REQUEST FOR PROPOSAL

To: ALL BIDDERS

Contact Information:

CTBTO Ref. No.: 2021-0097/CHAUDHRY
(PLEASE QUOTE ON ALL COMMUNICATIONS)

Tel. No.: +43 (1) 26030-6350
E-mail: procurement@ctbto.org

Date: 23 Aug 21

Attn:
Phone: 
Fax: 
Email:

Subject: Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm in IDC

Deadline for Submission: 16 Sep 21 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 fax or email as soon as possible.

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

Yours Sincerely,

[Signature]

O.I.C.

Courtney Linley
Chief, Procurement Section
**ACKNOWLEDGEMENT FORM**

<table>
<thead>
<tr>
<th>Solicitation No:</th>
<th>2021-0097</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title:</td>
<td>Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm in IDC</td>
</tr>
<tr>
<td>Closing Date:</td>
<td>16 Sep 21</td>
</tr>
<tr>
<td>Vienna Local Time:</td>
<td>17:00</td>
</tr>
</tbody>
</table>

**Procurement Staff:** Zakariya Chaudhry  
**CTBTO Req. No.:** 0010018255

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**

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>By:</td>
<td>____________________________</td>
</tr>
<tr>
<td>(date)</td>
<td>____________________________</td>
</tr>
<tr>
<td>Contact Name:</td>
<td>____________________________</td>
</tr>
<tr>
<td>Email/Tel:</td>
<td>____________________________</td>
</tr>
</tbody>
</table>

**B: We may submit and will advise**

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>By:</td>
<td>____________________________</td>
</tr>
<tr>
<td>(date)</td>
<td>____________________________</td>
</tr>
<tr>
<td>Contact Name:</td>
<td>____________________________</td>
</tr>
<tr>
<td>Email/Tel:</td>
<td>____________________________</td>
</tr>
</tbody>
</table>

**C: We will not submit a proposal for the following reason(s)**

___ our current workload does not permit us to take on additional work at this time;
___ we do not have the required expertise for this specific project;
___ insufficient time to prepare a proper submission;
___ other (please specify) ____________________________

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>____________________________</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Name:</td>
<td>____________________________</td>
</tr>
<tr>
<td>Email/Tel:</td>
<td>____________________________</td>
</tr>
</tbody>
</table>
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 services and supply and delivery of equipment as described in the Terms of Reference.

The Proposal shall meet all requirements stated in the Terms of Reference. For this project, the Commission is seeking capabilities, which will ensure that the equipment are supplied and 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
(c) Attachment 1: Mandatory Table of Content and Format
(d) Attachment 2: Evaluation Methodology and Scoring Breakdown
(e) Attachment 3: Format of Financial Proposal
(f) List of CTBTO Member States
(g) Statement of Confirmation
(h) Vendor Profile Form
(i) The Commission’s Model Contract and its Annexes A – B;
   o The Commission’s General Conditions of Contract (Annex A)
   o 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.
5. **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 initialled by the authorized person(s) signing the Proposal.

The Proposal shall be submitted electronically according to the attached “PROCEDURE FOR SUBMISSION OF ELECTRONIC BIDS”.

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

6. **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 7 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 and should be sent to:

   E-mail: procurement@ctbto.org
   Subject: Request for Clarifications re RFP No. 2021-0097/CHAUDHRY

The Commission will make all reasonable efforts to issue the clarifications not later than 5 business days prior to the Closing Date.

Except in case of responding to a 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.

7. **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.

8. **Type of Contract and Payment**

The Commission intends to conclude a firm fixed price based on the attached Model Contract. The terms and conditions of payment for services are described in Clause 13 of the attached Model Contract.

9. **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.

Personnel
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.

Statement of Confirmation
The attached Statement of Confirmation shall be duly signed and submitted together with the Proposal.

Mandatory Requirements of the Technical Proposal
The Technical Proposal shall be written in accordance with the structure set out in Attachment 1 (“Mandatory Table of Content and Format”) attached hereto. Bidders shall provide all the information requested in this document but may provide additional related content as attachments. Where applicable, minimum requirements have also been referenced from the Terms of Reference for the convenience of the Bidder.

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.

The total amount of person-days/work-hours proposed for the project as part of the “turn-key solution” (on-site as well as off-site) and their respective estimated allocation to different work-phases shall be specified clearly in the proposal. In any case it shall be sole responsibility of the Contractor to fulfil and complete the scope of work as specified in these Terms of Reference regardless of the actual number of man-days dedicated to a specific task.

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

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. This shall include details of warranties/manufacturer’s guaranties in respect to any Equipment item.

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

Time Schedule
A bar chart indicating the estimation of the duration of the services, including the duration of each task required by the Terms of Reference and key staff to be involved in each task.
Qualifications
Documentary evidence of your 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
Curriculum vitae of key staff proposed for this contract, including technical experience to perform the Work.

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.

References
Potential bidders shall include a minimum of 3 client references with their offer.
If after reasonable efforts, the Commission is unable to contact the client references provided by the bidder, the Commission may take the decision not to further consider the offer provided by the bidder.

Model Contract
A statement that the bidder has carefully reviewed the Model Contract and its Annexes and is in agreement with all its terms and conditions.

Delivery Schedule
Delivery time shall be indicated in weeks after receipt of an order and shall be firm during the validity of the Proposal.

PART II: FINANCIAL PROPOSAL
In the financial Proposal, you are required to define the following:

Format of the Financial Proposal
1. The Financial Proposal shall be submitted in the format set out in Attachment 3 “Format of Financial Proposal” attached herewith. Bidders shall provide all the information requested in that matrix but may provide additional related content as attachments.

   This will be evaluated as part of the responsiveness of the Financial Proposal. A Proposal that fails to meet this requirement may be disqualified and not be considered for further evaluation.

2. The Bidder shall quote firm fixed person-day fees/rates in EURO or US Dollars. The quoted fees/rates should include all overheads and ancillary expenses, unless included as firm-fixed “Other Costs”, or otherwise stated in Attachment 3 “Format of Financial Proposal”.

Indirect Taxes

(1) 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.

(2) 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).

(3) 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.

(i) 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.

10. 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.

11. Validity of 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.

12. 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.

13. Evaluation of Proposal

(a) The Commission will first conduct a technical evaluation based on the following main evaluation criteria categories:

• Meeting the overall Requirements
• Requirements for the Contractor and for the Contractor's staff
• Capacity and Technical Expertise to deliver services listed in section 6 of the Terms of Reference

Please see Attachment 2 (Evaluation Methodology and Scoring Breakdown) for a complete list of the criteria that form the basis of the technical evaluation for each of the above listed categories. If the Proposal fails to meet the minimum technical requirements for any one criterion, the entire proposal will not be considered further. If the Proposal meets the minimum technical requirements, the Commission reserves the right to invite the proposed personnel to an interview in order to complete the technical evaluation of the Proposal and give a technical score.

(b) Only the Financial Proposals of those bidders that meet or exceed the minimum technical requirements of all items will be opened and evaluated for their commercial acceptability and to determine the financial score for each responsive Bidder. The Commission will evaluate the following:

(i) Proposed unit prices to obtain the financial value based on estimated person-days for the Call-off Period. See pricing requirements in Attachment 3 (Format of Financial Proposal).

(ii) Contractual compliance.

(c) The Commission, based on the evaluation method given above, will determine the Proposal that ‘most effectively satisfies the technical and operational requirements set out in the solicitation documents’. The relative weighting of each component of the Proposal is 60% for the Technical Proposal and 40% for the Financial Proposal.

(d) The Commission will award the Contract to the bidder who receives the highest combined score. The Commission, at its own discretion, may decide to split the award of the Contract among different bidders based on the received combined score.

14. **Negotiations of the Proposal and Award**

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.

15. **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.

16. **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.

17. **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.

18. **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.

<table>
<thead>
<tr>
<th>Use of former Preparatory Commission for the CTBTO (“Commission”) employees in the preparation of Proposals:</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 Proposal or the procurement process if the person:</td>
</tr>
<tr>
<td>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;</td>
</tr>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>
## BIDDER’S STATEMENT
PLEASE STATE BELOW & SUBMIT WITH PROPOSAL

<table>
<thead>
<tr>
<th>Delivery Time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shipping weight (kg) and Volume (m³) – if applicable:</td>
</tr>
<tr>
<td>List of recommended consumables and spares including prices and details on local availability, if applicable (please tick):</td>
</tr>
<tr>
<td>☐ For one year period    ☐ For a period of …………………………..</td>
</tr>
<tr>
<td>Warranty period applicable (it shall be for a <strong>minimum of 24 months</strong>, starting from the acceptance of the goods/services by the Commission) – please tick below:</td>
</tr>
<tr>
<td>☐ For a two year period    ☐ For a period of …………………………..</td>
</tr>
<tr>
<td>Availability of local service in Vienna, Austria (if any):</td>
</tr>
<tr>
<td>State country of origin or assembly of all items quoted:</td>
</tr>
<tr>
<td>Quantity discount and early payment discount (if any):</td>
</tr>
<tr>
<td>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.</td>
</tr>
<tr>
<td>Included in this quotation : Yes ☐ No ☐</td>
</tr>
<tr>
<td>Confirmation that the bidder has reviewed the Commission’s Model License Agreement (if attached), the Commission’s General Conditions for Goods (if attached), the Commission’s General Conditions of Contract (if attached), Draft Contract (if attached), and the Special Conditions (if attached), and agreed to all terms and conditions.</td>
</tr>
<tr>
<td>Yes ☐ No ☐</td>
</tr>
<tr>
<td>Remarks:</td>
</tr>
<tr>
<td>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).</td>
</tr>
<tr>
<td>Yes ☐ No ☐ Not applicable ☐</td>
</tr>
<tr>
<td>Remarks:</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Name &amp; Title of Contact Person:</td>
</tr>
<tr>
<td>Signature &amp; date:</td>
</tr>
</tbody>
</table>
PROCEDURE FOR SUBMISSION OF ELECTRONIC BIDS IN 2 SEALED FILES

Given the current logistics restrictions at the Vienna International Centre as a result of the COVID-19 situation, the Commission invites you to submit your sealed bids in response to Request for Proposal No. 2021-00097/CHAUDHRY: Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm in IDC.

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 technical bids and financial bids (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 Bid only (in accordance with the below instructions)!

Step 2: After the Commission has performed the evaluation of the Technical Bids, if your Technical Bid is considered to be acceptable, the Commission will request the encryption key (password) for the Financial Bid 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 bids will not be accepted.

INSTRUCTIONS:

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 )

In LINUX, you can use, for instance, ‘sha1sum’ on the command line.

Creating the archives for submission

Regardless of whether the bid 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 bid in the required format: assuming you are supplier “SOFTCOMP” and have the following files related to the bid for “RFP 2020-0010/EDWALD”. *(You will need to replace these elements with the real information for your actual bid.)* 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 bid component; the Financial 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 bid in question: the actual company indicator, and the actual RFP 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 bids.**
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 hasn’t 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.)
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).

Finally,

**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

1. Create a new email, Subject: example- “SOFTCOMP-2020-0010-EDWALD”. Add the two compressed archives, that is, the Technical Bid and the Financial Bid 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 Bid” the contents of which must contain the Encryption Key for the Technical Bid (the password you used when creating the Technical Bid). (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 Bid to the bid_keys@ctbto.org mailbox when sending your Technical and Financial Bids to the sealed_bids@ctbto.org mailbox. You shall only send the Encryption Key for the Financial Bid to the Commission if and when informed by the Commission that your Technical Bid had been evaluated as “technically acceptable”.
The Financial Bid 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 Bid”. If your Bid is not considered “technically acceptable”, the Commission will not request an Encryption Key for your Financial Proposal, 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 bids will not be accepted.
### Attachment 1

**Mandatory Table of Content and Format**


<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Executive Summary</td>
<td>• Provide an overview of proposal</td>
</tr>
<tr>
<td>2. Experience, Resources and Project Management</td>
<td></td>
</tr>
</tbody>
</table>
| 2.1 Corporate Profile and Values | • Background of company (or consortium), ownership, size, location, profile  
   • If a consortium, provide a clear explanation of the business relationship between the members and governance for execution of this project. Also discuss and show the relationship of any sub-contractors. |
| 2.2 Corporate Experience | • Experience in managing and executing work of similar scope and complexity. |
| 2.3 Project Management Team and Staffing | • Provide management structure and key personnel of the project. |
| 2.4 Availability of resources | • Please address in as much detail as reasonable what resources you deem necessary for the successful implementation of the project and when they will be made available during the intended project implementation, in terms of:  
   − key personnel;  
   − hardware;  
   − software;  
   − other resources. |
| 2.5 Quality Management Plan | • Provide a Quality Management Plan that describes how quality of services will be maintained throughout the Contract period.  
   • Include QA certifications and applicable references. |
<p>| 3. Meeting the Requirements |  |
| 3.1 Assumptions | • The bidder should detail key assumptions that impact the Technical Proposal. |</p>
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
</table>
| 3.2     | Understanding of the project  
  - The bidder’s response should demonstrate a good understanding of the project as described in the Terms of Reference and the additional software documentation, and describe in detail how the required tasks/services will be accomplished.  
  - The bidder’s response should describe in detail the expected inputs/resources to be made available by the Commission. |
| 3.3     | Solution Development  
  Please address in as much detail as reasonable:  
  - How you intend to address the tasks described in section 3 of the Terms of Reference;  
  - How will you ensure the validity of the proposed approach;  
  - Whether you have performed similar work before. |
| 4       | Skills and Experience of key staff  
  - Provide the resume of the proposed key personnel which describes in detail all qualifications and experience specified in section 5 of the Terms of Reference. |
| 5       | Attachments (as set out in section 9 of the Instructions for the Preparation and Submission of Proposals)  
  - Statement of Confirmation  
  - Vendor Profile Form  
  - Statement regarding Model Contract |
Attachment 2: Evaluation Methodology and Scoring Breakdown

Overview of the Evaluation Process

See next page for TABLE 1: EVALUATION MATRIX

Evaluation methodology: Bidders' technical proposal will be evaluated in two stages. First of all, they will be evaluated against the mandatory criterion listed in Table 1 “Technical Evaluation Matrix”. Only those proposals who passed such a criterion will be evaluated against the desirable criteria listed in Table 1, based on the scoring breakdown highlighted in Table 2 below.

Table 2: GUIDELINES for ASSIGNING NUMBER OF POINTS TO THE CRITERIA IN Table 1

NOTES:
1. Points will be awarded for the sole source proposal for each of the requirements in column 2 of Table 1 in accordance to Table 2 below. Please note that if the proposal is assigned less than 4 points for any criteria except criteria 13 it is considered that the proposal does not satisfy the minimum technical requirements for this requisition.

2. The total score for the proposal will be obtained by multiplying the points for each criterion with the respective weight given in Table 1. The maximum possible total score is 130.

3. If the total score of the proposal is lower than 52 (obtained from the Table 1 by assigning 4 points for each criterion multiplied by their respective weights), it is considered that the proposal does not satisfy the minimum technical requirements for this requisition.

<table>
<thead>
<tr>
<th>Points</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1</td>
<td>No compliance with requirements</td>
</tr>
<tr>
<td>2-3</td>
<td>Major discrepancies with requirements</td>
</tr>
<tr>
<td>4-6</td>
<td>Meets the criterion in most areas, but is lacking details and responsiveness in some areas of the criterion.</td>
</tr>
<tr>
<td>7-8</td>
<td>Meets requirements.</td>
</tr>
<tr>
<td>9-10</td>
<td>Exceeds requirements</td>
</tr>
</tbody>
</table>

Once the technical evaluation is completed, the Commission will open and evaluate the financial proposals of the technically compliant bidders based on the Best Value for Money formula as follows:

\[ X = \text{Max Available Score} \times \frac{Y}{Z} \]

Legend
\( X \) = score to be assigned to the offer being evaluated
\( Y \) = price of the lowest priced, technically compliant offer
\( Z \) = price of the offer being evaluated

The Contract will be awarded to the bidder who receives the highest combined score resulting from the technical and financial evaluation. The weight of the technical and commercial evaluation components is 60% and 40% respectively.
### Technical Evaluation Matrix

#### Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm at CTBT IDC

<table>
<thead>
<tr>
<th>Technical Evaluation Criteria</th>
<th>Points</th>
<th>X</th>
<th>JUSTIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mandatory criteria (if N no further evaluation)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Demonstrate access to and experience in executing various high-fidelity three-dimensional (3D) underwater acoustic signal propagation models that include horizontal diffraction, refraction and reflection.</td>
<td>Y/N</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>2. Demonstrate solutions to small-scale benchmark-type problems and ocean global-scale underwater scenarios using the proposed methodologies to solve the 3D underwater acoustic propagation problem including comparisons to computational results from alternative numerical or analytical models.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>3. Demonstrate capability of and experience in signal processing of underwater acoustic signals recorded on individual hydrophones or hydrophone arrays with the purpose of extracting features that characterize the signals.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>4. Demonstrate that the proposed use of methodologies and algorithms can provide operationally relevant results to fulfill the requirements for Tasks 1-5 in the ToR.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>30</td>
<td>30</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Three dimensional underwater acoustic propagation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. M.Sc. preferable Ph.D. in the field of ocean acoustics, geophysics, computer science or equivalent with strong computing background for the Contractor's key personnel associated to the project.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td>6. Team leader dedicated to the project has at least 10 years of experience in 3D underwater acoustic propagation modeling and signal processing providing products and services to the scientific community and operational entities.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td>7. The core activity of the Contractor's institution, laboratory, organization or company associated to the project is within the field of 3D underwater acoustic propagation modeling and signal processing, providing scientific and operational services and products to institutional customers (e.g., navies, government funding agencies, international organizations) and collaborative consortia (e.g., academic and research institutions).</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>30</td>
<td>45</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Onshore hybrid underwater acoustic modeling approach</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Expert knowledge in combining ocean acoustic signal propagation predictions in a hybrid constellation to achieve specific signal features.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>10</td>
<td>10</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Exploitation of 3D signal features</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The proposal addresses adequately the technical requirements for utilizing relevant 3D signal features for signal detection, localization, and interfacing such complex information in an operational context.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td>10. Expert knowledge in extending existing waveform processing algorithms for system performance enhancement.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>20</td>
<td>25</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Demonstration of system implementation and performance evaluation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Experience in collaborating with software and data processing engineers external to the Contractor to enhance operational data processing algorithms or other operational systems, and experience in the performance evaluation of numerical models and processing algorithms. Advantageous if the Contractor has prior experience with an international organization in similar kind of work.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>10</td>
<td>15</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Other criteria</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Good command of the English language.</td>
<td>10</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>10</td>
<td>5</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>TOTAL - Technical Evaluation</strong></td>
<td>110</td>
<td>130</td>
<td>0.0</td>
</tr>
</tbody>
</table>

#### Attachment 2: Table 1 - Technical Evaluation Matrix

<table>
<thead>
<tr>
<th>Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm at CTBT IDC</th>
<th>Points</th>
<th>X</th>
<th>JUSTIFICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mandatory criterion (if N no further evaluation)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Demonstrate access to and experience in executing various high-fidelity three-dimensional (3D) underwater acoustic signal propagation models that include horizontal diffraction, refraction and reflection.</td>
<td>Y/N</td>
<td>Y/N</td>
<td></td>
</tr>
<tr>
<td>2. Demonstrate solutions to small-scale benchmark-type problems and ocean global-scale underwater scenarios using the proposed methodologies to solve the 3D underwater acoustic propagation problem including comparisons to computational results from alternative numerical or analytical models.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>3. Demonstrate capability of and experience in signal processing of underwater acoustic signals recorded on individual hydrophones or hydrophone arrays with the purpose of extracting features that characterize the signals.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>4. Demonstrate that the proposed use of methodologies and algorithms can provide operationally relevant results to fulfill the requirements for Tasks 1-5 in the ToR.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>30</td>
<td>30</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Three dimensional underwater acoustic propagation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. M.Sc. preferable Ph.D. in the field of ocean acoustics, geophysics, computer science or equivalent with strong computing background for the Contractor's key personnel associated to the project.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td>6. Team leader dedicated to the project has at least 10 years of experience in 3D underwater acoustic propagation modeling and signal processing providing products and services to the scientific community and operational entities.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td>7. The core activity of the Contractor's institution, laboratory, organization or company associated to the project is within the field of 3D underwater acoustic propagation modeling and signal processing, providing scientific and operational services and products to institutional customers (e.g., navies, government funding agencies, international organizations) and collaborative consortia (e.g., academic and research institutions).</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>30</td>
<td>45</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Onshore hybrid underwater acoustic modeling approach</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Expert knowledge in combining ocean acoustic signal propagation predictions in a hybrid constellation to achieve specific signal features.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>10</td>
<td>10</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Exploitation of 3D signal features</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. The proposal addresses adequately the technical requirements for utilizing relevant 3D signal features for signal detection, identification and localization, and interfacing such complex information in an operational context.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td>10. Expert knowledge in extending existing waveform processing algorithms for system performance enhancement.</td>
<td>10</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>20</td>
<td>25</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Demonstration of system implementation and performance evaluation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Experience in collaborating with software and data processing engineers external to the Contractor to enhance operational data processing algorithms or other operational systems, and experience in the performance evaluation of numerical models and processing algorithms. Advantageous if the Contractor has prior experience with an international organization in similar kind of work.</td>
<td>10</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>10</td>
<td>15</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Other criteria</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Good command of the English language.</td>
<td>10</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td>10</td>
<td>5</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>TOTAL - Technical Evaluation</strong></td>
<td>110</td>
<td>130</td>
<td>0.0</td>
</tr>
</tbody>
</table>
### Fees

<table>
<thead>
<tr>
<th>Phase#</th>
<th>Task#</th>
<th>Staff category</th>
<th>Unit</th>
<th># of Units</th>
<th>Unit Rate</th>
<th>Total USD/Euro**</th>
</tr>
</thead>
</table>

Subtotal

### Travel

<table>
<thead>
<tr>
<th>Phase#</th>
<th>Task#</th>
<th>Type of Mtg</th>
<th>No. of staff travelling</th>
<th>Cost of Flight</th>
<th>No. of days</th>
<th>DSA</th>
<th>Total USD/Euro**</th>
</tr>
</thead>
</table>

Subtotal

Overall total

*) Please add lines/categories as appropriate.
**) Please specify.
### Fees*

<table>
<thead>
<tr>
<th>Task#</th>
<th>Unit</th>
<th># of Units**</th>
<th>Unit Rate***</th>
<th>Total USD/Euro**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Work Day</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Work Day</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Work Day</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Work Day</td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Work Day</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Work Day</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Work Day</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Work Day</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Work Day</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Work Day</td>
<td>7</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subtotal 246

### Cost of meetings in Vienna*

<table>
<thead>
<tr>
<th>Task#</th>
<th>No. of meetings (lasting 1 wd each)***</th>
<th>Cost of Transport per person****</th>
<th>DSA per person &amp; day****</th>
<th>Cost per meeting per person****</th>
<th>No. of staff attending ****</th>
<th>Total USD/Euro****</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>4</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subtotal

*) This is a unit-based Contract. The exact number of working days and meetings will be determined/called-off in the form of Work Orders.

**) These figures are best estimates only for the purpose of tender evaluation and are subject to change during contract performance.

***) The fee rate is firm and fixed. You may specify different unit rates for each task, however.

****) Please provide your best estimate for tender evaluation. The Commission will reimburse actual costs (section 5(b) ToR).
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

APPROACH FOR EXPLOITATION OF COMPUTED 3D GLOBAL-SCALE OCEANACOUSTIC SIGNAL FEATURES FOR IMPLEMENTATION IN THE HYDROACOUSTIC SIGNAL PROCESSING ALGORITHM IN IDC

This Contract comprises this cover page, a table of contents, 7 (seven) pages of text, a signatories page, a List of Annexes and 3 (three) Annexes (A to C)

[Month, year]
TABLE OF CONTENTS

[TO BE UPDATED ONCE SPECIFIC CONTRACT IS PREPARED]

1 DEFINITIONS ........................................................................................................................................ 24
2 AIM OF THE CONTRACT ......................................................................................................................... 2
3 ENTRY INTO FORCE AND DURATION OF THE CONTRACT ..................................................................... 2
4 COMMENCEMENT AND COMPLETION OF THE WORK ......................................................................... 2
5 STANDARD OF WORK ............................................................................................................................. 2
6 RESPONSIBILITIES OF THE CONTRACTOR ......................................................................................... 3
7 WARRANTY ............................................................................................................................................. 3
8 PERMITS, NOTICES, LAWS AND ORDINANCES ..................................................................................... 3
9 PROTECTION OF PERSONS AND PROPERTY ......................................................................................... 43
10 RESPONSIBILITIES OF THE COMMISSION ......................................................................................... 54
11 CONTRACT PRICE ................................................................................................................................... 54
12 PAYMENT ............................................................................................................................................... 5
13 TEMPORARY SUSPENSION OF WORK .................................................................................................... 68
14 DELAYS AND EXTENSION OF TIME ...................................................................................................... 68
15 CONTRACTOR’S CLAIMS AND REMEDIES ............................................................................................ 76
16 ENTIRE AGREEMENT ............................................................................................................................. 76
17 DISCREPANCIES ...................................................................................................................................... 76
18 SEVERABILITY ........................................................................................................................................ 76
19 NO WAIVER ............................................................................................................................................ 76
20 CONTRACT AMENDMENT ....................................................................................................................... 7
21 TRANSMISSION OF NOTICES AND OTHER DOCUMENTS ................................................................. 87
22 EFFECTIVENESS ................................................................................................................................... 8
23 SOFTWARE LICENCE .............................................................................................................................. ERROR! BOOKMARK NOT DEFINED
LIST OF ANNEXES .................................................................................................................................... 1110
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 __________________ (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 dated XXX.

“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 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.

“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.

2 AIM OF THE CONTRACT

The aim of this Contract is to provide services namely, ”Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm in IDC (hereinafter referred to as the “Services” or “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

(i) The Commission shall have the right, but not obligation, to call-off the Works in the form of WO within a period of 21 months from the Effective Date or the performance of a maximum of 246 (two hundred and forty-six) 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

(ii) The WO issued by the Commission shall be the basis for acceptance, invoicing and payment of any Work performed by the Contractor.

(iii) 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.

(iv) The Work shall be performed at the place and within the approved Work Plan specified in the relevant WO.

(v) The Commission may revise an WO as and when it may deem necessary.

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 Annex B.

(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.

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 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:

For each WO issued during the Call-off Period specified in Clause 4(i) above, a firm fixed daily rate pursuant to Annex C, plus, if applicable, the variable costs (travel costs and other expenditure), pursuant to Annex C, hereinafter referred to as the “Contract Price”.

(c) The 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 in 1 (one) original and 2 (two) copies or 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, facsimile number 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 Invoices and Related Enquiries:

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 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.
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, Position/Title

Date: ___________________                      Place: Vienna, Austria

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

________________________________________________________________________
Name, Position/Title

Date: ___________________                      Place: ________________
LIST OF ANNEXES [UPDATE AS APPLICABLE]

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 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. OFFICIAL 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 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 satisfactorily 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, the following clauses 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 transhipment 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 parts 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.

1 April 2016
ANNEX B

Terms of Reference

Procurement of “Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm at CTBT IDC”

Project: Approach for Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm at CTBT IDC

Table of Contents

SUMMARY 2

1 BACKGROUND 3

2 CURRENT STATUS AT CTBTO 5

3 SCOPE OF WORK 7

____ 3.1 Organization of work assignment 9
________ 3.1.1 Task 1: Determine prioritized and limited number of signal key features 9
________ 3.1.2 Task 2: Constellation of numerical model(s) 9
________ 3.1.3 Task 3: Development of methodology 10
________ 3.1.4 Task 4: Exploitation of computed 3D signal features 10
________ 3.1.5 Task 5: Demonstration of processing enhancement and reporting 10

____ 3.2 Meetings 11

____ 3.3 Output and Deliverables 11

____ 3.4 Other Provisions 12

4 WORK LOCATION 12

5 REQUIRED TECHNICAL SKILLS OF THE CONTRACTOR 12

6 REQUIREMENTS FOR THE CONTRACTOR 13
SUMMARY

These are the Terms of Reference for the “Exploitation of Computed 3D Global-Scale Ocean Acoustic Signal Features for Implementation in the Hydroacoustic Signal Processing Algorithm at CTBT IDC” Project (hereafter referred to as the “Project”), comprising the following elements:

- Determine key features in computed and observed underwater acoustic signals propagating in the 3D global-scale ocean that can significantly enhance signal detection, identification and localization. Prioritize and limit the number of the most important 3D signal key features in computed underwater acoustic signals propagating in complex underwater environment on a global ocean-basin scale. The key features must be chosen in agreement between the Commission and the Contractor.

- Decide and justify on the numerical modelling approach to achieve the 3D signal key features such as propagation path blockage, signal horizontal refraction/reflection/diffraction, travel time, direction of arrival and propagation loss (these features are named here as examples, the actual features determined during the course of the project may differ) i.e., determine whether a single underwater acoustic signal propagation model based on one approach to solve the propagation problem is sufficient or if a hybrid constellation of numerical models is necessary.

- Develop a methodology to sequentially or in parallel utilize the prioritized and limited number of the most important computed 3D signal key features to estimate the probability of detecting an event of interest in the IMS Hydroacoustic hydrophone stations’ data. The methodology must focus on providing information about 1) probability of detection at the CTBT IMS hydroacoustic stations based on the 3D propagation loss computations, ambient noise measurements/estimates at the CTBT IMS hydroacoustic stations and source strength estimates, 2) estimate signal travel time along identified propagation paths (including 3D refracted/reflected and diffracted paths) and 3) estimate horizontal direction of arrival along the paths (including 3D refracted/reflected and diffracted paths) indicated by propagation loss computations leading to high probability of detection.

- Develop an approach for the exploitation of computed 3D signal features to enhance signal detection, identification and localization compatible with the CTBT IDC automatic processing algorithm. A schematic of data flow through new procedures, tables and algorithms must document compatibility and possibility of integration in the CTBT IDC automatic processing algorithm. The compatibility and integration of the chosen 3D signal features and the CTBT IDC automatic processing must be ensured by close collaboration and in agreement between the Commission (including the CTBT IDC software maintenance contractors, the CTBT IDC Software Application Section, CTBT IDC Automatic Processing Systems Section) and the Contractor.

- Demonstrate by means of documented examples the enhancement of including 3D
signal features in the CTBT IDC automatic processing algorithm by thoroughly
analysing a selection of hydroacoustic events recorded at the CTBT IMS hydroacoustic
network and readily detected, identified and localized by the CTBT IDC automatic
processing algorithm and reviewed by human analysts. The selection of hydroacoustic
events and the procedure of demonstration is decided in agreement between the
Commission and Contractor.

- Reporting.

1 BACKGROUND

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

IDC supports the verification responsibilities of the Commission by providing data products
and services for effective global monitoring. 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 interactively analysed and reviewed by human analysts.
Near-real time data and data products/bulletins are distributed to the State Signatories.

The hydroacoustic (HA) network of the IMS comprises six hydrophone stations and five land-
based T-stations. The individual stations may include multiple sensors. The six hydrophone
stations are typically composed of two triplets of hydrophone moorings deployed to the North
and to the South of a remote island, except for Cape Leeuwin in Australia, which has only one
triplet to the West of the mainland. The three hydrophones of each triplet are deployed at the
corners of an equilateral triangle with 2000 m sides, located tens of kilometres from the island.
The mooring bases are typically deployed in 1500-2000 m deep water, and they are connected
to shore via electro-optical trunk cables.

Each hydrophone is suspended in the water column close to the axis of the Sound Fixing and
Ranging (SOFAR) channel and at a height of at least 400 m above the seafloor by a riser cable
attached to an anchor resting on the seabed. The riser cable is suspended vertically by a sub-
surface float. The three hydrophone depths are approximately the same within each triplet and
depend on the depth of the SOFAR channel at the station location. The hydrophones are
positioned at this depth because acoustic signals propagating in the SOFAR channel undergo
very low attenuation and can therefore be detected at very large distances from the source. This
configuration of the hydrophone stations ensures coverage of most of the world’s oceans with
relatively few stations.

T-stations use coastal seismometers to detect sound in the ocean as the underwater sound waves
interact with the coast and are converted to seismic vibrations in the crust upslope near the
coast. The seismometers are located close to the coast to minimise the attenuation of the sound
following a path from the ocean-crust boundary into the crust and to the point where it is
detected on the seismometer. The scope of these ToR is restricted to the HA hydrophone stations.

The sampling frequency of the signals recorded on the hydrophone stations is 250 Hz, and frequency dependent system response (amplitude and phase) curves are established by end-to-end calibration prior to the deployment. Therefore, calibrated waveforms (expressed in µPa) can be obtained from the hydrophone data.

The constellation of triplets with a horizontal separation of the hydrophones of approximately 2000 m provides the opportunity to estimate the direction of signal arrival by inter-phone cross correlation. Traditional coherent beamforming of the acquired waveforms is not possible because of the large separation of the hydrophones and the small number of hydrophones at each station.

The data recorded by the hydrophone stations are relayed via the GCI to the IDC where they are passed into an automatic signal processing algorithm. This algorithm detects arrivals on the basis of a short-time-averaged to a long-time-averaged ratio of amplitudes (STA/LTA), power or energy exceeding a prescribed threshold, and signal-to-noise ratio. Arrivals are described in terms of a series of “hydro features” such as onset and termination time, total signal energy, peak energy and time, frequency band distribution of the energy. These features are used to identify the arrival phase, i.e., to identify the nature of the source which generated the signal. Signal phases are identified as being T-phase (e.g., waterborne path from distant earthquake or other underground source), H-phase (signal from an in-water source), N-phase (noise) or P-phase (seismic primary phases).

Arrivals at each individual triplet of the hydrophone stations are grouped based on waveform characteristics indicating that the recorded signals originate from the same event. These groups of arrivals are then used to estimate direction of arrival by cross-correlating the signals on each hydrophone of the triplets using a progressive multi-channel cross correlator algorithm. Apparent horizontal wave speed (or equivalently slowness) is also estimated from the cross-correlation. Arrivals at separate stations are grouped and associated by the automatic processing system (global association algorithm) to identify signal origins in terms of origin location (latitude-longitude) and time.

Predicted travel times for underwater acoustic signals (both H- and T-phases) are used for event location and the associated uncertainties expressed as the error ellipse. These travel times vary with the spatially and temporally varying water-column sound-speed profile. Whether or not an associated hydroacoustic signal should contribute to an event location is determined during the global association procedure in the automatic processing system. Here, predicted hydroacoustic blockage maps are consulted, which provide information about clear or blocked propagation paths between an estimated event location, including the error ellipse, and the hydroacoustic station. Propagation path blockage appears at shallow underwater seamounts, ridges, islands and landmasses. The travel time tables and blockage maps are at present predicted by a simplified two-dimensional representation of the ocean assuming that the acoustic signal propagates along geodesic paths in a two-dimensional depth and range plane. In this scenario signal travel time, directions of arrival and transmission loss, including blockage, are only estimated for signals propagating in the vertical depth-range plane and ignoring possible contributions from oceanographic and bathymetric features in the horizontal plane that may cause three-dimensional lateral refraction, diffraction and reflection.

Improved utilization of the IMS hydroacoustic sensor network and reduction of analyst
workload can be obtained by applying results from enhanced numerical predictions of ocean global-scale underwater acoustic propagation. The field measures of interest in this context are the arrival time of signals propagating along multiple vertical and horizontal paths from an event (distant earthquake, in-water explosions, other identifiable signal classified as noise) to any of the CTBT IMS sensor stations, the direction of arrival of these signals and the signal amplitude expressed as transmission loss (or attenuation).

Three-dimensional underwater acoustic propagation computations have shown that refraction (or deflection) of propagation paths from horizontally varying sound-speed profiles in the water column and other oceanographic features such as eddies, and horizontal diffractions and reflections from landmasses and bathymetric features, can significantly affect the acoustic signal received at the hydroacoustic monitoring stations. Complex three-dimensional modelling efforts including sufficiently accurate underwater environmental information have explained measured multiple signal arrivals originating from the same event from different horizontal directions caused by refraction and diffraction, and detection of signals behind landmasses and bathymetric obstacles. Such signals are not taken into account by the simplified two-dimensional propagation models used to generate the blockage maps presently used by the CTBT IDC automatic processing system. Including three-dimensional propagation effects in the automatic processing system could possibly improve phase identification on hydrophone as well as T-stations, and decrease uncertainties in event localization, reducing the need for analyst evaluation of such signals.

In addition, the hydroacoustic transmission loss is not utilized in the automatic processing system to estimate expectations in received acoustic signal levels. The predicted transmission loss together with the continuously measured noise levels at each hydroacoustic station in the CTBT IMS sensor network could contribute to estimating the likelihood of detecting an event at a specific sensor location, and hence obtain more accurate estimations of the system’s coverage and sensitivity than is presently possible.

The production of such synthetic signal features from propagation in a three-dimensional spatial- and temporal varying underwater environment requires a modelling approach capable of predicting representative features of the hydroacoustic signal received at CTBT IMS hydrophone stations to estimate signal arrival time, the direction of arrival, propagation path blockage and transmission loss. Such modelling results are at presently not available at CTBTO.

2 CURRENT STATUS OF OCEAN ACOUSTIC SIGNAL PROPAGATION PREDICTION AT CTBTO

At present, the automatic processing algorithm at CTBTO performs event location with associated uncertainties on hydroacoustic signals recorded on hydrophone and T-stations only based on the simplified two-dimensional representation of the ocean. The current underwater acoustic propagation modelling capability at CTBTO is based on the range-dependent adiabatic and discrete normal-mode model KRAKEN, available in the original open-source state from the Acoustics Toolbox at oalib-acoustics.org. The implementation at CTBTO utilizes this modelling tool in simplified two-dimensional propagation scenarios to produce estimated signal arrival time and associated uncertainties by relatively narrow-band modal group velocity computations, and blockage information for all CTBT IMS hydroacoustic stations (hydrophones and T-stations).
Other two- and three-dimensional underwater acoustic prediction tools based on ray tracing (geometrical or Gaussian), solving the parabolic equation, fast-field programming, finite element, finite differences or hybrid combinations of these modelling approaches are available in the underwater acoustic research community at various readiness levels ranging from basic research tools to more production-type models. The majority of these prediction models can provide the complex frequency domain acoustic field as a function of depth in the ocean water column, spatial location of the sound source and receiver and acoustic frequency which is sufficient to construct the full waveform at any geographic location by Fourier synthesis. Depending on the chosen modelling tool and the approach adopted, the received time-domain waveforms can be provided directly by solving the propagation problem in the time domain, or by calculating the underwater acoustic impulse response convolved with a frequency band-limited source signal.

An important aspect to CTBTO is the availability of high-fidelity three-dimensional modelling results that include physical propagation effects from complex three-dimensional underwater environments which can be used by the automatic processing system. Development of three-dimensional underwater acoustic signal propagation models has been ongoing for several decades in the ocean acoustics community, typically by increased complexity of the mathematical formulation of the solution to the propagation problem in finely sampled spatio-temporal variations in underwater environment requiring efficient implementation in high-performance computing facilities. These models were often used to explain three-dimensional signal propagation effects observed in hydrophone recordings.

Ensuring that these sophisticated numerical models provide consistent results to the same propagation problem has not been demonstrated thoroughly until recently, where inter-model comparisons were performed for well defined canonical benchmark test cases of underwater propagation problems. In 2019, the Journal of the Acoustical Society of America published a special issue regarding three-dimensional underwater acoustic propagation modelling which includes such benchmarks of various models together with other related topics in three-dimensional underwater signal propagation modelling. Impressive agreements between underwater signal propagation models based of different algorithms were presented. Though, the test cases were not representative of global-scale signal propagation problems highly relevant for CTBTO.

Therefore, in 2019 CTBTO initiated a project (contract No. 2019-1691) with an external Contractor to assess the accuracy of high-fidelity candidate underwater signal propagation models applied to complex three-dimensional underwater environments relevant for CTBTO. A set of test cases were defined that included both canonical scenarios for short propagation distances and realistic scenarios based on high resolution oceanographic database information covering large ocean basin dimensions. In general, very good agreement between the models were obtained for the canonical scenarios showing that the applied models incorporate the correct physics for handling 3D underwater signal propagation. In the much more demanding realistic scenarios a qualitative agreement in the computation results was found between the applied models including reflection, refraction and diffraction of the acoustic signal at continents, underwater seamounts and islands.

Differences in the modelling results identified by the detailed assessment can be explained and corrections may be implemented if deemed necessary. In particular, the project concludes that the applied 3D propagation model based on ray tracing does not include diffraction sufficiently accurate to estimate signals diffracted around seamounts and islands. In addition, raytracing
models require many rays at a fine angular sampling to correctly estimate the acoustic signal at long propagation distances in the global-scale scenarios. Therefore, the computation time for ray tracing increases significantly for global-scale scenarios relevant to CTBTO. At low acoustic signal frequencies, the assumptions made in ray tracing models become inapplicable, with often poor solutions for signal amplitude in the propagation problem while signal arrival time can still be estimated from ray tracing models. Wave-based models like models solving the Parabolic Equation (PE) are accurate at low acoustic frequencies and include refraction, reflection and diffraction while remaining computationally efficient in complex 3D underwater environments. Estimating signal arrival time from PE model results can be more challenging (if practically possible at all) with today’s state-of-the-art computing facilities than for ray tracing model results. This invites for a proposal to use a hybrid modelling constellation to compute the relevant signal features for CTBTO.

It should be emphasized that the discretization and the often incomplete description of the underwater environment may by themselves introduce large differences in computation results from different numerical models. These differences can be of the same size as the differences associated with the algorithms imbedded in the individual models to solve the same 3D propagation problem.

In general, the various high-fidelity underwater signal propagation models cover a wide range of readiness levels for providing the necessary acoustic field results and possibility for integration into the CTBT IDC automatic processing algorithm. Some models with low readiness levels are considered only for scientific purposes to generate benchmark reference solutions to very specific and simple underwater environments. At the other end of the spectrum, high-fidelity models have already included optimized algorithms for efficient computations, efficiently linked to high-resolution oceanographic databases and optimized input and output data handling to produce operationally and timely relevant signal features. These models have a high readiness level and are expected to be suitable for integration into operational systems similar to the CTBT IDC automatic processing algorithm. The state of technical readiness level for one particular model has reached as far as nearing approval for integration into operations within a national navy establishment.

3 SCOPE OF WORK

The results from the antecedent project performed under contract No. 2019-1691 demonstrated the ready availability of high-fidelity and computationally efficient 3D numerical underwater acoustic signal propagation models that include the important 3D signal features needed to improve hydroacoustic signal processing at CTBTO. However, only few (if more than one) turn-key like tools, that incorporate and efficiently link high resolution oceanographic database information and high-fidelity 3D underwater acoustic signal propagation at ocean global scales, exist at high readiness level. One of such tools was applied in the antecedent project and is close to be approved for operational context in the maritime domain.

The Work under this present contract concerns the usage of 3D underwater acoustic signal features produced by efficient high-fidelity 3D underwater acoustic signal propagation models combined with high-resolution oceanographic database information (as demonstrated in the antecedent project) in the automatic processing of data recorded on all the CTBT IMS hydroacoustic stations to enhance signal detection, identification and localization.
The work shall be performed by the Contractor utilizing three-dimensional underwater acoustic propagation models in its possession to produce spatial and seasonal dependent signal feature tables such as travel time tables, transmission loss tables, direction of arrival tables and signal blockage maps. The actual number of signal feature tables, their content and data format used to store information in the tables has to be proposed by the Contractor and in agreement between the Commission and the Contractor. It is the responsibility of the Contractor to assess whether utilization of high-performance computing facilities is necessary to deliver the numerical results and to establish access to such facilities in case deemed necessary.

The Contractor must assist in determining how to utilize and implement the tables in the CTBT IDC automatic processing algorithm for hydroacoustic data.

In the future, the products of the Contractor may eventually be implemented in a version of the CTBT IDC automatic processing algorithm running offline but in parallel with the CTBT IDC operational automatic processing pipeline. This implementation is outside the scope of this project. However, the outlining of a roadmap for such an implementation has to be achieved during the course of the project and performed in an agile and in close collaboration between the Commission and the Contractor. The objective is to enable the Commission to efficiently prepare an offline version of the CTBT IDC operational automatic processing pipeline in the future.

The Commission requests results from the computations at compatible acoustic source-receiver geometries, acoustic frequencies and acoustic field quantities agreed upon between the Commission and the Contractor to incorporate the 3D signal features in the CTBT IDC automatic processing algorithm for a selection of CTBT IMS hydroacoustic stations. These computation scenarios may be modified as necessary upon agreement between the Commission and the Contractor. The Contractor shall provide a final document describing the modelling tool(s) applied and the procedure(s) followed to obtain the results. This document shall also include a detailed description of the data format and organization used in the 3D signal feature tables interfacing with the CTBT IDC automatic processing algorithm.

In addition, the results shall be provided by the Contractor in an agreed digital form readable by the Commission (MATLAB mat binary files, ASCII files, or a format convenient to or suggested by the Contractor on the condition that the Contractor provides a description of the data format and organization and provides routines to read these result files).

3.1 Organization of work assignment
A minimal nominal duration of the Project is 21 months to finalize the tasks in the assigned Work description starting on the date of signature of the contract shall be considered by the Contractor in preparation of the Response to the Proposal. The Contractor is invited to prepare an alternative duration and specify in detail the time required to complete the tasks in the Work description as part of the Response to the Proposal. If the Contractor considers that an alternative minimal nominal duration of the Project would be more advisable, this shall be submitted as a Contractor’s Alternate in the Response to the Proposal and is subject to approval by the Commission.

The work plan drafted by the Contractor in its Response to the Proposal shall include as minimum all tasks described below. Furthermore, if the Contractor considers that an alternative sequence of the tasks would be more advisable, this shall be submitted as a Contractor’s
Alternate in the Response to the Proposal.

### 3.1.1 Task 1: Determine prioritized and limited number of signal key features

**Purpose:**
Determine key features in computed and observed underwater acoustic signals propagating in the 3D global-scale ocean that are expected have most impact on enhanced signal detection, identification and localization relevant for all CTBT IMS hydroacoustic stations. The key features, for example (but not limited to) propagation path blockage, signal horizontal refraction/reflection/diffraction, travel time, direction of arrival and propagation loss, shall be chosen based on numerical simulations of underwater acoustic signal propagation in complex environments, observations in recorded underwater acoustic signals and in agreement between the Commission and the Contractor.

The environmental descriptions used in the computations will cover bulk density as well as sound speed and attenuation for compressional waves supported by fluid media. The environments will reflect realistic three-dimensional features obtained from high-resolution databases and/or available from measurements and must include spatial and temporal variations where appropriate.

Define a prioritized and limited number of the most important 3D signal key features in computed underwater acoustic signals propagating in complex underwater environment on a global ocean-basin scale. The key features must be obtained from a suitably chosen subset of the computed and observed underwater acoustic signals propagating in the 3D global-scale ocean that have most impact on enhanced signal detection, identification and localization. The key features must also be chosen in agreement between the Commission and the Contractor and may be changed as deemed appropriate during the course of the Project if sufficiently justified.

A written progress report is requested as conclusion for Task 1.

### 3.1.2 Task 2: Constellation of numerical model(s)

**Purpose:**
Decide and justify on the numerical modelling approach to achieve the 3D signal key features such as for example propagation path blockage, signal horizontal refraction/reflection/diffraction, travel time, direction of arrival, propagation loss, i.e., is a single underwater acoustic signal propagation model based on one approach to solve the propagation problem sufficient or is a hybrid scheme of numerical models necessary.

Digital data files shall be provided in a standard form such as ASCII or binary MATLAB mat files, including the modelled underwater acoustic data. The digital files have to be accompanied by a user’s manual describing the structure of the files, sources of environmental information used to generate the actual underwater acoustic data and the file contents including physical units.

A written progress report is requested as conclusion for Task 2.
3.1.3 Task 3: Development of methodology

Purpose: Develop a methodology to sequentially or in parallel utilize the prioritized and limited number of the most important computed 3D signal key features to estimate the probability of a signal originating a location dictated by observations. This methodology must focus on providing information about 1) probability of detection at the CTBT IMS hydroacoustic stations based on the 3D propagation loss computations, ambient noise measurements at the CTBT IMS hydroacoustic stations and source strength estimates(?), 2) estimate signal travel time and 3) direction of arrival along the path indicated by propagation loss computations leading to high probability of detection.

Digital data files shall be provided in a standard form such as ASCII or binary MATLAB mat files, including the modelled underwater acoustic data. The digital files have to be accompanied by a user’s-type manual describing the structure of the files, sources of environmental information used to generate the actual underwater acoustic data and the file contents including physical units.

A written progress report is requested as conclusion for Task 3.

3.1.4 Task 4: Approach for the exploitation of computed 3D signal features

Purpose: Develop an approach for the exploitation of computed 3D signal features to enhance signal detection, identification and localization compatible with the CTBT IDC automatic processing algorithm. A schematic of data flow through new procedures, tables and algorithms must document compatibility and integration in the CTBT IDC automatic processing algorithm. The compatibility and integration of the chosen 3D signal features and the CTBT IDC automatic processing must be ensured by close collaboration and in agreement between the Commission (including the CTBT IDC software maintenance contractors, the CTBT IDC Software Application Section, CTBT IDC Automatic Processing Systems Section) and the Contractor.

A written progress report is requested as conclusion for Task 4.

3.1.5 Task 5: Demonstration of processing enhancement and reporting

Purpose: Demonstrate by means of documented examples the enhancement of including 3D signal features in the CTBT IDC automatic processing algorithm by thoroughly analysing a selection of hydroacoustic events recorded at the CTBT IMS hydroacoustic network and readily detected, identified and localized by the CTBT IDC automatic processing algorithm and reviewed by human analysts. The selection of hydroacoustic events and the procedure of demonstration is decided in agreement between the Commission and Contractor.

Final reporting of the concept of utilizing computed 3D underwater acoustic signal key features to enhance detection, identification and localization of underwater events in the CTBT IDC automatic processing algorithm for hydroacoustic data. The report shall include a coherent summary of the findings.
from Tasks 1 to 5 and provide proposals on how to further implement and utilize the computed 3D signal features in the CTBT IDC automatic processing algorithm including the sequence of information transfer between algorithm sub-routines computations within the algorithm sub-routines to fulfil the objective of obtaining an enhanced event detection, identification and localization.

The final report as conclusion of Tasks 1-5 to the Commission shall be received three weeks before the project closure for the Commission to review and comment on the document.

3.2 Meetings
Kick-off meeting via teleconference shortly after the contract signature. The date and time to be agreed between the Contractor and the Commission.

Informal progress meetings via teleconference on a nominally weekly basis or on a schedule appropriate according to the status of the project during the course of the work to be agreed between the Contractor and the Commission.

Final project meeting via teleconference close to the time of conclusion of the project. The date and time to be agreed between the Contractor and the Commission.

Some meetings may be scheduled at the Commission’s premises in Vienna if required and if travel/access policies allow. To this effect, the Contractor shall include in its Response to the Proposal an Option for “Meeting in Vienna”, priced for travel, expenses and salary for one meeting in Vienna. It shall be possible for the Commission to exercise the Option for a “Meeting in Vienna” upon mutual agreement with the Contractor during the course of the Project, but not more than once per six calendar months.

3.3 Output and Deliverables
A progress report as conclusion of Task 1 describing the determination and justification of 3D signal features obtained from a suitably chosen subset of the computed and observed underwater acoustic signals propagating in the 3D global-scale ocean that have most impact on enhanced signal detection, identification and localization.

A progress report as conclusion of Task 2 describing the 3D numerical modelling approach to achieve the 3D signal key features such as propagation path blockage, signal horizontal refraction/reflection/diffraction, travel time, direction of arrival, propagation loss and as defined in Task 1.

A progress report as conclusion of Task 3 describing the development of a methodology to sequentially or in parallel utilize the prioritized and limited number of the most important computed 3D signal key features to estimate the probability of a signal originating a location dictated by observations.

A progress report as conclusion of Task 4 describing the exploitation of computed 3D signal features to enhance signal detection, identification and localization compatible with the CTBT IDC automatic processing algorithm.
A final report describing the concept of utilizing computed 3D underwater acoustic signal key features to enhance detection, identification and localization of in-water events in the CTBT IDC automatic processing algorithm for hydroacoustic data following the above outline of Tasks 1-5.

Digital data files produced during the research.

In addition to the deliverables mentioned above, publication of work performed under the contract tasks in peer-reviewed journals is encouraged as an indication that the work performed was to a high scientific standard. Any such publication shall be subject to the Commission’s review and approval.

3.4 Other Provisions

- The Contractor shall be required to submit a brief informal bi-weekly progress report by email, describing the status of the work, highlight results and any problems encountered.
- The Commission and the Contractor shall meet nominally once a week by video conferencing to discuss progress and issues raised during the course of the Project. The meeting frequency may be changed as appropriate in agreement between the Commission and the Contractor (see 3.2).
- All deliverable material, comments, meetings, presentations and other communications with the Commission shall be written or conducted in the English language.
- Deliverable documents shall be delivered in formats compatible with both Microsoft Word for Microsoft 365 MSO and Adobe Acrobat Reader DC continuous release version 2020.009.20063, unless otherwise specified.
- Final report shall be provided in draft to the Commission for review and comments three weeks before the final version is delivered.
- All materials may be submitted in electronic format, via e-mail and/or secure file transfer sites.
- As a general rule, the Schedule for provision of the deliverables (to be provided in the Statement of Work written by the Contractor in the Response to the Proposal) shall be followed, unless otherwise agreed with the Commission during the course of the activity.
- The Commission shall consider the work under the Contract as completed following acceptance of the final report and all the deliverables.

4 WORK LOCATION

The staff designated by the Contractor for this work assignment shall perform their tasks in their own premises.

5 REQUIRED TECHNICAL SKILLS OF THE CONTRACTOR

The Contractor shall ensure that the team leader dedicated to this project shall cover the following areas of expertise:
ANNEX B

a) Minimum Master of Science degree in hydro- and/or seismo-acoustics or in a related field.
b) 10 years of expertise after graduation in hydro- and/or seismo-acoustic propagation model predictions.
c) 10 years of expertise after graduation in advanced hydro- and/or seismo-acoustic signal processing.
d) Demonstrated knowledge of state-of-the-art numerical techniques to solve hydro- and seismo-acoustic wave propagation problems in complex varying fluid underwater environments.
e) Expert knowledge of realistic underwater environmental properties and their importance for hydro- and seismo-acoustic propagation modelling.
f) Track record of relevant scientific publications for key Contractor team members.
g) Good command of written and spoken English.

It would be an advantage if the Contractor already has experience in the architecture and programming language used in the present version of the CTBT IDC automatic processing algorithm for hydroacoustic data.

The Contractor shall submit with the Response to the Proposal a curriculum vitae of each key team member, including a list of applicable publications.

6 REQUIREMENTS FOR THE CONTRACTOR

In addition to the personal technical skills outlined in Section 5 above, it is expected that the Contractor responds to the following technical and financial requirements;

a) Demonstrated experience in underwater acoustics and seismo-acoustics.
b) Demonstrated experience in applying computational efficient three-dimensional underwater acoustic signal propagation models with efficient interfacing to high-resolution oceanographic databases to global-scale ocean propagation problems in operational contexts.
c) The Contractor must have access to the necessary hardware and software tools to perform the work. This includes access to suitable Computing facilities (e.g. High Performance Computer), and specific compilers and high-level software (commercial and/or open source)
d) The Contractor must have access to oceanographic database information relevant to the hydro- and seismo-acoustic propagation problems defined in this project.

7 RESOURCES PROVIDED BY THE COMMISSION

For designated Contractor Personnel, and to the extent necessary for the Contractor to fulfil the requirements of these Terms of Reference, when attending meetings approved by the Commission at the Commission’s premises (see section 3.2 and section 4), the Commission will provide:

a) Physical access to selected areas of the Vienna International Centre; however, strict conditions and limitations on access and use of any accessed code or documentation described above will apply as contained in the Contract. Access will be granted only
upon request and approval by the Commission.

b) The Commission will make relevant documentation available for the Contractor.

c) The Commission will, to the extent possible, make available high-quality hydro-acoustic signals received on the CTBT IMS hydrophone stations.

d) The Commission will, to the extent possible, provide detailed information about hydro-acoustic detection, identification, feature extraction, station and global signal association and localization algorithms used in the IDC automatic processing and transfer this information to the Contractor.

e) The Commission will, to the extent possible, provide detailed information about the hydro-acoustic stations installed by IMS.

f) The Commission will make qualified staff available to provide assistance and cooperate in responding to information requests from the Contractor in order to allow the Contractor to carry out the Work.

8 CTBTO POLICY FOR DATA ACCESS BY CONTRACTORS

The CTBTO PrepCom document CTBT/PC-13/1/Annex II (28 November 2000) defines the policy for provision of access to IMS data and IDC products to organizations contracted by the Provisional Technical Secretariat (PTS) of the Commission to do work for the PTS as follows:

1. “Each Contractor will access only those IMS data and IDC products necessary for fulfilling its task.

2. The IMS data and IDC products will be used only for research associated with the development of the IMS and IDC or for the purposes stated in the contracts.

3. Access provided to an organization for the purposes of fulfilling a contract will terminate when the contract is completed.

4. The restrictions placed on all users will not exclude the presentation of data or products (or information derived therefrom) for peer review at scientific meetings or in scientific journals and other scientific publications. The inclusion of IMS data and IDC products in scientific journals and other scientific publications will be limited to those required to reflect the scientific achievements.

5. The Contractor should not redistribute these data to third parties.

6. IDC bulletins that incorporate event screening criteria shall not be included.”

The access to IMS data and IDC products to the extent needed by the Contractor follows the procedures in the CTBTO PrepCom document CTBT/PC-14/1/Annex II/Appendix IV (11 May 2001):

1. “The IDC is the focal point within the PTS for distribution of IMS data and IDC products.

2. The IDC will give a scientific organization access to the IMS data and IDC products as stipulated in the contract or its amendments.

3. The access will be in accordance with the policy defined in policy paragraph above.

4. The IDC may, if appropriate, give the Contractor automatic access to IMS data and/or IDC products through the AutoDRM system. Access will be monitored to ensure that only those data and/or products that are agreed to be necessary for the particular contract work are accessed by the Contractor.
5. If access through the AutoDRM system is not given to a Contractor, access will instead be handled manually by the IDC to ensure that access is only given to the data and/or products as stipulated in the contract.

6. Only requests from the persons authorized in the contract to request IMS data and IDC products will be considered. The number of such persons will be limited to three persons per contract.

7. Technical assistance with accessing the data and products will only be given to the persons referred to in item 5 in this paragraph.

8. The Fusion, Review and Services Unit of the IDC Division will support access by Contractors.

9. The IDC will terminate the access when the contract is completed or terminated.”

9 CTBTO POLICY FOR PRESENTATIONS AND PUBLICATIONS

The CTBTO PrepCom document CTBT/PC-14/1/Annex II/Appendix IV defines the rules for publications and presentations of results of PTS Contractors as follows: “The Contractor will provide the PTS with a copy of any publication or presentation in advance. If the PTS does not raise any objections within five working days after the receipt by the PTS of the advance copy, the publication or presentation shall be considered as approved. While considering the request for publication or presentation, the PTS will verify that the publication or presentation is limited to the reflection of scientific achievements only. A disclaimer, stating that the PTS is not responsible for the views of the author, should be included in the publication or presentation.”
<table>
<thead>
<tr>
<th>CTBTO Member States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan</td>
</tr>
<tr>
<td>Albania</td>
</tr>
<tr>
<td>Algeria</td>
</tr>
<tr>
<td>Andorra</td>
</tr>
<tr>
<td>Angola</td>
</tr>
<tr>
<td>Antigua and Barbuda</td>
</tr>
<tr>
<td>Argentina</td>
</tr>
<tr>
<td>Armenia</td>
</tr>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>Austria</td>
</tr>
<tr>
<td>Azerbaijan</td>
</tr>
<tr>
<td>Bahamas</td>
</tr>
<tr>
<td>Bahrain</td>
</tr>
<tr>
<td>Bangladesh</td>
</tr>
<tr>
<td>Barbados</td>
</tr>
<tr>
<td>Belarus</td>
</tr>
<tr>
<td>Belgium</td>
</tr>
<tr>
<td>Belize</td>
</tr>
<tr>
<td>Benin</td>
</tr>
<tr>
<td>Bolivia (Plurinational State of)</td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
</tr>
<tr>
<td>Botswana</td>
</tr>
<tr>
<td>Brazil</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
</tr>
<tr>
<td>Bulgaria</td>
</tr>
<tr>
<td>Burkina Faso</td>
</tr>
<tr>
<td>Burundi</td>
</tr>
<tr>
<td>Cambodia</td>
</tr>
<tr>
<td>Cameroon</td>
</tr>
<tr>
<td>Canada</td>
</tr>
<tr>
<td>Cabo Verde</td>
</tr>
<tr>
<td>Central African</td>
</tr>
<tr>
<td>Republic</td>
</tr>
<tr>
<td>Chad</td>
</tr>
<tr>
<td>Chile</td>
</tr>
<tr>
<td>China</td>
</tr>
<tr>
<td>Colombia</td>
</tr>
<tr>
<td>Comoros</td>
</tr>
<tr>
<td>Congo</td>
</tr>
<tr>
<td>Cook Islands</td>
</tr>
<tr>
<td>Costa Rica</td>
</tr>
<tr>
<td>Cote d'Ivoire</td>
</tr>
<tr>
<td>Croatia</td>
</tr>
<tr>
<td>Cuba</td>
</tr>
<tr>
<td>Cyprus</td>
</tr>
<tr>
<td>Czech Republic</td>
</tr>
<tr>
<td>Democratic Republic of the Congo</td>
</tr>
<tr>
<td>Denmark</td>
</tr>
<tr>
<td>Djibouti</td>
</tr>
<tr>
<td>Dominican Republic</td>
</tr>
<tr>
<td>Ecuador</td>
</tr>
<tr>
<td>Egypt</td>
</tr>
<tr>
<td>El Salvador</td>
</tr>
<tr>
<td>Equatorial Guinea</td>
</tr>
<tr>
<td>Eritrea</td>
</tr>
<tr>
<td>Estonia</td>
</tr>
<tr>
<td>Eswatini</td>
</tr>
</tbody>
</table>
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.

Name (print): ________________________ Signature: ________________________

Title/Position: ________________________

Place (City and Country): ________________ Date: ________________________
### 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)  

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  
   - Sole Agent  
   - Supplier  
   - Other (please explain)  

13. Type of Business/Services/Work:  
   - Engineering  
   - Civil Work  
   - Governmental Institution  
   - Other (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 USS Equivalent:  
   Year:  

   Organization:  
   Value in USS 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.
17. List of Products/Services/Work offered:

<table>
<thead>
<tr>
<th>Product/Service/Work #</th>
<th>Product/Service/Work Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

18. This section shall be **signed and stamped** by an official legally authorized to enter into contracts on behalf of your organization:

<table>
<thead>
<tr>
<th>Name:</th>
<th>Title:</th>
<th>Signature:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bank Details**

- Bank Name:
- Bank Address:
- Exact Account Holder Name:

**Beneficiary Details**

- Beneficiary Name: (exactly as stated on bank statements)
- IBAN: (if applicable)
- Account number:
- SWIFT/BIC:
- ABA/Sort Code:

**Additional Details** (if applicable)

- Correspondent bank:
- Correspondent account number:
- Correspondent SWIFT/BIC:
- Tax Identification Number:

---

* 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.