordance with Clause 7 of Annex A.

- (c) The Contractor shall provide the Software and Services described in Annexes B and C.
- (d) The Contractor acknowledges that after the completion of the Work under this Contract, the Commission shall own the Software and source code described in Annex B and developed under this Contract, and the Contractor shall have no rights in that Software or source code unless granted by the Commission under Clause 24 of this Contract or in writing under a separate agreement”.

7 ORGANISATION OF CONTRACT IMPLEMENTATION

- (a) During the term of the Contract, the Commission has the right, but not the obligation, to initiate performance of the Work through the issuance of individual WOs in accordance with Annex B based on the firm fixed unit prices set out in Annex C. The Contractor shall not perform any Work if not requested by the Commission through an WO. However, the Contractor may propose a WO for the Commission’s evaluation.
- (b) The WO issued by the Commission shall be the basis for acceptance, invoicing and payment of any Work performed by the Contractor.
- (c) The performance of the Work shall be made in full in accordance with the respective WO. Partial service performance of a WO will not be accepted and reimbursed without prior written agreement by the Commission.
- (d) The Work shall be performed at the place and within the approved Work Plan specified in the relevant WO.
- (e) The Commission may revise a WO as and when it may deem necessary.

8 WARRANTY

- (a) The provisions of Clause 28 of Annex A shall apply to the Work performed by the Contractor.
- (b) The Contractor shall ensure that the Commission shall experience no loss of service or support level by sub-contractors or repair agents acting on behalf of the Contractor.

9 PERMITS, NOTICES, LAWS AND ORDINANCES

- (a) The Contractor shall obtain and pay for all permits and inspections necessary for the proper execution and completion of the Work that are customarily obtained upon execution of this Contract and that are legally required at the time the Proposal is received by the Commission. This shall include, but not be limited to, work permits, visa, or similar.
- (b) The Contractor shall give all notices required by the nature of the Work.

- (c) If the Contractor notices that the Work or any part thereof required under this Contract is not in accordance with applicable laws and Rules, or with technical or safety standards, it shall promptly notify the Commission thereof in writing.

10 PROTECTION OF PERSONS AND PROPERTY

- (a) The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programmes in connection with the Work.
- (b) The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury and loss to:
 - (i) all employees on the Commission's premises and all other persons who may be affected thereby;
 - (ii) all the Work, equipment, its spare parts, materials and supplies to be incorporated therein, whether in storage on or off the Commission's premises, which are under the care, custody or control of the Contractor or any of its subcontractors; and
 - (iii) other property on the Commission's premises or adjacent thereto.
- (c) The Contractor shall give all notices and comply with all applicable laws and Rules bearing on the safety of persons and property and/or their protection from damage, injury and loss.
- (d) The Contractor shall erect and maintain, as required by existing conditions and progress of the Work, all reasonable safeguards for the safety and protection of persons and property, including posting danger signs and other warnings against hazards and promulgating safety regulations.
- (e) When the use or storage of combustible, explosive or other hazardous materials is necessary for the execution of the Work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.
- (f) The Contractor shall be responsible for the prevention of accidents on the Commission's premises during the execution of the Work.
- (g) In any emergency affecting the safety of persons or property, the Contractor shall promptly act to prevent threatened damage, injury and loss.
- (h) The Contractor shall promptly remedy all damage and loss to any property, referred to in Sub-Clause (b) above, caused in whole or in part by the Contractor, any subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under Sub-Clause (b) above, except damage and loss attributable to the acts or omissions of the Commission or anyone directly or indirectly employed by it, or of anyone for whose acts the Commission may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to its obligations under Clause 9 of Annex A.

11 RESPONSIBILITIES OF THE COMMISSION

The Commission shall designate members of its staff to act as points of contact for the Contractor to ensure that the Work is carried out in accordance with Annexes B and C and shall promptly notify the Contractor thereof. The Commission shall respond promptly to requests for information by the Contractor regarding the Work.

12 CONTRACT PRICE

- (a) The Commission shall pay to the Contractor, in consideration of the full and proper performance of its obligations under the Contract, as follows:
- (i) For each WO issued during the firm Call-off Period specified in Clause 4(a) above, the firm fixed day rate pursuant to Annex C and, if applicable, the variable costs (travel costs and other expenditure) pursuant to Annex C;
 - (ii) subject to sub-clause (b) below, for each WO issued during the first optional extension of the Call-off Period specified in Clause 4(b) above, the firm fixed unit prices pursuant to Annex C and, if applicable, the variable costs (travel costs and other expenditure) pursuant to Annex C;
 - (iii) subject to sub-clause (b) below, for each WO issued during the second optional extension of the Call-off Period specified in Clause 4(b) above, the firm fixed unit prices pursuant to Annex C and, if applicable, the variable costs (travel costs and other expenditure) pursuant to Annex C;
- (hereinafter referred to as the “Contract Price”).
- (b) In the event that the Commission decides to extend the Call-off Period before the end of the initial 12-month period, as foreseen in Clause 4 of this Contract, the Contractor will be reimbursed for the person-days called off in this period as follows:
- (i) until the expiry of the initial Call-off Period, the daily rate set out in subparagraph (a)(i) above;
 - (ii) after the expiry of the initial Call-off Period, the daily rate agreed for the optional extension (subparagraph (a)(ii), or (iii) above).
- (c) The firm fixed unit prices set out in Annex C shall be held fixed for the entire duration of the Contract.
- (d) The Contract Price shall cover all costs and expenses incurred by the Contractor for the full and proper performance of all relevant obligations under the Contract (including travel, allowances, management and remuneration of the personnel, national income tax, medical insurance, and social security contributions).
- (e) **[PLEASE IDENTIFY WHETHER TAXES ARE APPLICABLE UNDER THIS CONTRACT AND SELECT ONE OF THE FOLLOWING OPTIONS AT THE TIME OF AWARD]:**

The Contractor shall be reimbursed by the Commission for such taxes on the basis of actual amounts paid and duly documented by the Contractor as per Clause 13(e) below.

OR

No Taxes are applicable under this Contract.

13 PAYMENT

- (a) The Contract Price shall be paid upon satisfactory completion of each deliverable for the Work and satisfactory completion of each WO and submission of the following:
 - i) Invoice drawn up in accordance with this Clause 13;
 - ii) Any other documentation that might be required under the applicable WO.
- (b) The Commission will make the payments to the Contractor on the basis of an invoice submitted by the Contractor as per Sub-Clause (d) below. All payments shall be made within 30 (thirty) days of the receipt and acceptance of the invoice, provided that the Work has been satisfactorily completed and has been accepted by the Commission.
- (c) The making of any payment hereunder by the Commission shall not be construed as an unconditional acceptance by the Commission of the Work accomplished by the Contractor up to the time of such payment.
- (d) The Contractor shall submit an invoice electronically, from the Contractor's official e-mail address in PDF format, duly signed and stamped by the Contractor and submitted to the Commission's email address specified in Clause 22 below. Each invoice shall contain the Contract number (CTBTO and SAP numbers), detailed banking instructions, including the name and address of the Contractor's bank, account number, account holder's name and SWIFT, IBAN and/or ABA codes for payment by electronic transfer.

[PARAGRAPH (e) BELOW ONLY APPLIES IF THERE ARE TAXES (SEE CLAUSE 12 (d) ABOVE). IF NO TAXES ARE APPLICABLE UNDER THIS CONTRACT, PARAGRAPH (e) SHOULD BE OMITTED.]

- (e) Applicable Taxes payable by the Contractor and/or its subcontractor(s) in respect of the Work shall be invoiced separately or be separately identified on the invoice. Actual payment of the Taxes must primarily be supported by original documentation such as invoices, bank account statements, transfer orders, or receipts issued by the local tax or customs authorities. If submission of such original documentation is not possible for justifiable reasons, their copies could be accepted by the Commission provided that they are duly signed and certified by local tax or customs authorities. In case the currency in which the Taxes are levied is not the currency of the Contract, bank statements (or equivalent) showing the exchange rate used for the conversion should be submitted to the Commission, in addition to any other supporting documentation.

14 TEMPORARY SUSPENSION OF WORK

The Commission may, at any time, temporarily suspend the Work, in whole or in part, being performed by the Contractor under this Contract by giving 30 (thirty) days' advance notice in writing to the Contractor. The Work so suspended shall be resumed by the Contractor on the basis of a revised time schedule and on terms and conditions to be mutually agreed upon between the Parties.

15 DELAYS AND EXTENSION OF TIME

- (a) If the Contractor is delayed at any time in the progress of the Work by any act or omission of the Commission or by any of its employees, or by any other contractor employed by the Commission, or by changes in the Work ordered by the Commission, or by any causes beyond the Contractor's reasonable control, or by any other cause which the Commission determines may justify the delay, then the time for completion of the Work shall be extended by an amendment to this Contract in accordance with Clause 21 below for such reasonable time as the Commission may determine.
- (b) Any request for extension of the time for reasons referred to in Clause 15(a) above shall be submitted to the Commission not later than 20 (twenty) days after the commencement of the delay, otherwise said request shall be deemed to be waived. Such request shall state grounds for the delay and shall provide an estimate of the probable effect of such delay on the progress of the Work.

16 CONTRACTOR'S CLAIMS AND REMEDIES

In no event shall the Contractor make any claim against the Commission for or be entitled to additional costs or compensation resulting from any delays in the progress or completion of the Work or any portion thereof, whether caused by the acts or omissions of the Commission, including, but not limited to, damages related to overheads, loss of productivity, acceleration due to delay and inefficiency. The Contractor's sole remedy in such event shall be an extension of time for completion of the Work, provided the Contractor otherwise meets the requirements and conditions set forth in this Contract.

17 ENTIRE AGREEMENT

This Contract represents the final agreement in respect of the Work and shall supersede all prior agreements and representations between the Parties in this respect. Annexes A to C shall constitute integral parts of this Contract and shall be of full force and effect.

18 DISCREPANCIES

If there are discrepancies or conflicts between any of the documents that are part of this Contract, the document to prevail shall be given precedence in the following order:

- (i) This document;
- (ii) The Commission's General Conditions of Contract (Annex A);
- (iii) The Commission's Terms of Reference (Annex B);

(iv) The Contractor's Proposal (Annex C);

(v) The relevant WO.

19 SEVERABILITY

If any term and/or provision of this Contract is or becomes invalid, illegal or unenforceable, the validity, legality and enforceability of the remaining provisions of this Contract shall not in any way be affected or impaired thereby.

20 NO WAIVER

Failure by a Party to enforce a right shall not be deemed to be a waiver of that right unless otherwise expressly provided in this Contract.

21 CONTRACT AMENDMENT

No modification of, or change in, this Contract, or waiver of any of its provisions, or additional contractual relationship with the Contractor shall be valid unless approved in the form of a written amendment to this Contract, signed by duly authorized Representatives of the Parties.

22 TRANSMISSION OF NOTICES AND OTHER DOCUMENTS

Notices, invoices, reports and other documentation under the Contract shall be delivered or sent to the relevant Party as follows (or to such person/title, address or email address as the Party may substitute by notice after the date of the Contract):

(a) The Commission:

For Contractual Issues:

Chief, Procurement Section

Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO)

Vienna International Centre

Wagramerstrasse 5, P.O. Box 1200

1400 Vienna, Austria

Tel: + (43 1) 26030 6350

E-mail: procurement@ctbto.org

For submission of invoices:

Accounts Payable

CTBTO Financial Services Section

Vienna International Centre

Wagramerstrasse 5, P.O. Box 1200

1400 Vienna, Austria

Tel: + (43 1) 26030 6292

E-Mail: Payable_Invoices@ctbto.org

For invoices related enquiries:

Payments@ctbto.org

(b) The Contractor:

For Contractual Issues and Invoices and Related Enquiries:

Name:
Title
Address
Tel:
Email:

23 EFFECTIVENESS

- (a) Except as provided below, any communication in connection with the Contract will be deemed to be given as follows:
- (i) if delivered in person, at the time of delivery;
 - (ii) if by registered mail or courier, when received;
 - (iv) if by electronic communication, when retrievable by the Commission in document form.
- (b) A communication given under Clause 23(a) above that is received or becomes retrievable on a non-working day or after business hours at the seat of the Commission will only be deemed to be given on the next working day of the Commission.

24 SOFTWARE LICENCE

The Commission hereby grants the Contractor a non-exclusive, non-transferable, irrevocable license to use the Software for the duration of the Contract and for the purpose of doing the Work under the Contract. The use of the source code is only for the duration of the Contract and for the Work required under the Contract. All title, ownership rights and intellectual property rights in and to the Software shall remain with the Commission. The Contractor acquires no title, right or interest in the Software, other than the license(s) specifically granted herein by the Commission.

IN WITNESS hereof, the duly authorized Representatives of the Parties have executed this Contract:

For and on behalf of **the PREPARATORY COMMISSION FOR THE COMPREHENSIVE NUCLEAR-TEST-BAN TREATY ORGANIZATION:**

Name and Position

Date: _____

Place: Vienna, Austria

For and on behalf of **[REGISTERED NAME OF THE CONTRACTOR]:**

Name and Position

Date: _____

Place: _____

LIST OF ANNEXES

ANNEX A: THE COMMISSION'S GENERAL CONDITIONS OF CONTRACT

ANNEX B: THE COMMISSION'S TERMS OF REFERENCE

ANNEX C: THE CONTRACTOR'S PROPOSAL

General Conditions of Contract

1. DEFINITIONS

- (a) In these general conditions of contract the terms beginning with a capital letter shall have the meaning as defined in the Contract.
- (b) “Services” means all services to be rendered under the Contract.
- (c) “Goods” shall mean all goods, equipment, materials and/or other supplies to be provided under the Contract.
- (d) “Taxes” shall mean all direct and indirect taxes (including value added tax, general sales tax or goods and services tax), assessments, fees, customs duties, liens and charges in as much as they are levied in conclusion or implementation of the Contract, including customs restrictions and charges of similar nature in respect of articles imported or exported for the Commission’s official use.

2. LEGAL STATUS

The Contractor shall be considered as having the legal status of an independent contractor vis-à-vis the Commission. Neither the Contractor and any subcontractor, nor their personnel shall be considered to be an employee or an agent of the Commission.

3. ASSIGNMENT

The Contractor shall not assign, transfer, pledge or make other disposition of the Contract or any part thereof, or any of the Contractor’s rights, claims or obligations under the Contract except with the prior written consent of the Commission.

4. SUBCONTRACTING

In the event the Contractor requires the services of one or more subcontractors, the Contractor shall obtain the prior written approval and clearance of the Commission for such subcontractor(s). The Commission’s approval of a subcontractor shall not relieve the Contractor of any of his obligations under the Contract, and the terms of any subcontract shall be subject to and in conformity with the provisions of the Contract.

5. SOURCE OF INSTRUCTIONS

- (a) The Contractor shall neither seek nor accept instructions from any authority external to the Commission in connection with the performance of its obligations under the Contract. The Contractor shall refrain from any action which may adversely affect the Commission and shall fulfil its commitments with the fullest regard to the interests of the Commission.
- (b) While present at the Commission’s premises, personnel of the Contractor shall, at all times, obey and conform to all requests and instructions of the Commission’s officials and the United Nations Security Staff.

6. CONTRACTOR’S RESPONSIBILITY FOR EMPLOYEES

The Contractor shall be responsible for the professional and technical competence of its employees and will select, for the performance under the Contract, reliable individuals who will perform effectively in the implementation of the Contract, respect the local laws and customs and conform to a high standard of moral and ethical conduct.

7. ASSIGNMENT OF PERSONNEL

- (a) The Contractor shall not replace or withdraw any personnel referred to in the Contract for the performance of the Services without the prior written approval of the Commission or unless requested by the Commission.
- (b) Prior to assignment, replacement or withdrawal of personnel for the performance of the Services, the Contractor shall submit to the Commission for its consideration, the curriculum vitae or detailed justification to permit evaluation by the Commission of the impact which such assignment, replacement or withdrawal would have on the Services.
- (c) In the event of withdrawal of personnel, all costs and additional expenses resulting from the replacement, for whatever reasons, of any of the Contractor’s personnel shall be for the account of the Contractor. Such withdrawal shall not be considered as termination in part or in whole of the Contract.

8. CONFLICT OF INTEREST

No employee, officer, adviser, agent and/or subcontractor of the Contractor assigned to perform Services under the Contract shall engage, directly or indirectly, in any business, profession or occupation connected or related to the Services or Goods to be provided under the Contract if this constitutes a conflict of interest.

9. INSURANCES

- (a) The Contractor shall provide and thereafter maintain appropriate insurance, or its equivalent, with respect to its employees to cover claims for personal injury or death in connection with the Contract.
- (b) The Contractor shall provide and thereafter maintain insurance against all risk in respect of its property and any equipment used for the execution of the Contract.
- (c) The Contractor shall also provide and thereafter maintain liability insurance in an adequate amount to cover third party claims for death, bodily injury, loss of and damage to property arising from any operations carried out by the Contractor in performing its obligations in connection with the Contract or from operation of any vehicles, boats, airplanes and other equipment owned or leased by the Contractor or its agents, servants, employees or subcontractors.
- (d) Except for insurance mentioned in paragraph (a), the insurance policies under this clause shall:
 - (i) Name the Commission as additional beneficiary;
 - (ii) Include a waiver of subrogation of the Contractor's rights to the insurance carrier against the Commission.
- (e) The Contractor shall, upon request, provide the Commission with satisfactory evidence of the insurance required under the Contract.
- (f) Any amounts not insured, not recovered from or not claimed by the insurer shall be borne by the Contractor.
- (g) Information concerning reduction of coverage shall be furnished by the Contractor to the Commission with at least thirty (30) days prior written notice.
- (h) The Contractor undertakes that provisions to the same effect as the provisions in sub-clauses (a) through (c) above will be inserted in all subcontracts made in performance of the Contract, except sub-contracts exclusively for furnishing Goods.

10. ENCUMBRANCES/LIENS

The Contractor shall not cause or permit any lien, attachment or other encumbrance by any person to be placed on file in any public office or on file with the Commission against any monies due or to become due for any Services or Goods provided under the Contract, or by reason of any other claim or demand against the Contractor.

11. OBSERVANCE OF THE LAW

- (a) The Contractor shall comply with all laws, ordinances, rules and regulations, including but not limited to health, environmental and labour laws bearing upon the

performance of its obligations under the terms of the Contract.

- (b) In particular, the Contractor shall comply with the labour laws of the country in which the Services or Goods are to be furnished providing for benefits covering injury or death in the course of employment.

12. CONFIDENTIALITY

- (a) All technical, financial or other documentation and data the Contractor compiled for or received from the Commission under the Contract shall be treated as confidential and shall be delivered only to the Commission's authorized officials on completion of the Services or as requested by the Commission.
- (b) Either Party acknowledges that all knowledge and information concerning the other Party that may be acquired in connection with the performance of its obligations under the Contract, including but not limited to, any information relating to its operations and procedures, are confidential and proprietary information of the other Party and it shall receive such confidential and proprietary information of the other Party in confidence and shall not disclose or permit disclosure of any such knowledge or information to any person and/or entity without the prior written consent of the other Party.
- (c) The Contractor shall not, at any time, use such confidential information to its own advantage.
- (d) The restrictions on confidentiality shall not apply to the information which:
 - (i) presently is in the public domain;
 - (ii) hereafter becomes part of the public domain without the other Party's fault;
 - (iii) was in the possession of the other Party at the time of the disclosure, as shown by written evidence;
 - (iv) is disclosed to the other Party at any time hereafter by a third Party.
 - (v) is required to be disclosed to governing bodies, or to governmental authorities to the extent required by law or to obtain needed authorization to perform the Contract or pursuant to reporting requirements imposed by those governing bodies or the government of the State of the Contractor.
- (e) These obligations do not lapse upon satisfactory completion of the Services, delivery of the Goods or termination of the Contract by the Commission.

13. LANGUAGES, WEIGHTS AND MEASURES

Unless otherwise specified in the Contract, the English language shall be used by the Contractor in all written communications to the Commission with respect to the Services or Goods to be provided and all documents procured or prepared by the Contractor. The Contractor shall use metric units, except when otherwise specified in the Contract.

14. PUBLICITY

- (a) The Contractor shall not advertise or otherwise make public the fact that it is providing or has provided Services and Goods for the Commission. Also, the

Contractor shall not, in any manner whatsoever, use the name, emblem or official seal of the Commission or any abbreviation of the name of the Comprehensive Nuclear-Test-Ban Treaty Organization in connection with its business or otherwise.

- (b) These obligations do not lapse upon satisfactory completion of the Services, delivery of the Goods or termination of the Contract.

15. OFFICIALS NOT TO BENEFIT/CONTINGENT FEES

- (a) The Contractor warrants that:
 - (i) No person or selling agency has been employed or retained by it to solicit or secure the Contract upon an agreement or understanding for a commission, percentage, brokerage, contingent fee or retainer, except regular employees or bona fide and officially established commercial or selling agencies maintained by the Contractor for the purpose of securing business;
 - (ii) No official or servant or retired employee of the Commission who is not a regular employee of the Contractor, has been or shall be admitted by the Contractor to any direct or indirect benefit arising from the Contract or the award thereof.
- (b) In case of breach by the Contractor of the warranties referred to in previous clauses, the Commission shall have the right to deduct from the Contract Price, or otherwise recover from the Contractor, the full amount of any such commission, percentage, brokerage, contingent fee or retainer so paid.

16. INTELLECTUAL PROPERTY AND OTHER PROPRIETARY RIGHTS

- (a) Except to the extent the Contractor has granted a license to the Commission, the Commission, shall be entitled to all intellectual property, including but not limited to copyrights, patents and trademarks, with regard to products, documents or other materials which bear a direct relation to or are produced or collected under the Contract. The Contractor shall take all necessary steps, prepare and process all necessary documents and assist in securing such property rights and transferring them to the Commission and/or to the government where the Services or Goods are to be provided, in compliance with the requirements of the applicable law.
- (b) The Contractor declares that it does not know of any intellectual property rights of third parties, which might be infringed in the execution of the Contract. Should, contrary to the Contractor’s expectation, claims be raised against the Commission charging it with infringement of intellectual property rights, the Contractor shall hold harmless the Commission and shall indemnify it to the full extent of any damages or awards arising from such claims. This obligation of the Contractor shall continue to be in full force and effect up to the expiration of such intellectual property rights.
- (c) The Commission shall give the Contractor due notice in writing of any charges of infringement brought against the Commission and of the filing of any suit for

infringement of intellectual property rights of third parties due to the execution of the Contract, and, without prejudice to the immunity enjoyed by the Commission as an international organization from every form of legal process, including enforcement and execution, the Commission shall give the Contractor the opportunity to defend the Commission against the said suit at its discretion and shall not, without the Contractor’s consent in writing, make any admission or consent to any claim of any third party, which might be prejudicial to the Contractor’s position.

17. DEFAULT BY THE CONTRACTOR

- (a) In case the Contractor fails to fulfil its obligations and responsibilities under the Contract and provided the Contractor has not remedied such failure(s) within thirty (30) days of having been given written notification by the Commission of the nature of the failure(s), the Commission may, at its entire discretion and without prejudice to its right to withhold payment(s), hold the Contractor in default under the Contract.
- (b) When the Contractor is thus in default, the Commission may, by giving written notice to the Contractor, terminate the Contract as a whole or such part or parts thereof in respect of which the Contractor is in default. Upon such notice, the Commission shall have the right to seek completion, at the Contractor’s expense, of that part or those parts of the Contract with respect to which the Contractor is in default.
- (c) The Contractor shall, in this case, be solely responsible for any reasonable costs of completion of the Services and/or delivery of Goods, including such costs, which are incurred by the Commission over and above the originally agreed Contract Price.

18. WITHHOLDING OF PAYMENT

- (a) The Commission may withhold any payment to the Contractor or, on account of subsequently discovered evidence, nullify the whole or part of any payment approval theretofore given, to such an extent as may be necessary to protect the Commission from loss under the Contract on account of:
 - (i) The Contractor’s failure to carry out its obligations or to make adequate progress with the obligations, except for failure arising out of force majeure;
 - (ii) The Contractor’s failure to remedy unsatisfactory performance, when such failure has been drawn to his attention by the Commission;
 - (iii) The Contractor’s failure to submit on time the reports required.
- (b) The withholding by the Commission of any interim payment shall not affect the Contractor’s obligation to continue performance of his obligations under the Contract.
- (c) No interest shall accrue on payments eventually withheld by the Commission in application of the stipulations of this paragraph.

19. LIQUIDATED DAMAGES

Subject to Clause 20 below (force majeure), if the Contractor fails to deliver any or all of the Services and/or Goods within the latest time period(s) specified in the Contract, the Commission may, without prejudice to its other remedies under the Contract, deduct from the Contract Price as liquidated damages, a sum equivalent to 0.2 per cent of the portion of the Contract Price for the delayed Services and/or Goods for each working day of delay until actual performance, up to a maximum of sixty (60) working days. The recovery by the Commission of proven damages shall not be excluded.

20. FORCE MAJEURE

- (a) Force majeure as used herein shall mean acts of God, industrial disturbances, acts of the public enemy, civil disturbances, explosions and any other similar cause of equivalent force not caused by nor within the control of either party and which neither party is able to overcome.
- (b) As soon as possible after the occurrence of any cause constituting force majeure, the Contractor shall give notice and full particulars in writing to the Commission of such force majeure if the Contractor is thereby rendered unable, wholly or in part, to perform its obligations and meet its responsibilities under the Contract.
- (c) In this event, the following provisions shall apply:
 - (i) The obligations and responsibilities of the Contractor under the Contract shall be suspended to the extent of its inability to perform them and for as long as such inability continues;
 - (ii) The term of the Contract shall be extended for a period equal to the period of suspension taking, however, into account any special conditions which may cause the time for completion of the obligations to be different from the period of suspension;
 - (iii) If the Contractor is rendered permanently unable, wholly or in part, by reason of force majeure to perform its obligations and meet its responsibilities under the Contract, the Commission shall have the right to terminate the Contract on the same terms and conditions as are provided for in the Termination Clause of the Contract, except that the period of notice may be seven (7) days instead of thirty (30) days;
 - (iv) For the purpose of the preceding sub-clause, the Commission may consider the Contractor permanently unable to perform in case of any period of suspension in excess of ninety (90) days. Any such period of ninety (90) days or less shall be deemed temporary inability to perform.

21. INSOLVENCY AND BANKRUPTCY

Should the Contractor be insolvent, adjudged bankrupt, or should the Contractor make a general assignment for the benefit of its creditors, or should a receiver be appointed on account of the Contractor's insolvency, the Commission may, without prejudice to any other right or remedy it may have under the terms of the Contract, terminate the Contract

forthwith by giving the Contractor written notice of such termination.

22. INDEMNIFICATION

The Contractor shall indemnify, hold and save harmless and defend at its own expense the Commission, its officers, agents, servants and employees from and against all suits, claims, demands and liability of any nature or kind, including cost and expenses arising out of acts or omissions of the Contractor or its employees or subcontractors in the performance of the Contract. This requirement shall extend, inter alia, to claims or liabilities in the nature of workers' compensation and to claims or liabilities pertaining to intellectual property rights. The obligations under this clause do not lapse upon termination of the Contract.

23. AMICABLE SETTLEMENT

The parties shall use their best efforts to settle amicably through negotiation any dispute, controversy or claim arising out of, or relating to, the Contract or the breach, termination or invalidity thereof. If the parties cannot reach such amicable settlement through negotiations, the matter shall first be referred to conciliation, by a request by either party for conciliation procedures. The conciliation shall take place in accordance with the United Nations Commission on International Trade Law (UNCITRAL) Conciliation Rules then prevailing, or according to such other procedure as may be agreed between the parties, within a time period of ninety (90) days. There shall be one conciliator. The conciliation shall be in Vienna, Austria, and it shall be conducted in the English language.

24. ARBITRATION

- (a) In the event of a failure to reach an amicable settlement in accordance with Clause 23 above (Amicable Settlement), any dispute arising out of the interpretation or application of the terms of the Contract or any breach thereof shall be settled in accordance with the arbitration rules established by UNCITRAL as at present in force. The number of arbitrators shall be one. The arbitration shall be in Vienna, Austria, and it shall be conducted in the English language.
- (b) The arbitrator shall take into account the internationally recognized general principles of commercial transactions. The arbitrator shall have no authority to award punitive damages, nor to award interest in excess of five (5) per cent, and any such interest shall be simple interest only. The parties shall be bound by any arbitration award rendered as a result of such arbitration as the final adjudication of any such dispute.

25. PRIVILEGES AND IMMUNITIES

Nothing in or relating to the Contract shall be deemed a waiver, express or implied, of any of the privileges and immunities of the Commission and its employees.

25(a). TAX EXEMPTION

In principle, the Commission is exempt from all Taxes. Since the arrangement under which such exemption is respected varies from country-to-country, the Contractor shall collaborate with the Commission to achieve Tax exemption at source or to pursue reimbursement of Taxes paid by the Commission, as the case may be.

26. TERMINATION

The Commission may terminate the Contract in whole or in part, and at any time, upon thirty (30) days' notice of termination to the Contractor. In the event such termination is not caused by the Contractor's negligence or fault, the Commission shall be liable to the Contractor for payment in respect of Services already satisfactory accomplished or Goods delivered and accepted and in conformity with the terms of the Contract, for necessary terminal expenses of the Contractor, and for the cost of such urgent work as is essential and as the Contractor is asked by the Commission to complete. The Contractor shall keep expenses at a minimum and shall not undertake any forward commitment from the date of receipt of the Commission's notice of termination.

27. GOODS

In the event that the Contract requires the Contractor to supply Goods, Clauses 28-35 shall apply in addition to the above.

28. WARRANTY

- (a) The Contractor warrants that the Goods, including packaging, conform to the specifications for the Goods ordered under the Contract and are fit for the purpose for which such Goods are ordinarily used and for purposes expressly made known to the Contractor by the Commission, and are new and free from defects in design, workmanship and materials.
- (b) This warranty shall remain valid for twenty-four (24) months after the Goods or any part thereof have been delivered and accepted, whichever is later, unless the Contractor has granted a longer period. Should the Commission transfer the title of the Goods to a third party during the warranty period, the right to enjoy the warranty shall be transferable to the new title-holder.
- (c) If, during the warranty period mentioned in sub-clause (b) above, the Goods or any part thereof are found to be defective or not in conformity with the specifications under the Contract, the Contractor shall, upon notification, promptly and at its own expense correct all such defects and non-conformities. If these defects and non-conformities cannot be corrected, the Commission shall have the right, at the Contractor's expense, to either demand replacement of the defective item, or receive appropriate reimbursement, or have the defective item repaired or otherwise procured from a third party.

29. INSPECTIONS AND TESTS

- (a) The Commission shall have the right to inspect and/or to test the Goods to confirm their conformity to the technical specifications. The technical specifications shall specify what inspections and tests the Commission requires.
- (b) The inspections and tests may be conducted on the premises of the Contractor or its subcontractor(s), at a point of delivery designated by the Commission and/or at the Goods' final destination. The Contractor shall give all reasonable facilities and assistance-including drawings and production data-to the Commission at no charge to the Commission.
- (c) Should any inspected or tested Goods fail to conform to the technical specifications, the Commission reserves the right to reject them and the Contractor shall either replace the rejected Goods or make all alterations necessary to meet specification requirements free of cost to the Commission.
- (d) The Commission's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival at the point of delivery designated by the Commission or at the Commission's offices, shall in no way be limited or waived by reason of the Goods' having previously been inspected, tested and passed by the Commission.
- (e) Nothing in this Section on Inspections and Tests shall in any way release the Contractor from any warranty or other obligations under the Contract.
- (f) All equipment/material supplied under the Contract may be subject to pre-shipment inspection by a third party to be specified by the Commission. The Contractor is not liable for cost of this inspection.

30. PACKING

The Contractor shall comply or ensure compliance with the following provisions concerning packing:

- (a) The Goods shall be packed as is required to prevent their damage or deterioration during transit to their final destination. The packing shall be sufficient to withstand, without limitation, rough handling during transit.
- (b) In the case of a cross-border shipment, the Goods shall have appropriate export packing. If necessary, all cases/crates must be wrapped inside with heavy-duty plastic lined paper, should be steel-strapped and must be able to withstand tough handling. Skids for truck handling are imperative if the gross weight is more than 30 kilograms.
- (c) The consignment shall be marked and shipped as per address shown on the Purchase Order Form.
- (d) Neither partial delivery nor transshipment shall be made unless specifically agreed by the Commission in writing.
- (e) Each case/crate/package shall carry a consecutive number, dimensions, volume, and weight (i.e. Case No. X of Y cases, A x B x C cm, E m³, D Kg.) and shall be marked as follows:

EQUIPMENT FOR
THE PREPARATORY COMMISSION FOR THE
COMPREHENSIVE NUCLEAR-TEST-BAN
TREATY ORGANIZATION.
[point of delivery]

PURCHASE NO. _____
GROSS WEIGHT _____
NET WEIGHT _____

- (f) Markings shall be done with weatherproof materials. All non-containerized Goods shall be shipped below deck.
- (g) Each case/crate/carton shall carry (outside) a copy of the packing list describing the contents of the case/crate/carton. Outside Case No. 1 should be attached with invoice covering the actual delivery. The accompanying papers must be made out in the English language.
- (h) Prior to delivery, a fax (or a letter by courier service) shall be sent to the consignee, if any, advising of the following:
 - ◆ purchase order/Contract number;
 - ◆ waybill number or equivalent reference number of the shipment (if any);
 - ◆ number of boxes/cartons/crates/etc.;
 - ◆ estimated time of departure (ETD);
 - ◆ point of departure and name of freight carrier;
 - ◆ estimated time of arrival (ETA) to final destination.
- (i) The following documents shall be enclosed with the shipment in case of shipping by air:
 - ◆ airway bill;
 - ◆ proforma or commercial invoice;
 - ◆ packing list.
- (j) The above documents are indispensable and must reach the consignee, if any, on time to permit customs clearance and in order to avoid demurrage charges.

31. DELIVERY AND TRANSPORTATION

- (a) Delivery of the Goods shall be made by the Contractor in accordance with the terms specified in the Contract, and the Goods shall remain at the risk of the Contractor until delivery has been completed.
- (b) Transport of the Goods to the port of discharge or such other point in the country of destination and/or forwarding to the consignee, if any, (door-to-door) specified in the Contract shall be arranged and paid for by the Contractor and the cost thereof shall be included in the Contract Price.

32. TAKE-OVER/HAND-OVER

Upon successful completion of delivery or of installation and a testing and evaluation period, as specified in the Contract, responsibility for the Goods will be handed over to the consignee or other designated entity.

33. EXPORT LICENCES

If an export licence or any other governmental authorization is required for the Goods, it shall be the obligation of the Contractor to obtain such licence or governmental authorization. In the event of failure to obtain such licence or authorization within reasonable time, the Commission may declare the Contract null and void.

34. SPARE PARTS

In accordance with the Contract, the Contractor may be required to provide any or all of the following materials and notifications pertaining to spare parts manufactured and/or distributed by the Contractor:

- (a) Such spare parts as the Commission may choose to purchase from the Contractor, provided that the Contractor is not relieved of any warranty obligations under the Contract;
- (b) In the event of termination of production of the spare after delivery of the Goods:
 - (i) advance notification to the Commission of the pending termination, in sufficient time to permit the Commission to place a final order;
 - (ii) following such termination, furnishing at no cost to the Commission, the blueprints, drawings and specifications of the spare parts, if and when requested.

35. UNITED NATIONS CONVENTION ON CONTRACTS FOR THE INTERNATIONAL SALE OF GOODS

Questions concerning matters arising under the Contract, but not settled in it, shall be settled in conformity with the United Nations Convention on Contracts for the International Sale of Goods (Vienna, 1980), which shall be applicable to the Contract. The applicable language version of the Convention shall be the version in which the Contract is written.

36. SUSTAINABLE BUSINESS PRACTICES

The Commission requires the Contractor and its personnel to:

- (a) support and respect the protection of internationally proclaimed human rights¹ and to observe the highest standards of ethics and integrity throughout its supply chains.
- (b) abide by the United Nations Supplier Code of Conduct².
- (c) to take appropriate steps, whenever possible to perform its obligations in a manner that takes into account economic, environmental and social considerations.
- (d) certify that they have not and will not engage in harassment or sexual harassment, proscribed practices or any further practice described in Clauses 37, 38, 39, 40

¹ UN Guiding Principles on Business and Human Rights, available at https://www.ohchr.org/Documents/Publications/GuidingPrinciplesBusinessHR_EN.pdf.

² Available at <https://www.un.org/Depts/ptd/about-us/un-supplier-code-conduct>.

and 41, during the procurement process and the performance of the Contract.

37. PREVENTION OF HARRASSMENT AND SEXUAL HARRASSMENT

- (a) The Commission is committed to providing a professional work environment that upholds the highest standards of equality, respect and dignity for all. In this regard, and without limitation to any other provision contained herein:
- (i) The Contractor shall adhere to zero tolerance for harassment and therefore accepts and agrees to refrain from any conduct which could, in the view of the Commission, meet the definition of harassment and/or sexual harassment. For the avoidance of doubt, “harassment” shall be understood as any improper or unwelcome conduct that might reasonably be expected or be perceived to cause offence or humiliation to another person when such conduct interferes with work, is made a condition of employment, or creates an intimidating, hostile or offensive work environment. “Sexual harassment” shall be understood as harassment of a sexual nature, and the above definition of harassment applies equally to sexual harassment. Sexual harassment may occur between persons of opposite sex or of the same sex.
 - (ii) The Contractor shall take all reasonable and appropriate measures to prevent and deter harassment and sexual harassment or abuse of anyone by its employees, agents, officials or any other persons engaged or controlled by the Contractor to perform the Services.
 - (iii) The Contractor shall promptly report to the Commission any actual, reported or suspected cases of harassment, sexual harassment or abuse of anyone by its employees, agents, officials or any other persons engaged or controlled by the Contractor to perform the Services of which the Contractor becomes aware. Such reports to the Commission may be on a no name basis, if necessary.
 - (iv) In addition to notifying the Commission pursuant to sub-clause (iii) above, on becoming aware of any allegation of harassment, sexual harassment or abuse of anyone, the Contractor shall take all reasonable and appropriate measures to address the matter, including engaging in good faith consultations with the Commission, while ensuring minimum impact and/or disruption of the Services.
- (b) The Contractor acknowledges and agrees that any breach of the provisions of this Clause 37, as determined by the Commission, shall permit the Commission, at its sole discretion, to:
- (i) Request the Contractor to remove, temporarily or permanently, from the relevant assignment, any Contractor’s personnel reported for having committed harassment, sexual harassment or abuse of anyone.
 - (ii) Terminate the Contract, and/or any other agreement, arrangement or partnership concluded by the Commission with the Contractor, immediately upon

written notice to the Contractor, without any liability for termination charges or any other liability of any kind, on the terms and conditions as are provided for in Clause 26 (Termination) above; and/or

- (iii) Exclude the Contractor from participating in any ongoing or future solicitations, and/or entering into any future contractual or collaborative relationships with the Commission and/or suspend the Contractor from the Commissions supplier roster.
- (c) The Commission shall be entitled to report any breach of the provisions of this Clause 37, as determined by the Commission, to the Commission’s governing bodies, other UN agencies and/or donors.

38. PROSCRIBED PRACTICES

The Commission requires that the Contractor and its personnel certify that they have not and will not engage in proscribed practices and proscribed conduct during the procurement process and the performance of the Contract. The Commission defines Proscribed Practices as follows:

Fraudulent practice: is any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

Corrupt practice is the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;

Coercive practice is the impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of any party in order to influence the actions of that party;

Collusive practice is the proposing or entering into an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;

Unethical practice is conduct or behaviour that is contrary to the conflict of interest, gifts and hospitality, post-employment provisions or other published requirements of doing business with the Commission;

Obstructive practice is any act which deliberately and in an effort to compromise an investigation, destroys, falsifies, alters or conceals information or documents that may be relevant to a fraud and corruption investigation, or material that could become evidence as a result of such investigation; or the making of false statements to investigators during such an investigation.

39. CHILD LABOUR

The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor’s subsidiary or affiliated entities (if any) is engaged in any practice inconsistent with the rights set forth in the Convention on the Rights of the Child, including Article 32 thereof, which, inter alia, requires that a child shall be

protected from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development.

40. MINES

The Contractor represents and warrants that neither it, its parent entities (if any), nor any of the Contractor's subsidiaries or affiliated entities (if any) is engaged in the sale or manufacture of anti-personnel mines or components utilized in the manufacture of anti-personnel mines.

41. TERRORISM

The Contractor shall ensure that none of the funds received from the Commission under the Contract are used, directly or indirectly, to provide support to individuals or entities subject to sanctions or other measures promulgated by the United Nations Security Council and appearing in the Consolidated United Nations Security Council Sanctions List. This provision shall be included in all subcontracts or sub-agreements entered into under the Contract.

42. FULL DISCLOSURE

- (a) The Contractor will immediately notify the Commission upon becoming aware of any Proscribed Practices or other prohibited practices or conduct or suspicion thereof, as per Clauses 37-41, by itself or its personnel during the procurement process or the performance of the Contract. The Contractor will take all appropriate measures to prohibit and prevent its personnel from engaging in Proscribed Practices or any other prohibited conduct, as well as to investigate allegations thereof, or to take corrective action when such a Proscribed Practice or any other prohibited conduct has occurred.
- (b) The Contractor further warrants that it is not the subject of any sanctions, or otherwise identified as ineligible by any government, supranational organization (e.g., European Union), another entity of the United Nations System or multilateral development finance institution. The Contractor will disclose to the Commission if it becomes subject to any sanction or temporary suspension during the term of the Contract. The Contractor recognizes that a breach of this provision constitutes a fraudulent practice.

43. DATA PROTECTION

- (a) **Use of the Commission's data:** Use (including accessing, processing, retention, storage) of the Commission's data is limited to the purposes contained in the Contract and such use will be limited to Contractor's personnel on a "need to know" basis. Use of the Commission's data for internal research, marketing, sales, or promotional purposes is strictly prohibited. Subject to Clause 12 (Confidentiality), the

Contractor will treat the Commission's data as confidential and may neither disclose it nor make it available to any third-party except with the prior written authorization of the Commission.

- (b) **Compliance:** The Contractor confirms that it has a data protection policy in place that meets applicable legal requirements and that it will apply such a policy to the Commission's data, without prejudice to the privileges and immunities of the Commission. The Contractor will implement technical and organisational measures to ensure appropriate protection of the Commission's data, in conformity with the abovementioned requirements and internationally recognised standards and best practices. In addition, the Contractor will:
- (i) at its sole expense and risk, return, delete, or destroy all the Commission's data, including data backups, upon written instruction of the Commission. The Commission will provide a reasonable period of time and take into account the Contractor's legitimate interests, as well as the termination or expiration date of the Contract;
 - (ii) process, retain or store the Commission's data exclusively in countries that are signatories to the Comprehensive Nuclear-Test-Ban Treaty and that ensure adequate legal protection of the Commission's privileges and immunities; and
 - (iii) be liable for any resulting damages or penalties for its failure to comply with its obligations.
- (c) **Data security:** Upon discovery of a data security breach, the Contractor will immediately notify the Commission and undertake at its sole expense to:
- (i) propose immediate remedial actions (including containment);
 - (ii) implement, as directed by the Commission, all necessary damage mitigation and remedial actions;
 - (iii) where applicable, as directed by the Commission, restore the Commission's and end-users' access; and
 - (iv) keep the Commission informed of its progress.
- (d) The Contractor, at its sole expense, will cooperate fully with any Commission investigation, remediation steps and response to a data security breach.

44. ESSENTIAL TERMS

The Contractor acknowledges and agrees that each of the provisions in Clauses 36 to 43 above constitutes an essential term of the Contract and that any breach of any of these provisions shall entitle the Commission to terminate the Contract or any other contract the Contractor has with the Commission, immediately upon notice to the Contractor, without any liability for termination charges or any other liability of any kind. Furthermore, the Commission is entitled to exclude the Contractor from participating in future tenders should the Contractor breach any of the provisions included in Clauses 36 to 43.

ANNEX B

TERMS OF REFERENCE

PROVISION OF SOFTWARE ENGINEERING SERVICES FOR THE MAINTENANCE OF THE ATMOSPHERIC TRANSPORT MODELLING PIPELINE WITH ITS DATA ACQUISITION, PROCESSING AND DISSEMINATION ON A CALL-OFF BASIS

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1. INTRODUCTION

The Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organisation (hereafter referred to as "the Commission", "CTBTO" or "PTS"), located in Vienna, Austria, is the international organization establishing the global verification system under the provisions of the Comprehensive Nuclear-Test-Ban Treaty (CTBT), which bans any nuclear weapon test explosion or nuclear explosion below or above the Earth's surface, underwater and on the surface of the water or in the atmosphere. The verification system includes the International Monitoring System (IMS), a global network of monitoring stations that employ waveform technologies (seismic, hydro-acoustic and infrasound) and radionuclide technologies (particulate and noble gases), a global satellite communications infrastructure (hereinafter referred to as the GCI), an International Data Centre (IDC) and the capability to carry out on-site inspections (OSI).

The IDC supports the verification responsibilities of the Commission by providing data products and services for effective global monitoring. The IDC collects and analyses data from the IMS network to detect and locate possible nuclear events. At the IDC, data are automatically processed by computer algorithms and then interactively analyzed and reviewed by human analysts. Near-real-time data and data products/bulletins are distributed to the State Signatories.

More information on CTBTO is available at www.ctbto.org.

2. BACKGROUND

The CTBTO operates software to process time-series data from the three waveform technologies Seismic, Hydro-acoustic, and Infrasound (SHI) sensors worldwide. The data is transmitted to the IDC in Vienna in near-real-time (within 5 min). The radionuclide (RN) technology complements the three waveform technologies. It is the only one that can confirm whether an explosion detected and located by the other technologies indicates a nuclear test.

The Commission has developed an Atmospheric Transport Modeling (ATM) pipeline working with meteorological data and simulations running backward in time to produce Source-Receptor-Sensitivity (SRS) fields to link detections at radionuclide stations from the International Monitoring System (IMS) to the possible source area from which radionuclides may originate. When used forward in time, ATM can estimate which IMS radionuclide stations are likely to be affected, given a radioactive release scenario. ATM is an important element for the IDC to fulfill its mandate and is constantly evolving.

The pipeline automatically produces SRS fields, Field-of-Regards (FOR), Possible Source Regions (PSR), and several images. Other products, including those in forward mode, are produced manually on request in the case of an event. SRS fields are generated operationally (24/7). If production is stopped, immediate support will be required. ATM products must be available 99% of the time.

The ATM pipeline consists of a chain of processing elements arranged so that each element's output is the next one's input. There are four major elements: acquisition, modeling, post-processing, and visualization. The major elements then contain their own pipelines (names of the application software packages currently in charge are given in parentheses) as follows:

Acquisition: Retrieval of suitable meteorological input data required for global dispersion modeling and pre-processing. (atmpipeline)

Modeling: Receptor (RN sample) oriented (adjoint) modeling utilizing a state-of-the-art Lagrangian dispersion model in backward mode yielding sample-specific SRS fields. (atmpipeline, flexpart-ctbto, flexpart2ctbt)

Post-processing: Post-processing is based on the SRS fields. In doing so, products pertaining to the RN samples taken are calculated. This includes FOR and PSR products. (atmpipeline, srs2for)

Visualization: Visualisation of the post-processed output in both batch/automatic (atmpipeline, forplot, srsplot) and interactive mode. The latter mode is covered by the application WEB-GRAPE. Manual products in both backward and forward mode are generated on request.

Acquisition and Modelling are the computationally demanding elements, and they are performed at the IDC. Post-processing and Visualisation do not necessarily require 24/7 operations. They can also be done upon request and in a decentralized way.

The ATM pipeline software is mostly written in object-oriented Perl. The Lagrangian dispersion model FLEXPART (an open-source, community-maintained software), as well as a suite of smaller tools (flexpart2ctbt, srs2for, forplot, srsplot) are written in FORTRAN.

3. ORGANIZATION OF WORK

The Commission may ask for Services as described in Section 4.

3.1 WO Project Call-off

The work will be called off in the form of Work Orders (WOs). Each WO shall include the exact scope of work and the required deliverables to be performed and delivered by the Contractor.

3.1.1 Initiating Work

Since the IDC follows the Scrum software development methodology, WOs generally follow Scrum sprints and cover software development services to be performed within approximately four (4) weeks. Therefore, a WO is issued during a sprint planning meeting, and the work items to be addressed in that WO (sprint) are recorded in the Commission's Jira-based tracking system. Initiation of the sprint constitutes the issuance of the WO. In the case of a WO issued outside of the Scrum framework, the Commission will supply the work to be performed in writing to the Contractor. The Contractor shall respond with an estimate of the number of person-days required to complete the work and the delivery date. After the estimate and delivery date are accepted, the Commission will issue the WO to the Contractor.

The Contractor shall perform the work only after receipt of the WO.

3.1.2 Completion and Acceptance

At the end of a particular WO, the Contractor shall submit to the Commission the deliverables within the period of performance stated in the respective WO. The deliverables may include:

- Updated Software Design Documents.
- Updated Software User Guide.
- Description of how to use the programming interfaces developed under this Contract.
- Updated source code or configuration files.
- WO Report.

Typically, in accordance with the Scrum methodology, the Contractor will present the work performed during the sprint, including demonstrations of the newly developed software, within the Sprint Review meeting.

4. SCOPE OF WORK

This section describes the scope of work under the Contract.

At the time when the work is called off (see Section 3 for the organization of work), the detailed scope of the Services shall be defined.

4.1 Objectives

The Commission seeks to establish a Call-Off Contract under these Terms of Reference (hereinafter referred to as "ToR"). The ToR forms the technical framework for supplying general software engineering services for ATM data acquisition, processing, and dissemination.

The Contractor shall support the Commission in the Services defined under Section 4.2 to maintain and improve the ATM pipeline.

4.2 Requested Services

4.2.1 Familiarization with the ATM pipeline (if applicable)

Should the Contractor not be familiar with the ATM pipeline, it shall interview and work with the staff of the Commission to study and learn about the CTBTO ATM pipeline environment (ATM pipeline) to be able to perform the Services specified in Section 4. This familiarization is expected to take place only once.

The familiarization is expected to take up to 60 person-days during the first call-off period, depending on the Contractor's prior experience with the CTBTO ATM pipeline environment.

4.2.2 Selection of tasks

The Contractor shall be required to:

- Ensure smooth operation of the development ATM pipeline instance;
- Provide second-level support and maintenance for existing (custom) software systems by troubleshooting, implementing software patches and updates, migrating for software releases, etc (e.g. migrating to RHEL 8 or 9);
- Audit Software Code in preparation for upgrades/enhancements;
- Provide proactive and/or reactive support services;
- Perform system analysis and translate into software requirements, architecture, and design using Agile software development methodologies;
- Support implementation of new FLEXPART versions (e.g. with either GPU or MPI/OpenMP extensions) to the ATM pipeline;
- Support implementation/maintenance of the High-Resolution ATM (HRATM) pipeline and the new in-house HPC system;
- Support the deployment of software under development following IDC change management processes;
- Integrate the ATM pipeline in the existing continuous integration/delivery framework;
- Migrate ATM software to use the actual time retrieved from the database instead of configuration files;

- Write, review, and update software documentation and procedures;
- Provide training or other services associated with operating the software;
- Unit, black-box, acceptance, and performance testing for the systems being developed/maintained;
- Enhance workflow status monitoring, logging, and reporting;
- Scheduling of defined deliverables and estimating the effort to execute the work;
- Perform other duties as assigned.

4.2.3 Operational support

Considering that SRS files are generated operationally (24/7), immediate support will be required if a critical situation arises. A critical situation is arising in a case when the production is stopped or is foreseen to be stopped due to upcoming changes to the pipeline which is outside of the CTBTO's influence. ATM products must be available 99% of the time; for that reason, there is a need to prepare for the unexpected. Upon the Commission's request, the Contractor shall provide this support off-site, within 12 hours, on a 24/7 basis. As described in Section 3.1.1, the deliverables shall be defined when work is called-off.

4.3 Output and Deliverables

The Contractor shall submit a report for each WO, as defined in Section 3.1.2, to the Commission electronically via email and within the first five (5) working days after the WO finished, describing all the activities performed during the preceding WO, including but not limited to:

- Summary of tasks done.
- Summary of problems that have arisen.
- Status of tickets, bug reports, and possible fixes (if applicable).
- Status and updated plan for all active development tasks.
- Time spent on each activity worked on.

All documentation shall adhere to the IDC Software Documentation Standard, which expresses precise requirements for elaborating, reviewing, approving, and using IDC software-related documents. This Standard will be shared with the Contractor at the start of the project. Guidelines and recommendations from this Standard are proposed for the deliverables described in Section 3.1.2.

5. WORK LOCATION AND TIMEFRAME

5.1 Location of Performance

For all tasks, the Contractor's personnel will be expected to work off-site of the premises of the Commission in Vienna, Austria. The Commission will provide the Contractor remote access to the relevant infrastructure in the PTS network. The infrastructure comprises but is not limited to, software, servers, web services, LANs, and databases.

The Contractor may be required to travel to the Headquarters of the Commission in Vienna, Austria, as applicable. There may be up to two trips per year with five (5) on-site days per trip. Alternatively, the Commission shall agree on a single trip with the consumption of ten (10) on-site days per year before issuing the WOs. The Contractor may send up to two persons per trip. In case on-site work is required at the PTS headquarters in Vienna, Austria, the Commission will provide at its premises a suitable work environment (workspace, meeting rooms for presentations and trainings, standard stationery, internet connection) to the Contractor's personnel to perform the services under the Contract, as required.

All travel arrangements shall be the Contractor's responsibility if travel is required. The Commission shall reimburse flight ticket costs based on the most direct and economical route upon presentation of supporting documents.

Per-diem amounts shall be based on the applicable United Nations Daily Subsistence Allowance (DSA) rates provided by the International Civil Service Commission (ICSC).

5.2 Timeframe

The Commission seeks to establish a one-year Call-Off Contract with two optional extensions of one (1) year each. The Commission shall have the right but not the obligation to call off the work in the form of WOs within the period of 12 months from the Effective Date of Contract or the performance of a maximum of 160 person-days by the Contractor, whichever occurs first (hereinafter referred to as the "**Call-off Period**"). At its sole discretion, the Commission reserves the right to call off fewer or no person days at all. The person-days for on-site work, as stated in Section 5.1, is included in the maximum number of 160 person-days.

The commencement and completion date for the performance of the work (hereinafter referred to as "**Commencement Date**" and "**Completion Date**", respectively) will be set out in the respective WO.

6. REQUIREMENTS FOR THE CONTRACTOR

6.1 Contractor's responsibilities

For off-site work, the Contractor shall provide its own infrastructure, hardware, and software environment necessary to complete its work under the Contract. The Contractor shall communicate with the Commission via video conferencing (preferably MS Teams), electronic mail, or telephone. All costs incurred by the Contractor as a result of such communication with the Commission for the performance of work under the Contract shall be borne by the Contractor.

The Commission has a change management process that covers reporting and tracking software problems and releases software updates in its Development, Testbed, and Operational environments. An Integrated Ticketing System based on the Jira software supports this change management process. The Contractor personnel shall familiarize themselves with this process and follow it when applying changes and releasing software. The time spent on the tickets must be recorded in Jira by the Contractor's personnel. The Commission's Configuration Change Board shall approve all software and configuration changes.

The Contractor shall deliver a source code through incremental releases according to the Agile software development methodology (preferably Scrum). In particular, the Contractor shall follow the "Release Early, Release Often" (RERO) software development philosophy, which emphasizes the importance of early and frequent releases in creating a tight feedback loop between developers, testers, and users. Each new delivery shall include a description of what changes were made relative to the previous release and a list of files modified by each change.

All source code developed under this Contract shall follow the IDC Coding Standards (which include recommended coding style, the required implementation of unit tests, and use of open standards and open-source libraries where possible) and shall compile and run under the Linux operating system family (currently RHEL/CentOS 7.x). The IDC guidelines for requirements engineering shall form the basis for eliciting and documenting requirements.

The Contractor shall work with the Git/GitLab version control system to maintain the software. All source code releases shall be delivered via this version control system.

6.1.1 Constitution of the Contractor's key personnel

In its Proposal, the Contractor shall provide details of key personnel expected to be involved in the off-site or on-site work for the Commission. At a minimum, the following information shall be provided for each of these key personnel:

- Name.
- Nationality.
- Role.
- Employed since. (Please specify whether the key personnel are a permanent member or rather, if they are contracted for the duration of the Contract on an ad-hoc basis.)
- Type(s) of Service(s) from Section 4, which the key personnel will perform.
- Curriculum Vitae

The Contractor shall demonstrate:

- The capability and capacity of the suggested key personnel to tackle the Services described in Section 4.
- The compliance of the suggested key personnel with the requirements set out in Section 6.3.

6.1.2 Maintenance of the key personnel, Conditions of Amendment

The Contractor shall maintain an up-to-date version of the key personnel (hereinafter called "Team Roster") for the duration of the Contract. The Contractor shall inform the Commission when personnel is to be removed or added to the Team Roster and if personnel details are modified.

Suppose the Commission estimates that the Team Roster lacks the capacity or capability to perform a specific work within the specified timeframe or quality. In that case, the Contractor shall provide, within five (5) working days after the Commission makes a request, the details of skilled and experienced personnel to be added to the Team Roster for consideration by the Commission.

The Commission shall be entitled to confirm whether the proposed Team Roster amendment is acceptable.

Before issuing a WO, as described in Section 3.1.1, the Contractor is requested to propose a list of personnel to the Commission working under this WO. The personnel to be proposed shall be selected from the Team Roster.

The Contractor shall ensure that each Team member:

- is dedicated to the project during the contract period (unless otherwise agreed); and
- is not reassigned from the project without the prior written consent of the Commission.

The Contractor shall satisfy the following mandatory requirements when submitting the Proposal:

- An established pre-screening process to identify suitable staff.
- By naming a relevant successful project in the CV, provide reasonable evidence that the proposed Team is appropriately skilled and experienced to carry out the WO.

The Contractor shall satisfy the following mandatory requirements at the start and throughout the Contract:

- Familiarization with IDC's IT infrastructure and services is required and should be conducted right from the start as part of the first WO;
- Provision of training to address a gap in knowledge identified after a Team member has started their assignment, at no cost to the Commission, upon request by the Commission;
- Adding or replacing poor-performing Team members at no cost to the Commission upon request by the Commission.

The Commission shall be entitled to confirm whether or not the proposed Team is acceptable.

The Commission reserves the right to seek an immediate replacement for any Team member deemed unsuitable for the assigned tasks as determined by the Commission. If no suitable replacement can be provided by the Contractor, the Commission reserves the right to terminate the assignment of the unsuitable Team member with immediate effect. Continuity of personnel for the full implementation of this Contract is an important consideration. Therefore, the Contractor shall take necessary measures to ensure a seamless transition when taking over the Services and keep changes to personnel assigned to the Commission to a minimum throughout the duration of the Contract.

6.2 Contractor's requisites

The Contractor shall satisfy and prove the following mandatory requirements:

- a) The Contractor shall have a minimum experience of six (6) years of managing software of similar scope and complexity. A list of projects (with details) proving such experience should be provided.
- b) The Contractor shall have relevant experience with four or more (4+) (software) projects in scientific computing. A list of projects (with details) proving such experience should be provided.
- c) Confirmation that the staff turnover has been below 20% per year over the past three (3) years.
- d) Confirmation of a warranty period of two (2) years after the completion of the user acceptance testing. Terms and conditions of post-warranty support and bug fixes should be available and clearly specified.
- e) Confirmation that the Contractor adjusts the working hours of the assigned Team for a Sprint Meeting that overlaps at least two hours with the Commission's working hours (9 a.m. to 5 p.m. CET/CEST).
 - ✓ A monthly sprint meeting is foreseen, but this might change to any time frame as deemed necessary by the Commission.
- f) Confirmation that the Contractor will be able to provide support on 24/7 basis during critical situations.

6.3 Contractor's key personnel requisites

When selecting the Team, the Contractor shall ensure that the following minimum requirements are met by at least one (1) team member to provide the Software Engineering services related to the minimum requirements. The Contractor shall also ensure the continuity of having at least one (1) member meeting the following minimum requirements during the development (for example, when the original one (1) member needs to be replaced).

Said minimum requirements are:

- a) Advanced university degree in Computer Science or Mathematics, Physics, or a related scientific/ technical subject.
- b) A minimum of eight (8) years of relevant experience in providing services for the development of Unix and Linux-based client/server systems.
- c) A minimum of two (2) years in the last five (5) years of professional experience with one or more Agile frameworks, preferably Scrum.
- d) A minimum of two (2) years in the last five (5) years of practical experience with Git and GitLab.
- e) Excellent communication skills in English are essential.
- f) Relevant professional experience of five or more (5+) years in providing software maintenance and support services for complex and custom software systems in operational use (this includes troubleshooting and issue fixing). A list of software/projects proving such experience should be provided.

- g) Professional experience of five or more (5+) years in developing software to automatically process data in near-real-time. A list of software/projects proving such experience should be provided.
- h) Professional experience of five or more (5+) years (hands-on) with all elements of the software development lifecycle: eliciting and documenting business process flows, use cases, requirements, quality management plans, user acceptance testing, and end-user training.
- i) Professional experience of five or more (5+) years as a software developer with Fortran, Perl and Python. A list of software/projects proving such experience should be provided.
- j) Demonstrated experience of two or more (2+) years in software testing.
- k) Demonstrated experience of two or more (2+) years in using and building a CI/CD pipeline.
- l) Demonstrated knowledge with the data formats GRIB, NetCDF, JSON, and XML in at least one (1) project.
- m) Demonstrated experience with PyQt in at least one (1) project.
- n) *Advantage*: Demonstrated experience in programming languages SQL and C/C++ with at least one (1) project. The languages can be covered by different projects.
- o) *Advantage*: Demonstrated experience in developing and working on High-Performance Computers in at least one (1) project.
- p) *Advantage*: Demonstrated experience in scientific GPU computation in CUDA, OpenCL, or OpenACC in at least one (1) project.
- q) *Advantage*: Demonstrated experience with machine learning or deep learning in at least one (1) project.
- r) *Advantage*: Demonstrated experience in Atmospheric Transport Modelling (ATM) in at least one (1) project, preferably with the ATM model FLEXPART used at the CTBTO.

The Team proposed by the Contractor as a whole shall, as complementary as possible, fulfill the above minimum requirements (Team coverage of minimum requirements). The requirements marked as an "*advantage*" do not count as a minimum requirement and don't have to be fulfilled by a team member.