Invitation to Bid

ItB26/03170

Additional Questions & Answers

Ref. no. **ItB26/03170** Date: **6 February 2026**

Subject: ITB26/03170: Strengthening the Air Quality Monitoring Infrastructure in the Republic of Moldova

Questions	Answers
Question 1: All Gas Analyzers ITEMS 18-19-20-21 With reference to the following tender documents: • Annex 1" Eequipment, services, and technical specification (Excel format), and • Annex 2 : Technical responsiveness table (Word format), It is noted that for all gas analyzers (CO, NOx, SO_2, and O_3), a calibration unit is mentioned, specifically: • For the ozone analyzer Calibration unit: Ozone generator controlled via RS232 interface, multiple ozone levels from 0 to 500 ppb, MFC-controlled gas flow 0–5 l/min. • For the NOx analyzer Calibration unit: Dilution unit for NO span gas (30 ppm) with integrated ozone generator for GPT, RS232 controlled, MFC-controlled zero air flow 0–5 l/min, MFC-controlled NO span gas flow 0–50 ml/min, gas cylinder approx. 30 ppm NO in N_2 including pressure reducer (full pressure: 150 bar, stability period: minimum 12 months, accuracy).	By the term "calibration unit", as used in the tender documentation, it is understanded the capability of each gas analyzer to be periodically calibrated and verified in accordance with the requirements of the applicable standards and with recognized best practices for the operation of automatic air quality monitoring stations. This requirement does not necessarily imply that the calibration unit must be a dedicated device physically integrated into, or individually included within, the scope of supply of each analyzer, provided that: • the analyzer is fully compatible with the use of an external calibration unit (e.g. ozonbe generator, dynamic dilution system, certified reference gas sources); • calibration and verification procedures can be performed without any structural modification of the equipment; • the proposed solution allows for automatic calibration, where applicable; • calibration can be carried out in compliance with the relevant

• For the CO analyzer Calibration unit: Dilution unit for CO span gas controlled via RS232, MFC-controlled zero air flow 0–5 l/min, MFC-controlled span gas flow 0–50 ml/min, gas cylinder CO approx. 80 ppm in synthetic air (full pressure: 150 bar, stability period: minimum 12 months, accuracy: ±2% maximum), pressure reducer. • For the SO_2 analyzer Calibration unit: Permeation system controlled via RS232 interface, temperature stability of the permeation oven < 0.1°C, span gas flow 0–5 l/min, MFC-controlled flow, SO_2 permeation tube approx. 250 ng/min at 50°C, with a minimum lifetime of 18 months. We kindly request clarification on what is meant by "calibration unit," specifically whether it refers to the possibility of the instrument being calibrated by an external calibration unit, which is not included in the scope of supply of the instrument and, therefore, not included in the individual instrument quotations. In this regard, we would like to highlight that the tender documentation requires two field calibrators and two ozone photometers in the "Complementary Devices" section, with specifically defined characteristics.	European standards (e.g. EN 14211 for NOx, EN 14212 for SO_2, EN 14625 for O_3, EN 14626 for CO).
Question 2: NOX ITEM 19 • The specification requires a certified analyzer according 15267:2024 and a min. range of 0-5ppb that means to supply a Trace level analyzer. Considering that no trace level analyzer on the worldwide market has a certification according 15267:2024 (there is no standard for trace level analyzer), please confirm that the certification above mentioned is required and a trace level	**Regarding certification in accordance with ISO / EN 15267** The requirement for certification in accordance with ISO/EN 15267 refers to the fact that the offered analyzer must be certified as an automatic analyzer for ambient air quality monitoring, in compliance with the applicable European standards (e.g. EN 14211 for NOx, EN 14625 for O_3, EN 14626 for CO, EN 14212 for SO_2). Bidding documents does not require the existence of a separate certification for a “trace-level analyzer” category, as such a category is not separately defined within the EN 15267 certification scheme.

analyzer should not be supplied. Furthermore, clarify the min range accepted (suggested 0-100 ppb to promote a competitive tendering to all the certified instruments). • If Trace level analyzer is required and the certification is no more needed, we highlight that all the market analyzers could not be equipped with an internal oven for zero-span verification using a permeation tube (due to the NO2 permeation tube technical limit). This option is only available for the certified version. Please confirm that permeation tube for zero span check is not needed if the trace level analyzer is required for the tender and clarify if the permeation tube is needed if a certified version of the analyzer is required. Based on the above, we kindly request clarification on: • whether the TL versions or the standard QAL1 certified versions should be proposed for Nox and SO2 Analyzers • regarding the span verification for the SO2 and NOX analyzers: is the use of a permeation tube or a cylinder required? In this regard, we note that the list of consumables includes calibration kits consisting of 3 calibration gas cylinders with valves (SO2 (1), NO (1), CO (1) of 10 l each), but permeation tubes are not mentioned, while the permeation tube is specified in the description of the instruments. We kindly ask you to clarify how you plan to carry out the zero and span checks for the instruments."	Therefore, the offered analyzer must be EN 15267 certified for the respective pollutant, and its measurement performance in the lower part of the measuring range (including the minimum limit) must be covered by the existing certification or demonstrated through the manufacturer's technical documentation. **Regarding the minimum measuring range** The minimum range indicated in the technical specifications represents a functional requirement related to the analyzer's capability to detect very low concentrations relevant for ambient air quality monitoring and for long-term trend assessment. This requirement is not intended to impose a distinct "trace-level analyzer," but rather to ensure that the offered analyzer is suitable for use in urban and rural background stations and complies with the sensitivity requirements set by European legislation and best practices. Bidders may propose certified analyzers that cover the requested range or that demonstrate, through technical specifications and performance reports, stable and repeatable measurement capability in the lower part of the range. **Regarding zero-point verification and the use of permeation tubes** Bidding documents does not impose a specific technical solution (e.g. internal oven or permeation tube) for zero-point verification. The requirement is that the proposed analyzer and calibration system allow for the verification and maintenance of zero-point stability, in accordance with the requirements of the applicable standards and with the operational procedures of automatic air quality monitoring networks. In this context: • the use of permeation tubes is accepted where technically

	applicable; • other equivalent technical solutions are also accepted, provided they ensure traceability, repeatability, and reliability of zero-point verification. The responsibility for demonstrating the compliance of the proposed solution lies with the bidder and shall be presented in the technical offer. **Regarding the method of zero-point verification** Zero-point verification may be carried out using: • internally or externally generated zero air; • catalytic scrubbers / chemical filters; • other equivalent methods accepted by the manufacturer and compliant with the applicable standards. The specific technical solution used for zero-point verification shall be proposed by the bidder and described in the technical offer, in compliance with the relevant European standards. **Regarding the method of span (calibration point) verification** Span verification shall normally be performed using certified reference gases supplied in calibration cylinders, either directly or through dilution systems, depending on the proposed configuration.
Question 3: SO2 ITEM 21 • The specification requires a certified analyzer according 15267:2024 and a min. range of 0-5ppb that means to supply a Trace level analyzer. Considering that no trace level analyzer on the worldwide market has a certification according 15267:2024 (there is no standard for trace level analyzer), please confirm that the certification above mentioned is required and a trace level	The certification requirement has been explained in detail under Question No. 2 and likewise refers to the fact that the offered SO_2 analyzer must be certified as an automatic analyzer for ambient air quality monitoring, in accordance with the applicable reference standard (EN 14212). The Contracting Authority does not require a separate certification for a distinct category referred to as a “trace-level analyzer,” as such a category is not defined within the EN 15267 certification scheme.

analyzer should not be supplied. Furthermore, clarify the min range accepted (suggested 0-50 ppb to promote a competitive tendering to all the certified instruments) • Please confirm that permeation tube for zero span check is needed.	Therefore, EN 15267 certification of the SO_2 analyzer is required, and measurement performance at low concentrations must be covered by the existing certification and/or demonstrated through the manufacturer's official technical documentation. **Regarding the minimum measuring range** The minimum range indicated in the technical specifications (0–5 ppb) represents a functional requirement related to the sensitivity of the analyzer, necessary for ambient air quality monitoring and for the assessment of low background concentrations. This requirement does not imply the obligation to supply a "trace-level analyzer" as a distinct type of equipment, but rather aims to ensure that the offered analyzer is fit for the monitoring purpose and complies with European best practices. The Contracting Authority does not amend the requested minimum range, as it is established based on the objectives of the monitoring network and is not intended to restrict competition. **Regarding the use of permeation tubes for zero-point verification** The Contracting Authority does not impose the mandatory use of permeation tubes for verifying the zero point of the SO_2 analyzer. The requirement is that the proposed technical solution allows for: • verification and maintenance of zero-point stability; • compliance with the requirements of applicable standards and operating procedures.
Question 4: Automatic Precipitation Sampler ITEM 25 For the automatic precipitation sampler, we request if is it possible to supply systems with funnel with diameter of 252 mm instead of 160 mm.	The Contracting Authority clarifies that the funnel diameter specified in the tender documentation (160 mm) represents a functional requirement, established to ensure: • compatibility with the sampling methodology used in the national network; • comparability of data over time and between stations;

	• compliance with applicable technical practices and recommendations for precipitation monitoring. The supply of systems equipped with funnels of different diameters (e.g., 250–520 mm) may be accepted provided that the bidder clearly demonstrates, through technical documentation, that: • the collection performance is at least equivalent; • the sampling method does not introduce systematic errors or significant differences compared to the requested configuration; • the proposed solution is compatible with the operating procedures and operational requirements of the Contracting Authority. The WMO Guide (WMO-No. 8 – Guide to Instruments and Methods of Observation) indicates that the orifice area is not critical for liquid precipitation, but it is recommended that, when solid precipitation (snow) is present, an area of at least 200 cm^2 should be used, and an area between 200 and 500 cm^2 is considered convenient and suitable for precipitation collection in the context of standard meteorological observations. This recommended area (200–500 cm^2) corresponds, for a circular funnel, to diameters of approximately ~16 cm to ~25.2 cm. In other words, the diameter of ~160 mm (16 cm) is at the lower limit of the WMO recommendation.
Question 5: Work Services To correctly price the scope and align responsibilities in our proposal, we kindly request to confirm or clarify the following points: **Permits and Approvals** We request to confirm that all costs, activities and procedures related to obtaining all necessary permits and approvals, including building permits and any required	**Permits and Approvals** According to the ITB, all permits and approvals required by national service providers, in accordance with national legislation (e.g., electricity and internet connections), are the responsibility of UNDP and the final Beneficiary. This includes all permits and approvals applied for at the national level. **Connection to electricity/utilities/telephone lines**

endorsements from relevant authorities/utilities, will be handled by the Beneficiary/Contracting Authority **Connection to electricity/utilities/telephone lines** We request to confirm that all activities and costs required to make available the electrical supply and any other utilities, such as telephone service (if required), at each monitoring site are excluded from the scope of supply and will be the responsibility of the Beneficiary/Contracting Authority **Scope of "Other, if applicable"** Could you kindly clarify what is included under the "Other, if applicable" section for the concrete platform scope? In order to provide an accurate price for this item, we need to understand which specific services are intended to be included, beyond the basic construction and installation works.	All activities and costs related to ensuring the availability of electrical power and any other utilities at each monitoring site including, where applicable, connections to electricity, data or telephone lines, are excluded from the scope of supply. The provision, connection, and readiness of such utilities shall be the sole responsibility of the Beneficiary / Contracting Authority, prior to and during installation, commissioning, and operation of the equipment. **Scope of "Other, if applicable"** The "Other, if applicable" line is intended for any additional works or services that could not be specifically identified at the time of drafting the ITB but are known to the Bidder as necessary to be implemented from their side.
Question 6: Data acquisition and management system "With reference to the communication methods between the various cabins and the central data control server, we would like to know if the communication method for each site has already been defined. The diagram on page 32 of the Invitation to Bid indicates several communication options, including TCP/IP, cellular, radio, and leased line. Could you kindly confirm the actual communication method planned for each site?"	The actual communication method for each site is not predefined and shall be confirmed following site surveys performed by the Contractor. Please note that broadband leased lines and 4G/5G communications are widely available across the territory of the Republic of Moldova (RM). For each site, broadband access shall be the preferred option; where broadband is not available, 4G/5G transport shall be used. The final Beneficiary shall be responsible for procuring and maintaining the required Network Operator contracts (e.g., leased line and/or mobile data subscriptions).
Question 7: Technical support This tender includes a warranty period of two years for the equipment and three years for the operating system and	**Preventive Maintenance**

server. Additionally, a technical support service is requested, for which limited information is provided. Regarding the technical support service, the Invitation to Bid states the following: Referring to: (Page 27 of the Invitation to Bid): "To ensure the operational continuity and sustainability of the air quality monitoring system, the scope of this procurement includes the provision of maintenance support over a two-year period through the procurement and delivery of complementary devices (e.g. field calibrator for SO_2, NO, CO, ozone photometer, flow meter, zero air generator), as well as the necessary consumables and spare parts, as further specified in this ITB." (Page 31 of the Invitation to Bid): "Technical support: The Contractor shall ensure the availability of a local or regional operational support centre to provide assistance to the Beneficiary, to ensure the proper functioning of the equipment." We request to confirm: • The preventive maintenance activities necessary to ensure the proper functioning of the equipment and to be carried out according to the instructions in the manuals will be performed by the Beneficiary's personnel • Does the requested support service refer exclusively to telephone support or on site support? • Do the timelines of 4 working hours and 1 working hour refer to telephone support or on-site support? • Are the response times specified related only to critical issues, or also to other types of technical support?	Routine preventive maintenance activities, necessary for the normal operation of the equipment and specified in the manufacturers' operation manuals (e.g., visual inspections, replacement of routine consumables, simple maintenance operations), will be performed by the beneficiary's personnel, provided that they have been properly trained by the contractor during the delivery and commissioning of the stations. The bidder shall provide technical support, upon request, for clarifications or situations that exceed routine maintenance. **Scope of Technical Support Service** The requested technical support service includes: • telephone and/or remote support (including remote access and videoconferencing); • on-site support, when the issue cannot be resolved through remote support. The specific mode of intervention (remote or on-site) will be determined based on the nature and complexity of the issue. **Response Times** The response times specified in the tender documentation (e.g., 1 working hour and 4 working hours) refer to: • the maximum initial reaction time from the moment the incident is officially reported by the beneficiary; • the initiation of the diagnostic and support process, primarily via telephone or remote assistance.

	These times do not represent the full repair time and do not automatically imply physical presence on-site within the specified period. **Types of Incidents Covered by Response Times** The specified response times primarily apply to critical incidents that affect system operation or the availability of monitoring data. For other technical support requests (e.g., consultancy, configuration adjustments, operational clarifications), intervention shall be provided within a reasonable timeframe, agreed upon by the parties, depending on the complexity of the request.
Question 8: Request for Extension of Tender Submission Deadline As a final clarification, given the complexity of the tender and the goal of submitting a comprehensive proposal in every aspect, both in terms of cost analysis to ensure a competitive offer and in terms of documentation preparation, we kindly request an extension of the submission deadline. 15 days extension is appreciated.	Kindly note that the submission deadline has been extended until 26 February 2026 at 16:30 (GMT+3) to allow bidders sufficient time to prepare their bids.
Question 9: Regarding the Financial Standing requirements stipulated in the bid documentation (ITB Section 7 Form F) and considering that the Bidder is a company registered in a foreign country, kindly clarify whether the submission of an audit report on financial information (Annual Turnover, Total Assets, Total Liabilities, Current Assets, Current Liabilities, Total/Gross Revenue, Profit Before Taxes, Net Profit, Current Ratio) together with the certified financial statements, would be considered compliant with the requirements of Financial Standing Chapter.	The ITB (Section 3, Article 55) requires international bidders to submit the *latest audited financial statements*, including the auditors' reports, for the past three (3) years. However, in cases where the bidder's national legislation does not require statutory audits, audited financial statements are not strictly mandatory. In such circumstances, the bidder should submit: • Financial statements signed and certified by the company's authorized accountant;

Please note that, in accordance with the country of registration legislation: - our company is not subject to mandatory statutory audit and therefore audited financial statements are not required - our historic financial statements and balance sheets (including all related notes, and income statements) are duly signed by a certified public accountant, in full compliance with national legal requirements.	• A written declaration confirming that statutory audits are not required under the bidder's national legislation; • Supporting evidence of the applicable national accounting rules, where available. UNDP reserves the right to request additional supporting documentation during the evaluation process. Accordingly, while audited financial statements are preferred, financial statements certified by an authorized internal accountant and supported by a clear justification will be accepted where audits are not legally required.
Question 10: Regarding the Previous Relevant Experience requirements stipulated in the bid documentation (ITB Section 7 Form F), kindly clarify whether the reference period for similar experience, currently specified as the last five (5) years, may be extended to the last eight (8) years, for the purpose of demonstrating relevant experience.	For the purpose of demonstrating previous relevant experience under ITB Section 7, Form F, bidders may consider extending the reference period for similar experience from the last five (5) years to the last eight (8) years.
Question 11: Regarding the "Precision" requirement for dust analyzers: In respect to the requested precision, we would like to highlight that the only relevant performance parameter for these analyzers is the uncertainty, defined by the QAL1/ Certificate of Product Conformity, according to EN15267, while the request precision is not quantified by any of the certifying bodies. Therefore, please replace the parameter "Precision" with the term "Uncertainty according to QAL1 test".	"Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability". As "precision" is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet.*
Question 12: Regarding the IP56 Requirement for the Monitoring Station Cabin: In reference to the technical specification requiring an IP56 protection rating for the monitoring station cabin, the	IP protection rating, in accordance with IEC 60529 / EN 60529, is directly applicable to the enclosures of electrical and electronic equipment and does not constitute a standardized classification for buildings, cabins, containers, or modular shelter-type technical

Contracting Authority would like to provide the following clarification and propose an amendment to ensure technical correctness and compliance with applicable standards. The Ingress Protection (IP) rating, as defined in IEC 60529 / EN 60529, is applicable exclusively to enclosures of electrical and electronic equipment. The standard does not apply to buildings, cabins, containers, shelters, or modular constructions, for which no standardized IP testing or certification procedure exists. Due to their size, construction type, and intended use, monitoring station cabins cannot be subject to IP certification, and there are no accredited laboratories capable of performing IP56 tests on such structures in accordance with IEC 60529. Therefore, the requirement for an IP56 certification of the cabin itself is technically inapplicable and may lead to unjustified restrictions of competition. However, the required protection against environmental influences (dust, rain, splashing water, and adverse weather conditions) shall be ensured through appropriate constructive solutions and compliance with relevant standards applicable to buildings and technical shelters, such as: standards for watertightness and air permeability of enclosures, structural resistance to wind, precipitation, and snow loads, corrosion protection of metallic components. In respect to the above, please confirm that a specific IP rating is not applicable to the equipment housing (shelter).	structures, which cannot be subject to IP certification in the strict regulatory sense. However, the requirement stated in the tender documentation, namely “IP56 for the station cabin,” is not intended to request a formal IP certification of the cabin structure as a whole, but rather to express the minimum equivalent level of functional protection required for the operation of the monitoring station under outdoor environmental conditions. In this context, the construction solution of the cabin/technical shelter is required to ensure: • effective protection against dust ingress; • protection against rain, water splashes, and adverse weather conditions; • adequate sealing for the operation of sensitive equipment; • structural resistance to wind, precipitation, and snow loads; • resistance to physical stress, intentional damage, and anti-theft protection; • corrosion protection of metallic elements. These requirements shall be demonstrated through a description of the construction solution, relevant technical documentation, and compliance with applicable standards for buildings and technical shelters (e.g. standards related to sealing, mechanical resistance, and durability). The requirement that the electrical and electronic equipment installed inside the cabin comply with the IP protection degrees stipulated by the applicable standards remains in force. Therefore, an IP56 certification of the cabin itself is not required, and the respective requirement shall be interpreted as an equivalent functional performance requirement, intended to ensure equipment protection and the reliable long-term operation of the station.

Question 13: Regarding the Automated online analyzer for volatile organic compounds (BTEX) – (benzene, toluene, ethylbenzene, and xylene), please clarify: Considering that the analyzer (GC) is placed inside the AQM station, in a temperature-controlled environment, please confirm that the operating temperature range is similar to all our other analyzer installed inside the analyzer's cabinet, respectively 5 – 40 °C.	Considering that the Automated online analyzer for volatile organic compounds (BTEX) – (benzene, toluene, ethylbenzene, and xylene) is located inside the station, the operating temperature is aligned with the one of other analyzers, respectively 5-40°C. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet/ Automated online analyzer for volatile organic compounds (BTEX) – (benzene, toluene, ethylbenzene, and xylene)/line 19.*
Question 14: Regarding Software functionalities, please clarify: *Digital communication components of the air quality monitoring system shall ensure interoperability with the Government of Moldova's national ICT infrastructure, in line with the standards and technical specifications provided by the eGovernance Agency. Please clarify:* 1. Could you please specify the exact standards, guidelines or technical specifications issued by the eGovernance Agency that apply to this requirement (documents, versions, URLs)? 2. Does interoperability refer to: • data exchange only, • system-to-system integration (APIs / services), or • full integration within a national e-Government platform? 3. Are there mandatory communication protocols or data formats required for interoperability (e.g. REST API, XML, JSON, CSV, MQTT, HTTPS, etc.)? 4. Are there specific cybersecurity, authentication or encryption requirements imposed by the national	1. At tender stage, the requirement shall be understood as compliance with the national e-Government interoperability and cybersecurity framework as issued and maintained by the eGovernance Agency. https://mconnect.gov.md/#/ All ICT related services and technology provided to Public Institutions of Republic of Moldova shall follow into the guidelines provided by eGovernance Agency. Please not that these guidelines just prescribe the approved method and shall be easily fulfilled by the potential Contractor. A complete list and references is available on eGovernance Agency website: https://egov.md/en Governance is ensured through LEGE Nr. 142 din 19-07-2018 cu privire la schimbul de date și interoperabiltate https://www.legis.md/cautare/getResults?doc_id=105501&lang=ro si HG Nr. 211din 03-04-2019 privind platforma de interoperabilitate (MConnect) https://www.legis.md/cautare/getResults?doc_id=113642&lang=ro The detailed, current technical specifications for onboarding, API patterns, security configuration, and any mandatory data models for MConnect/MCloud/MPass are centrally maintained and may be subject to access controls and updates. The Beneficiary shall facilitate access to the applicable and most current

ICT infrastructure (e.g. PKI, certificates, VPN, national identity services)? 5. Is the AQMS expected to connect: • directly to the national ICT infrastructure, or • through an intermediate system operated by the contracting authority?	documentation/credentials during the implementation phase, and the Contractor shall implement the integration accordingly. 2. Interoperability refers to data exchange with other governmental platforms. Please consult answer to item 1 above. 3. Communication protocol is defined by MConnect requirements. Please consult https://mconnect.gov.md/. Please consult answer to Item 1. 4&5. The solution shall support MConnect security and connectivity requirements, including secure transport over HTTPS with TLS 1.2 or higher and authentication mechanisms required by the platform (e.g., client certificates in X.509 format where applicable). Where required by the national infrastructure, the solution shall also support user authentication via the governmental authentication and access control service MPass. Please consult answer to Item 1.
Question 15*: The system shall support integration via the MConnect interoperability platform and data storage or hosting compatibility with the government cloud infrastructure MCloud, thus ensuring secure, standardized and scalable data exchange.* 1. Could you please clarify the expected level of integration with the MConnect interoperability platform: • data push/pull only, • use of standardized APIs, • or full-service registration within MConnect.	1. Integration means a use of agreed data exchange protocol between the consumer and provider. Please consult the provided reference to MConnect website. Please consult answer to Item 1/**Question 14.** 2. Yes, are available on MConnect website. Please consult answer to Item 1/**Question 14.** 3. Hosting compatibility with MCloud means that the application shall be able to use one the widely available virtualization techniques such as Virtual Machines, Containers, Kubernetes cluster.

2. Is technical documentation for MConnect APIs, data models and security mechanisms available and can it be shared? 3. Does “hosting compatibility with MCloud” mean: • mandatory hosting of the AQMS software within MCloud, or • the ability to deploy the system on MCloud if required, while allowing on-premise or third-party cloud hosting? 4. Are there specific cloud security, compliance or certification requirements (e.g. data residency, encryption, audit, accreditation) associated with MCloud? 5. Which party will be responsible for: • MConnect/MCloud access provisioning, • network connectivity, • and platform-side configuration (government or contractor)?	4. Hosting compatibility with MCloud means that the application shall be able to use one the widely available virtualization techniques such as Virtual Machines, Docker, Kubernetes cluster. 5. This lies in the area of responsibility of the Beneficiary and respective agreement with platform operator e.g. STISC. All the necessary support will be provided by the Beneficiary.
Question 16: Use time-series databases (TimescaleDB/InfluxDB) for raw and validated data The point 7 for the central software should be clarified as follows: 1. Is the requirement to use a specific time-series database technology (TimescaleDB / InfluxDB), or is it sufficient that the system uses a database architecture optimized for time-series data with equivalent performance and functionality?	It is sufficient that the solution uses a time-series optimized database architecture for raw and validated data with equivalent performance, retention handling, querying, and scalability. The specific product (TimescaleDB/InfluxDB) is not mandatory, provided the proposed technology meets or exceeds the required functionality and non-functional requirements.
Question 17: Data sources to be clarified Could you please clarify which data sources are expected to be included in the reporting scope:	The minimum reporting scope includes AQMS data (air quality measurements), station/device metadata, and QA/QC/validation status.

• AQMS data only (air quality measurements), • or also external data sources (meteorology, emissions, GIS, third-party systems)?	
Question 18: Provide BI capability for Custom Reports and Dashboards (PDF /HTML /XLSX /CSV). Could you please clarify what is meant by "BI capability": • built-in reporting and dashboards within the AQMS, or • integration with an external Business Intelligence platform?	The solution shall provide built-in reporting and dashboards within the AQMS and shall also support integration with external BI platforms via APIs/exports where required by the Beneficiary. At minimum, it shall support generating and exporting reports/dashboards in PDF/HTML/XLSX/CSV.
Question 19: Enable Daily/Monthly bulletins, data completeness dashboards. 1. Are daily/monthly bulletins expected to be: • predefined standard reports, or • fully customizable by end users? 2. Is there a specific definition or methodology for data completeness to be applied (e.g. EU AQMS practices, national rules)?	1. The system for acquisition, management, and reporting of data generated by automatic air quality monitoring stations shall enable the transmission, storage, validation, and visualization of data to the final beneficiary in a structured and user-friendly manner. The system is expected to include functionalities for generating reports and information bulletins at different time intervals (e.g. daily, monthly), as well as dashboards for real-time monitoring and for checking data completeness and data quality. The formats and types of reports are not rigidly prescribed by the procurement documentation. The proposed system shall include: • a set of predefined standard reports (e.g. daily and monthly reports on measured values, data availability and completeness, alerts/exceedances); and • the possibility for authorized users of the beneficiary to generate customized reports based on the collected data, using criteria such as time period, station, monitored parameter, and type of data aggregation. Data and reports shall be exportable in commonly used open formats widely applied in the field. The final structure and content of the information bulletins may be adapted by the beneficiary during the system implementation and configuration phase, in

	accordance with operational needs and national and European reporting requirements. 2. Within the framework of the present procedure, no single or rigid methodology is imposed for calculating the completeness of data generated by automatic air quality monitoring stations. "Data completeness" is understood, in general terms, as the proportion of valid data available in relation to the reference period, taking into account equipment uptime, maintenance periods, and data validation processes. The proposed system shall enable the assessment of data completeness in accordance with recognized European best practices, including, but not limited to, the principles applied under the EU air quality QA/QC system, as well as the methodologies used for reporting to the European Environment Agency (EEA). During the operational phase, the beneficiary may adopt and apply, as appropriate, internal procedures or national methodologies for evaluating data completeness, in line with applicable legislation and reporting obligations. The proposed system must be sufficiently flexible to allow configuration of such rules without requiring structural changes to the solution
Question 20: Deployment on premises, on a containerized environment (Docker/K8s), with possibility of cloud back-up. 1. Is deployment in a containerized environment mandatory, and if so, is Docker sufficient, or is Kubernetes explicitly required? Is the expected deployment architecture: • single on-premises server, • or a clustered environment (e.g. Kubernetes)?	1. The minimum deployment is single on-premises server meeting the hardware reference and performance requirements. A clustered/HA architecture (including Kubernetes) may be proposed. Containerization is preferred for portability and maintainability. Docker is sufficient to meet the minimum requirement and Kubernetes is not mandatory unless a clustered/high-availability architecture is required by the final deployment design.

2. Could you please clarify what is meant by "cloud back-up": • database backups only, • application and file backups, • or full system backups? 3. Should cloud backups be compatible with: • public cloud services, • the government cloud infrastructure (e.g. MCloud), • or any S3-compatible storage?	2. At minimum, "cloud back-up" includes database backups (raw and validated data). Preferably, it also includes backups of configuration, report/dashboard definitions, and relevant application files/object storage necessary for restoration. 3. Cloud backups shall be compatible with government cloud infrastructure. A specification or design will be decided in the final design and is dependent on the proposed solution architecture.
Question 21: Considering the bid deadline and the complex configuration of the bid package, while adding further the technical clarifications that need to be received in order to be able to elaborate the offer, we kindly ask you to extend the bid submission date.	Kindly note that the submission deadline has been extended until 26 February 2026 at 16:30 (GMT+3) to allow bidders sufficient time to prepare their bids.
Question 22: A rack of 19 is required in the AQMS configuration and the gas analyzers must have external calibration units. There are 5 and 6 analyzers that are mounted in the rack, in certain stations. We consider that at least 2 racks are required in these stations for the proper installation, functioning, operation and maintenance of the analyzers. 1. Is it allowed to use more than one rack in an AQMS? 2. If the answer is positive, please specify how we highlight this in the H form? 3. Can the quantity be changed at these positions?	1. Yes it is allowed to propose more that 1 rack if the proposed equipment does not fit into one rack. 2&3. In Form H: Price Schedule, please change the quantity for the respective line/position. Please make the respective explanation in your technical offer/Technical responsiveness Table.
Question 23: A continuous analyzer for PM10 and a continuous analyzer for PM2.5 are requested separately in each AQMS. There are two positions in the Form H, respectively Automatic analyzer for PM10 and Automatic analyzer for PM2.5. In general, analyzers for PM with	1. It is acceptable to offer a single EN 12341–certified particulate matter analyzer based on an in situ optical measurement principle, provided that it is capable of measuring both PM10 and PM2.5 fractions simultaneously

operating principle in situ optical method can ensure the measurement of both fractions (PM10 and PM2.5) with a single analyzer. 1. Is the offer of a single EN12341 certified analyzer for measuring PM10 and PM 2.5 accepted? 2. In the case of a positive answer, how do we highlight this in the H form?	and fully complies with all requirements set out in the Technical Specifications of the ITB documents. 2. In Form H: Price Schedule, only one line shall be completed for the PM analyzer. An explanation confirming that the proposed analyzer measures both PM10 and PM2.5 shall be provided in the Technical Responsiveness Table.
Question 24: The precision of analyzers for PM is required. In the certification tests for EN 12344 the accuracy, repeatability, linearity, zero deviation and span deviation are determined. These parameters are required for the certification of an analyzer as being in accordance with European standards. Please define what you mean by precision or which of the parameters in the certification tests can be equated.	"Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability". As "precision" is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet/ Automatic analyzer for PM10 and PM2,5/line 7.*
Question 25: Analyzers for PM are required to have Output: Serial interface RS-232/RS-485 and USB interface and/or Ethernet. The data output interface is used to transmit data to the local data storage device, data logger, in AQMS. Therefore, an output type that ensures communication with the data logger is sufficient. The RS-485 serial interface is used to transmit data over hundreds of meters. In the case of AQMS, the distance between the analyzer and the data logger is in the order of meters, so the RS232 interface is sufficient. 1. Is an analyzer accepted with one of the mentioned interfaces that ensures the transmission of measured values to the data-logger? 2. In the case of the R232/485 serial interface, are both types desired or one of them?	1. Yes. 2. In case of the RS232/485 serial interface, only one of them is needed.

Question 26: It is requested that analyzers for ozone, nitrogen oxides, Carbon monoxide and sulphur dioxide be in accordance with the 14627:2024 standard. Page 2 of 9 The European standard EN 14627 has the latest version approved on April 23, 2023, being found as EN 14627:2023. Depending on the date on which it was translated into different languages (countries) of the European community, versions of 2024 appeared but have the same provisions of the original standard differing only in the language, 2024 being the year of translation. Current certifications are issued in accordance with EN 14627:2023. Is it acceptable for gas analyzers to be certified in accordance with EN 15627:2023?	Latest EN standard in force for each pollutant should be followed.
Question 27: The precision of the Automatic analyzer for ozone (O3) analyzers is required. In the certification tests (EN 15267:2023) accuracy, repeatability, linearity, zero deviation and span deviation are determined. Their values are required to qualify an analyzer as being in accordance with European standards. Please define what you understand by precision or what quantity in the certification tests it can be equated**.**	"Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability". As "precision" is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet/Automatic analyzer for ozone (O3)/line 9*.
Question 28: The Automatic analyzer for ozone (O3) is required to have Output: Serial interface RS-232/RS-485 and USB interface, 1 Ethernet 10/100. The data output interface is used to transmit data to the local data storage device, data logger, in AQMS. Therefore, an output type that ensures communication with the data logger is sufficient.	1. Yes. 2. In case of the RS232/485 serial interface, only one of them is needed.

The RS-485 serial interface is used to transmit data over hundreds of meters. In the case of AQMS, the distance between the analyzer and the data logger is in the order of meters, so the RS232 interface is sufficient. Is an analyzer accepted with one of the mentioned interfaces that ensures the transmission of measured values to the data-logger? In the case of the R232/485 serial interface, are both types desired or one of them?	
Question 29: The Automatic analyzer for ozone (O3) is required to have optional selectable voltage, analogue voltage output …, at least one 4-20 mA current output. These outputs are used to transmit measured values to a data-logger, a technology developed at the beginning of electronic measurements. Modern analyzers are equipped with digital data transmission interfaces, serial interface, ethernet, which ensure the transmission of measured values and other information about the analyzer such as status, errors, etc. Is an analyzer equipped with one of these data transmission interfaces, namely analog output (e.g. 4 – 20 mA) or digital (serial interface or ethernet) for communication with the data logger accepted?	Digital interface for communications with the datalogger is accepted. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet/ Automatic analyzer for ozone (O3)/line 14.*
Question 30: The Automatic analyzer for ozone (O3) is required to have: − Zero / Span: Internal ozone generator, zero air cartridges (or other similar system) − Calibration unit: Ozone generator controlled via RS232 interface, multiple ozone levels from 0 to 500 ppb, MFC controlled gas flow 0 – 5 l/min	Each O3 analyser needs automatic zero and span checks for regular (daily) zero and span checks. This can be done by using internal or external system. Two field calibration units (photometers+ zero air generators) are needed for calibration and included in the ITB (please see section “Complementary devices”). Considering this, changes were made. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical**

Are two types of calibration desired for a single analyzer, namely internal calibration and calibration unit with MFC? We mention that the request for a calibration unit with MFC can only be fulfilled with an external calibration unit and to our knowledge there is no certified analyzer that has an internal calibration unit with MFC	**Specifications**/*Technical Specifications* sheet/ Automatic analyzer for ozone (O3)/line 20.
Question 31: The operating flow rate of the analyzer that we want to propose is below 1 l/min and does not require flows as high as those requested for calibration. Is it acceptable for the calibration unit flow rate to be less than 5 l/min but high enough to ensure the analyzer calibration (to ensure the analyzer operating flow rate)?	It is acceptable.
Question 32: The operation of the calibration unit with MFC implies that the zero air necessary to obtain the calibration concentration must be compressed (have a pressure higher than atmospheric) for the MFC to function properly. It is necessary to have a compressed air source in the AQMS. Does the offer have to include a compressed air source or is there an on-site source?	If the system you propose requires a compressed air source, please include it in Form H:Price Schedule/*Consumables and Spare Parts*, under the line **"Other (if needed)"**. The new line was included in the revised *Form H: Price Schedule/Consumables and Spare Parts* sheet under Amendment no.2.
Question 33*:* The Automatic analyzer for nitrogen oxides (NO, NO2, NOX) is required to have Ranges/Ranging: Min: 0-5 ppb full scale. The minimum range required is unusual and we are not aware of any EN 15267:2023 certified analyzer that meets the requirement. Is a minimum range of 0–100 ppb acceptable as the minimum range for this analyzer?	Minimum range of 1-100ppb is acceptable.
Question 34: The precision of the Automatic analyzer for nitrogen oxides (NO, NO2, NOX) is required. In the certification tests (EN 15267:2023) accuracy, repeatability, linearity, zero deviation and span deviation are determined.	"Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability".

These parameters are required for the certification of an analyzer as being in accordance with European standards. Please define what you mean by precision or which of the parameters in the certification tests can be equated**.**	As “precision” is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet/Automatic analyzer for nitrogen oxides (NO, NO2, NOX)/line 9.*
Question 35: The Automatic analyzer for nitrogen oxides (NO, NO2, NOX) is required to have Output: Serial interface RS-232/RS-485 and USB interface ,1 Ethernet 10/100. The data output interface is used to transmit data to the local data storage device, data-logger, in AQMS. Therefore, an output type that ensures communication with the data-logger is sufficient. The RS-485 serial interface is used to transmit data over hundreds of meters. In the case of AQMS, the distance between the analyzer and the data-logger is in the order of meters, so the RS232 interface is sufficient. 1. Is an analyzer accepted with one of the mentioned interfaces that ensures the transmission of measured values to the data-logger? 2. In the case of the R232/485 serial interface, are both types desired or one of them?	1. Yes. 2. In case of the RS232/485 serial interface, only one of them is needed.
Question 36: The Automatic analyzer for nitrogen oxides (NO, NO2, NOX) is required to have: − Zero / Span: Permeation oven, permeation tube, zero air cartridges (or other similar system) − Calibration unit: Dilution unit for NO span gas (30 ppm) with integrated ozone generator for GPT, RS232 controlled, MFC controlled zero air flow 0 – 5 l/min, MFC controlled NO span gas flow 0 – 50 ml/min, gas cylinder approx. 30 ppm	Yes. Each NO, NO2, NOx analyser needs automatic zero and span checks for regular (daily) zero and span checks. This can be done by using internal or external system. Two field calibration units (photometers+ zero air generators) are needed for calibration and included in the ITB (please see section “Complementary devices”). Considering this, changes were made. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical**

NO in N2 including pressure reducer (full pressure: 150 bar, stability period: minimum 12 months, accuracy. Are two types of calibration desired for a single analyzer, namely internal with permeation tube and with external MFC calibration unit, by dilution?	**Specifications**/*Technical Specifications sheet/ Automatic analyzer for nitrogen oxides (NO, NO2, NOX)/line 20.*
Question 36: We mention that the request for a calibration unit with MFC can only be fulfilled with an external calibration unit and to our knowledge there is no certified analyzer that has an internal calibration unit with MFC. The operating flow rate of the analyzer that we want to propose is below 1 l/min and does not require flow rates as high as that requested for calibration. Is it acceptable for the MFC zero and span air flow rates to be consistent with the flow rate required to calibrate the offered analyzer (to ensure the analyzer's operating flow rate)?	It is acceptable.
Question 37: The operation of the calibration unit with the MFC requires that the zero-air required to obtain the calibration concentration be compressed (have a pressure higher than atmospheric) for the MFC to function properly. A source of compressed air is required in the AQMS. 1. Should the offer include a source of compressed air or is there a source on site? 2. What is the volume of the span cylinder required?	1. If the system you propose requires a compressed air source, please include it in *Form H: Price Schedule/Consumables and Spare Parts*, under the line **"Other (if needed)".** The new line was included in the revised *Form H: Price Schedule/Consumables and Spare Parts* sheet under Amendment no.2. 2. Gas cylinders (10 litres) needed for calibration with field calibrators, and they are included in the **Annex 1: Equipment, Services and Technical Specifications/Consumables and spare parts.** Calibration gases are not needed in every station if the daily span checks are done with permeation oven.

Question 37: The Automatic analyzer for carbon monoxide (CO) is required to have Ranges/Ranging: Min: 0-1 ppm full scale, max: 0-1,000 ppm. The minimum range requested is unusual and we are not aware of any certified analyzer according to EN 15267:2023 that meets the request. 1. Is a minimum range of 0– 5 ppm acceptable as the minimum range? The requested maximum range of 1,000 ppm is unusual, and we are not aware of any analyzer certified according to EN 15267:2023 with such a range. It should be noted that a concentration above 400 ppm is a serious and life-threatening level, presenting an immediate danger of loss of consciousness or death. 2. Is a maximum range of 0– 300 ppm accepted as the max range?	1. It is accepted. 2. It is accepted.
Question 38: The accuracy of the Automatic analyzer for carbon monoxide (CO) is required. In the tests for obtaining EN 15267:2023 certifications, the accuracy, repeatability, linearity, zero deviation and span deviation are determined. These parameters are required for the certification of an analyzer as being in accordance with European standards. Please define what you mean by accuracy or which of the parameters in the certification tests can be equated.	We assume that this question is about "precision", not accuracy, as accuracy has not been mentioned in technical specifications. "Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability". As "precision" is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically **Annex 1: Equipment, Services and Technical Specifications**/*Technical Specifications sheet/Automatic analyzer for carbon monoxide (CO)/line 9.*
Question 39: The Automatic analyzer for carbon monoxide (CO) is required to have Output: Serial interface RS-232/RS-485 and USB interface, 1 Ethernet 10/100. The data output interface is used to transmit data to the local data storage device, data logger, in AQMS. Therefore,	1. Yes. 2. In case of the RS232/485 serial interface, only one of them is needed.

an output type that ensures communication with the data logger is sufficient. The RS-485 serial interface is used to transmit data over hundreds of meters. In the case of AQMS, the distance between the analyzer and the data logger is in the order of meters, so the RS232 interface is sufficient. 1. Is an analyzer accepted with one of the mentioned interfaces that ensures the transmission of measured values to the data-logger? 2. In the case of the R232/485 serial interface, are both types desired or one of them?	
Question 40: The Automatic analyzer for carbon monoxide (CO) is required to have optional selectable voltage, analogue voltage output …, at least one 4-20 mA current output. These outputs are used to transmit measured values to a data-logger, a technology developed at the beginning of electronic measurements. Modern analyzers are equipped with digital data transmission interfaces, serial interface, ethernet, which ensure the transmission of measured values and other information about the analyzer such as status, errors, etc. Is an analyzer equipped with one of these data transmission interfaces, namely analog output (e.g. 4 – 20 mA) or digital (serial interface or ethernet) for communication with the data-logger accepted?	Digital interface for communications with the datalogger is accepted. Analog voltage output is not necessary. Please see documents pertaining to Amendment no. 2, specifically **Annex 1_Equipment, Services and Technical Specifications**/*Technical Specifications sheet/ Automatic analyzer for carbon monoxide (CO)/line 14*
Question 41: Automatic analyzer for carbon monoxide (CO) is requested to have: – Span check: CO gas cylinder, internal zero filter / zero air cartridges (or other similar system).	1. Yes. Each CO analyzer needs automatic zero and span checks for regular (daily) zero and span checks. Two field calibration units (photometers+ zero air generators) are needed for calibration and included in the ITB (please see Annex 1/“Complementary devices” sheet). Considering

– Calibration unit: Dilution unit for CO span gas controlled via RS232, MFC controlled zero air flow 0 – 5 l/min, MFC controlled span gas flow 0 – 50 ml/min, gas cylinder CO approx. 80 ppm in synthetic air (full pressure: 150 bar, stability period: minimum 12 months, accuracy: ± 2 % maximum), pressure reducer. 1. Are two types of calibration desired for a single analyzer, namely calibration with cylinder + internal zero and with external MFC calibration unit, by dilution? We mention that the request for a calibration unit with MFC can only be fulfilled with an external calibration unit and to our knowledge there is no certified analyzer that has an internal calibration unit with MFC. The operating flow rate of the analyzer that we want to propose is below 3 l/min and does not require flow rates as high as that requested for calibration. 2. Is it acceptable for the MFC zero and span air flow rates to be consistent with the flow rate required to calibrate the offered analyzer (to ensure the analyzer's operating flow rate)? The operation of the calibration unit with the MFC requires that the zero-air required to obtain the calibration concentration be compressed (have a pressure higher than atmospheric) for the MFC to function properly. A source of compressed air is required in the AQMS. 3. Should the offer include a source of compressed air or is there a source on site? 4. What is the volume of the span cylinder required? 5. Is it acceptable for the span mixture to be CO in nitrogen?	this, changes were made. Please see documents pertaining to Amendment no. 2, specifically ***Annex 1: Equipment, Services and Technical Specifications****/Technical Specifications sheet/ Automatic analyzer for carbon monoxide (CO)/line 20.* 2. It is acceptable. 3. If the system you propose requires a compressed air source, please include it in Form H: Price Schedule/*Consumables and Spare Parts*, under the line **"Other (if needed)".** The new line was included in the revised *Form H: Price Schedule/Consumables and Spare Parts* sheet under Amendment no.2. 4. Gas cylinders (10 l) needed for calibration with field calibrators, and they are included in ***Annex 1: Equipment, Services and Technical Specifications****/Consumables and spare parts*. 5. In case the daily span check system offered includes the gas cylinder to every station with CO analyser, span mixture can include CO in nitrogen.

Question 42: The Automatic analyzer for Sulphur dioxide (SO2) is required to have Ranges/Ranging: Min: 0-5 ppb full scale. The minimum range requested is unusual and we are not aware of any 15627:2023 certified analyzer that meets the requirement. Is a minimum range of 0– 50 ppb acceptable as the minimum range?	It is acceptable
Question 43: The precision of the Automatic analyzer for Sulphur dioxide (SO2) is required. In the certification tests (EN 15267:2023) accuracy, repeatability, linearity, zero deviation and span deviation are determined. These parameters are required for the certification of an analyzer as being in accordance with European standards. Please define what you mean by precision or which of the parameters in the certification tests can be equated	"Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability". As "precision" is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically ***Annex 1_Equipment, Services and Technical Specifications****/Technical Specifications sheet/Automatic analyzer for sulphur dioxide (SO2)/line 7.*
Question 44: The Automatic analyzer for Sulphur dioxide (SO2) is required to have Output: Serial interface RS-232/RS-485 and USB interface, 1 Ethernet 10/100. The data output interface is used to transmit data to the local data storage device, data logger, in AQMS. Therefore, an output type that ensures communication with the data logger is sufficient. The RS-485 serial interface is used to transmit data over hundreds of meters. In the case of AQMS, the distance between the analyzer and the data logger is in the order of meters, so the RS232 interface is sufficient. 1. Is an analyzer accepted with one of the mentioned interfaces that ensures the transmission of measured values to the data-logger?	1. It is accepted. 2. In case of the RS232/485 serial interface, only one of them is needed.

2. In the case of the R232/485 serial interface, are both types desired or one of them?	
Question 45: The Automatic analyzer for Sulphur dioxide (SO2) is required to have optional selectable voltage, analogue voltage output …, at least one 4-20 mA current output. These outputs are used to transmit measured values to a data-logger, a technology developed at the beginning of electronic measurements. Modern analyzers are equipped with digital data transmission interfaces, serial interface, ethernet, which ensure the transmission of measured values and other information about the analyzer such as status, errors, etc. Is an analyzer equipped with one of these data transmission interfaces, namely analog output (e.g. 4 – 20 mA) or digital (serial interface or ethernet) for communication with the data logger accepted?	Digital interface for communications with the datalogger is accepted. Analog voltage output is not necessary. Please see documents pertaining to Amendment no. 2, specifically ***Annex 1_Equipment, Services and Technical Specifications****/Technical Specifications sheet/ Automatic analyzer for Sulphur dioxide (SO2)/line 12.*
Question 46: Automatic analyzer for Sulphur dioxide (SO2) is required to have: – Zero / Span: Permeation oven, permeation tube, zero air cartridges (or other similar system) – Calibration unit: Permeation system controlled via RS232 interface, temperature stability of permeation oven < 0.1°C, span gas flow 0 – 5 l/minute, MFC controlled flow, SO2 permeation tube approx. 250 ng/min at 50°C, lifetime of the permeation tube shall be at least 18 months. 1. Are two types of calibration desired for a single analyzer, one internal and one external MFC calibration unit? We mention that the request for a calibration unit with MFC can only be fulfilled with an external calibration unit and to	1. Each SO2 analyzer needs automatic zero and span checks for regular (daily) zero and span checks. Two field calibration units (photometers+ zero air generators) are needed for calibration and are included in the ITB (please see Annex 1/“Complementary devices” sheet). Considering this, changes were made. Please see documents pertaining to Amendment no. 2, specifically ***Annex 1: Equipment, Services and Technical Specifications****/Technical Specifications sheet/ Automatic analyzer for Sulphur dioxide (SO2)/line 18.* 2. It is acceptable. There is no source of compressed air on the site, thus if the system you propose requires a compressed air

our knowledge there is no certified analyzer that has an internal calibration unit with MFC. The operating flow rate of the analyzer that we want to propose is below 1 l/min and does not require flow rates as high as that requested for calibration. 2. Is it acceptable for the MFC zero and span air flow rates to be consistent with the flow rate required to calibrate the offered analyzer (to ensure the analyzer's operating flow rate)? The operation of the calibration unit with the MFC requires that the zero-air required to obtain the calibration concentration be compressed (have a pressure higher than atmospheric) for the MFC to function properly. A source of compressed air is required in the AQMS. 3. Should the offer include a source of compressed air or is there a source on site?	source, please include it in Form H_Price Schdule/*Consumables and Spare Parts*, under the line **"Other (if needed)"**. The new line was included in the revised *Form H: Price Schedule/Consumables and Spare Parts* sheet under Amendment no.2.
Question 47: For Mini meteorological stations, it is required that certain sensors, such as Wind direction sensor, Atmospheric Pressure Sensor, have different output and for other sensors, these Output are not required. Mini meteorological stations are a set of sensors that work as a unit, the mode of transmitting the measured values to the data-logger (output) being irrelevant for the proper functioning of it and for the user. Page 7 of 9 Is it acceptable for meteorological sensors to send the measured values and their status to the data-logger on any output (protocol) that can ensure this (analog, serial, Ethernet, etc.)?	For mini-meteorological stations installed within each air quality monitoring station, the ITB documents does not impose a specific hardware architecture, nor specific output types for each individual sensor. The essential requirement is that the proposed meteorological system ensures accurate, continuous, and reliable measurement of the requested parameters and their transmission to the data logger of the monitoring station. Integrated mini-meteorological stations, in which the sensors operate as a single unit and transmit data through a common output, are accepted. The proposed solution must be compatible with the beneficiary's monitoring system and must allow for normal operation, maintenance, and diagnostics of the meteorological sensors.

	The responsibility for demonstrating the compatibility and functionality of the proposed solution lies with the bidder and shall be described in the technical offer.
Question 48: It is requested for Mini meteorological stations − Logger: internal logger with UTC timestamps, export options in CSV/JSON. − Software functions: filtering (debounce), averaging (mean), derived calculations (wind gusts — peak 3s/10s), dew point calculation, wet-bulb, solar insolation (Wh/m²). − Data formats: CSV, JSON, XML. Includes ISO 8601 (UTC) timestamps and QC flags. − Physical interfaces: RS485, RS232, Ethernet, USB, Wi-Fi, LoRaWAN, NB-IoT (optional). − Mobile communication: GSM/4G/5G module for network transmission Mini meteorological stations will be an integral part of AQMS, the measured values and their status can be transmitted directly to the AQMS data-logger, on a data bus (digital or analog), which also ensures traceability of all measured data at a single time, this being the time of the data-logger. Is it acceptable for all these requests to be provided by the AQMS data-logger?	The mini-meteorological station is considered a subsystem and an integral part of the AQMS and is not required to function as an independent system for data acquisition and processing. Requirements related to time stamping (UTC), data formats, software functions (filtering, averaging, derived calculations, dew point, etc.), data export, and quality control mechanisms refer to the functionality of the AQMS as a whole. The values transmitted by the mini-meteorological stations to the AQMS data logger may be via digital or analog interfaces and must ensure correct time synchronization, data integrity, and traceability, and—most importantly—compatibility with the AQMS. Therefore, it is acceptable that all requirements related to time stamping, processing, validation, storage, and export of meteorological data are provided by the AQMS data logger rather than by the mini-meteorological station individually, provided that the requested functionality is fulfilled at system level. The responsibility for demonstrating compliance of the proposed solution lies with the bidder and shall be presented in the technical offer.
Question 49: The Field calibrator is requested to include Calibration of O3 (Production of ozone by UV-radiation including the ozone photometer) and at the same time an Ozone Photometer is requested. It seems like an overlap of requests. Is it acceptable for the Field calibrator to be delivered without Calibration of O3: Production of ozone by UV-	It is acceptable for the Field calibrator to be delivered without Calibration of O3. Ozone photometer was removed from Technical specifications for Field Calibrator. Please see documents pertaining to Amendment no. 2, specifically ***Annex 1_Equipment, Services and Technical Specifications****/Technical Specifications sheet/ Field calibrator/line 4.*

radiation including the ozone photometer, this function being fulfilled by the Ozone Photometer?	In the same time, the field calibrator must have ozone generator so that GPT (Gas Phase titration) can be made for NO, NO2, NOx analyzer.
Question 40: The precision of the Ozon Photometer is required. In the certification tests accuracy, repeatability, linearity, zero deviation and span deviation are determined. These parameters are required for the certification of an analyzer as being in accordance with European standards. Please define what you mean by precision or which of the parameters in the certification tests can be equated.	"Precision" describes how close repeated measurements are to each other, regardless of the true value. It is very close to "repeatability". As "precision" is not part of the certification test /report, it was excluded from the technical specifications. Please see documents pertaining to Amendment no. 2, specifically **Annex 1_Equipment, Services and Technical Specifications**/*Technical Specifications sheet/Ozon Photometer/line 3.*
Question 41: Zero air generator Dimensions are requested: Fit into a standard 19" rack. We understand that this equipment is a Complementary Devices that will be used in all AQMS and will be transported between them. This request is not relevant in this case, in our opinion. Zero air generator must include a compressor that ensures significant flow rates, which is achieved with a compressed air buffer cylinder that can hardly be accommodated in the dimensions of a 19" rack Is a Zero air generator that does not have 19" rack dimensions accepted?	A Zero air generator that does not have 19" rack dimensions is accepted.
Question 42: In an AQMS, there are several types of gas analyzers that require individual calibration units. The use of an external calibration unit containing multiple calibration lines for multiple analyzers saves space in the AQMS and reduces investment without compromising performance. 1. Is this type of calibration unit acceptable for zero and span calibration of gas analyzers?	1. Yes, if needed. 2. Yes. Please see the documents pertaining to Amendment no. 2, specifically ***Annex 1: Equipment, Services and Technical Specifications/****Consumable and spare parts sheet***/lines 17,18,19** and ***Form H: Price schedule/Consumables and spare parts*.**

2. If so, are span mixture cylinders, for example NO and CO in nitrogen, acceptable?	
Question 43: Analyzers for Ozone, Nitrogen Oxides, Carbon Monoxide, Sulphur Dioxide and BTX must analyze air samples from outside the AQMS. To achieve this objective, the AQMS should be equipped with air sampling lines from outside the AQMS, which provide a sample flow rate greater than the sum of the AQMS analyzer flows. The unused sample surplus is discharged to the bottom of the AQMS. This sampling line should be equipped with a fan to provide the flow rate and a sensor to attest to the presence of the flow. I did not find a request for this in the documentation. 1. Is it necessary to include this sampling line in the offer? 2. If the answer is positive, how will this be highlighted in Form H?	1. The sampling line(s) is/are necessary, but it is up to the bidder to decide if flow through sampling probe is used, or separate sampling lines for each analyzer. Please see documents pertaining to Amendment no. 2, specifically ***Annex 1: Equipment, Services and Technical Specifications/****Consumable and spare parts sheet/*line 27. 2. Please see documents pertaining to Amendment no. 2, specifically ***Form H: Price schedule/Consumables and spare parts.***
Question 44: For Analyzers and equipment that are located inside the AQMS, different temperature ranges are required for operation. Example: – Automatic analyzer for PM10 and PM2.5 - Operating temperature: 0 – 50 °C – Automatic analyzer for nitrogen oxides (NO, NO2, NOX) - Operating temperature: 5 – 40 °C, etc We believe that there should be a single temperature range for the operation of equipment installed in AQMS. Please define the operating temperature range of the analyzers and equipment that are installed in the AQMS, if you agree with our statement?	Operating temperature for Automatic analyzer for PM10 and PM2.5 was changed to "5 – 40 °C". Please see see documents pertaining to Amendment no. 2, specifically ***Annex 1: Equipment, Services and Technical Specifications/Technical specification sheet/*** *Automatic analyzer for PM10 and PM2,5/line 10.*

Question 45: For Analyzers and equipment located outside the AQMS, different operating temperature ranges are required – Equipment housing - For equipment situated outside the air-conditioned shelter, the operating temperature may vary between -20°C and +50°C, – Wind direction sensor (equipment located outside the AQMS) Operating temperature: -40 … +60 °C. We believe that for the unity of requirements, the AQMS as a whole and all measuring equipment located outside the AQMS should meet a single operating temperature range in accordance with the meteorological conditions specific to the Republic of Moldova. This temperature range should also be the temperature range of the samples to be analyzed. What is this operating temperature range for the AQMS as a whole and the equipment installed outside the AQMS, if you agree with our statement?	Operating temperature for Mini-Meteorological Station was changed to "-20… +60 °C". Please see see documents pertaining to Amendment no. 2, specifically ***Annex 1_Equipment, Services and Technical Specifications/Technical specification sheet/ Mini meteorological stations that measure wind direction, wind speed, temperature, atmospheric pressure, air humidity and solar radiation intensity)/ Air temperature sensor/line 20.***
Question 46: According to our information, the characteristics of single-phase electricity supplied in the Republic of Moldova are voltage 230 V frequency 50 Hz. Under these conditions, all electrical equipment offered should meet this requirement as a minimum requirement. Is it accepted as a minimum requirement for electrical equipment to operate with a power supply of 230 V and voltage 50 Hz?	The requirement for a 230 V, 50 Hz, single-phase power supply refers to the external power supply of the air quality monitoring station and the associated equipment, in accordance with the characteristics of the electricity grid in the Republic of Moldova. However, the equipment offered must be compatible with a 230 V / 50 Hz power supply at the system input, either directly or through internal power supplies, converters, transformers, or other integrated technical solutions provided by the manufacturer. The ITB documents does not impose requirements regarding the internal operating voltages or currents of the equipment (e.g. 12 V, 24 V, 48 V DC, etc.), as these are part of the manufacturer's design solution. Details related to internal operating voltages are therefore

	not subject to the restrictions imposed by the tender documentation. The responsibility for ensuring electrical compatibility lies with the bidder.
Question 47: Indoor temperature notification sensors and Power disconnection notification sensors are requested which have the same technical characteristics. The technical characteristics required to be met are for Indoor temperature notification sensors. Are two devices desired which have the same specification?	Please see see documents pertaining to Amendment no. 2, specifically ***Annex 1_Equipment, Services and Technical Specifications/Technical specification sheet/ Power disconnection notification sensor.***
Question 48: We have not found the AQMS communication mode with the central data collection server. Is it necessary to include hardware for this communication in the offer, such as a 4G router?	The actual communication method for each site is not predefined and shall be confirmed following site surveys performed by the Contractor. Please note that broadband leased lines and 4G/5G communications are widely available across the territory of the Republic of Moldova (RM). For each site, broadband access shall be the preferred option; where broadband is not available, 4G/5G transport shall be used. It will be the Contractor decision to use an edge device that is capable of both broadband and 4G/5G connectivity or a separate 4G/5G terminal. The Beneficiary shall be responsible for procuring and maintaining the required Network Operator contracts (e.g., leased line and/or mobile data subscriptions).
Question 49: The Automatic analyzer for ozone (O3) is required to have Compensation: Automatic energy, temperature, and pressure compensation What do you understand by Compensation: Automatic energy?	Automatic Energy Compensation for ozone analyser: Features a smart control circuit that keeps the UV lamp's intensity stable over its lifetime, preventing drift, or uses a second detector to correct lamp decay. This is not necessary. Automatic compensation for Pressure and temperature is must have.

Question 50: Regarding the "Automatic analyzer for PM10 and PM2,5" and your answers to Question no. 33 from the "Minutes of Pre-Bid Meeting", we kindly ask you to additionally clarify: 1. Clarify if semi-simultaneous, alternating PM10 and PM2.5 measurement, is also acceptable, if type approved (EN 16450), or only the simultaneous measurement of PM10 and PM2.5 is acceptable? 2. Clarify if 0 – 50 deg C temperature operation range required should be understood as an type approved temperature operation range as indicated in the type approval of the instrument (EN 16450)? 3. Clarify the request for "Environmental parameter: Ambient humidity: 0-90% RH, noncondensing Ambient temperature: -30 to +50°C", which is not required and not present as a specification for any other analyzer installed inside the equipment housing/cabin. Will the analyzer for PM10 and PM2.5 placed outside? Moreover, taking in consideration your comment from Question no. 52 to the "Minutes of Pre-Bid Meeting" – "Considering that winters in Moldova are relatively mild and that the sampler is maintained periodically in accordance with the manufacturer's instructions, the equipment has proven to remain fully operational over extended periods. Accordingly, the concern regarding operation at – 25°C does not apply under the local conditions." please confirm that the ambient temperature of -20 to +50°C is considered sufficient also for the analyzer for PM10 and PM2.5.	1. Both simultaneous measurement and alternating (semi-simultaneous) measurement of PM10 and PM2.5 fractions are acceptable, provided that: - the analyzer is type-approved in accordance with EN 16450 (or an applicable equivalent European standard); - the measurement method ensures data representativeness and comparability, in line with EU legislative requirements and WMO / AQD practices - Therefore, exclusive simultaneous measurement is not required, as long as the equipment is certified in accordance with EN 16450 and meets the relevant performance requirements. The operating temperature range of 0…+50 °C shall be understood as the type-approved operating range of the instrument, as specified in the certification documentation and in the type approval in accordance with EN 16450 (or an equivalent standard). The ITB documents does not require any additional conditions beyond those provided for in the analyzer's type certification. 2. The PM10 and PM2.5 analyzer is installed inside the monitoring station cabin, in a protected and ventilated space designed for the operation of analytical equipment. The indicated environmental parameters (humidity 0–90% RH, non-condensing; temperature −30…+50 °C) represent general requirements for the environmental conditions of the cabin and do not constitute additional mandatory requirements specific exclusively to the PM analyzer. Taking into account the climatic conditions of the Republic of Moldova, as well as the fact that the equipment is

	periodically maintained in accordance with the manufacturer's instructions, an ambient temperature range of −20…+50 °C is considered sufficient and acceptable for the PM10 and PM2.5 analyzer. The PM analyzer is not required to be installed outdoors, and no more restrictive requirements are imposed than those provided for in the type-approval documentation.
Question 51: Regarding the "Automatic analyzer sampler for gaseous-phase mercury" and the answer to Question no. 35 – "The Beneficiary does not impose a specific technology for the measurement of gaseous-phase mercury, and automatic analyzers using any measurement technology are accepted, provided that the technology is compliant with technical requirements established by the ITB.", please note that the technical specifications do in fact impose a specific technology in the Annex no. 1 – "Operation Principle: Online could vapor atomic fluorescence spectrometer (CVAFS) with gold trap preconcentration (EN 15852:2010)". Please clarify if the Beneficiary is looking only for compliance to EN 15852 or if CVAFS is the only accepted operation principle.	The reference to the cold vapor atomic fluorescence spectrophotometry method with preconcentration on a gold trap (CVAFS) is included to technical specifications because this method has been demonstrated to provide sufficient sensitivity for the measurement of total gaseous mercury in ambient air. In particular, the method achieves a low detection limit (below 0.1 ng/m³), which is necessary for reliable measurements at rural background monitoring stations where ambient total gaseous mercury concentrations are typically very low.
Question 52: Regarding the "Automatic analyzer for O3, CO, NO/NO2/NOx, SO2" and the required technical specifications for parameters like "Zero Noise", "Lower detectable limit", "Zero drift", "Span drift", "Precision", "Zero noise", please note that these specifications are highly restrictive in terms of technical solution and target directly a specific manufacturer. In order to allow a competitive bid procedure, please confirm that compliance to the performance parameters "Not TL" values, which are shown in the technical	The performance parameters indicated in the technical specifications (accuracy, zero noise, lower detection limit, zero drift, span drift, etc.) are established in accordance with the requirements of the applicable European standards (EN 14211, EN 14625, EN 14626, EN 14212, EN 14662) and with the provisions of Directive 2008/50/EC on ambient air quality. The values mentioned in the tender documentation represent reference performance levels (TL), used to ensure data quality, comparability, and reliability within the national air quality monitoring network.

specification, is allowed and accepted as performance and qualification criteria, and not only the “TL”, instead of only the “TL” values. The Not TL ppb values represent compliance thresholds and reflect minimum acceptable performance for: ▪ EN type approval ▪ National reference network acceptance ▪ Long-term background monitoring	At the same time, the Contracting Authority confirms that: Analyzers that comply with the “not-TL” performance values, as defined in the relevant European standards and type-approval procedures, are also accepted and considered compliant, provided that they are certified/type-approved in accordance with the applicable EN standard for each pollutant and meet the minimum performance requirements for background monitoring and operation within national reference networks. The “not-TL” values are considered minimum acceptable compliance thresholds, suitable for long-term continuous monitoring and for use within national monitoring systems, in line with EU legislation. Equivalent technical solutions, certified in accordance with the applicable EN standards, are accepted, subject to compliance with the general data quality requirements set out in the tender documentation. This clarification is issued in order to ensure equal treatment of bidders, avoid any restrictive interpretation, and maintain an adequate long-term performance level for the national air quality monitoring network.