NO.SO.(ECC&CDDV-155/23

حکومت سندھ

انوائرنمینٹ، کلائمیٹ چینج اینڈ کوسٹل ڈیولپمنٹ ڈپارٹمنٹ

کراچی، مورخہ: 29/جنوری 2026

پیشکشوں کے لیے طلبی (IFB)

انوائرنمینٹ، کلائمیٹ چینج اینڈ کوسٹل ڈیولپمنٹ ڈپارٹمنٹ حکومت سندھ مندرجہ ذیل پروجیکٹ کے لیے سندھ پبلک پروکیورمنٹ رولز (SPP رولز) 2010 کے مطابق اہل، معروف اور تجربہ کار فرمز/کمپنیز سے سربمہر پیشکشیں مدعو کرتا ہے۔

1- پروجیکٹ کا نام:

کراچی، حیدرآباد اور سکھر میں EPA بلڈنگ میں ماحولیاتی تجربہ گاہوں کی توسیع اور استحکام

2- کام کا دائرہ عمل:

کام کے دائرہ عمل میں پورے صوبہ سندھ میں مقررہ مقام پر continious امبینٹ ایئر کوالٹی مانیٹرنگ اسٹیشنز (CAAQMS) بشمول تمام اینالائزرز، سینسرز، ڈیٹا ایکوزیشن سسٹمز، کیلیبریشن سسٹمز، کمیونیکیشن انفرااسٹرکچر، سافٹ ویئر اور متعلقہ سروسز شامل ہیں جیسا کہ بڈنگ دستاویزات میں صراحت کی گئی ہے۔ مزید براں محکمہ، لیبارٹری آئٹمز، مینٹی ننس سروسز اور فرنیچر و فکچر پروکیور کرے گا۔ تفصیلات بڈنگ دستاویزات میں ملاحظہ کی جاسکتی ہیں۔

3- بڈنگ پروسیجر:

ایک مرحلہ۔ دو لفافہ طریقہ

(SPP رولز 2010 کا رول (46(2))

انویلپ-I: ٹیکنیکل پروپوزل

انویلپ-II: فنانشل پروپوزل

صرف تکنیکی طور موافق پیشکش دہندگان کے فنانشل پروپوزلز کھولے جائیں گے۔

4- پیشکش جمع کرانے کا طریقہ:

پیشکشیں لازماً سربمہر لفافوں میں متبادل طور پر epads ویب سائٹ portalsindheprocure.com کے ذریعے جمع کرائی جائیں۔

5- بڈ پرائس:

پیشکش دہندہ، بڈ پرائس صرف پاکستانی روپوں (PKR) میں درج کریں۔

6- بڈ سیکورٹی:

4 ملین روپے کی بڈ سیکورٹی بشکل پے آرڈر بحق: سیکریٹری، انوائرنمنٹ کلائمیٹ چینج اینڈ کوسٹل ڈیولپمنٹ ڈپارٹمنٹ، حکومت سندھ

بڈ سیکورٹی لازماً پیشکش کی کارآمدگی مدت کے بعد 28 دنوں کے لیے کارآمد برقرار

NO. SO.(ECC&CDDV-155/23
GOVERNMENT OF SINDH
ENVIRONMENT, CLIMATE CHANGE &
COASTAL DEVELOPMENT DEPARTMENT

Karachi, Dated: 29th January, 2026

INVITATION FOR BIDS (IFB)

(Under Sindh Public Procurement Rules, 2010)

Environment, Climate Change & Coastal Development Department
Government of Sindh

The **Environment, Climate Change & Coastal Development Department, Government of Sindh** invites **sealed bids** from eligible, reputable, and experienced firms/companies in accordance with **Sindh Public Procurement Rules (SPP Rules), 2010** for the following project:

1. Name of the Project

EXPANSION & STRENGTHENING OF ENVIRONMENTAL LABORATORIES IN EPA BUILDINGS AT KARACHI, HYDERABAD & SUKKUR

2. Scope of Work

The scope of work includes supply, installation, testing, commissioning, operation & maintenance of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) at designated locations across Sindh Province, including all analyzers, sensors, data acquisition systems, calibration systems, communication infrastructure, software, and related services as specified in the bidding documents.Furthermore, the department will procure labortory items,maintenance services, and furniture and fixture. Details can be seen in the bidding docuemnts.

3. Bidding Procedure

Single Stage – Two Envelope Procedure
(Rule 46(2) of SPP Rules, 2010)
Envelope–I: Technical Proposal
Envelope–II: Financial Proposal
Financial proposals of only technically responsive bidders shall be opened.

4. Bid Submission Method

Bids must be submitted in **sealed envelopes** either by **epads webiste portalsindheprocure.com**

5. Bid Price

The bidder shall quote the bid price **in Pakistani Rupees (PKR) only**.

6. Bid Security

Bid security **Rs 4 million** in the form of **Pay Order** in favor of: Secretary, **Environment, Climate Change & Coastal Development Department, Government of Sindh**
Bid security must remain valid for **28 days beyond the bid validity period**.

7. Important Dates

Description	Date
Availability of Bidding Documents	1st February 2026
Bid Submission Deadline	16th February 2026 at 2.30 p.m
Technical Bid Opening	16th February 2026 at 3 p.m

8. Eligibility & Qualification Criteria

CamScanner

1. The bidder shall be a **manufacturer or authorized representative** of the manufacturer of air quality monitoring equipment.
2. Minimum **five (5) years' experience** in supply, installation, commissioning, and operation & maintenance of **real-time Ambient Air Quality Monitoring Systems**, covering **environmental parameters**.
3. Valid **Manufacturer Authorization Letters** must be submitted for all items not manufactured by the bidder.
4. The bidder shall have a **minimum average annual turnover of PKR equivalent to Rs. 200 million** during the last **three (3) financial years**, supported by audited financial statements and Bank statement.
5. Submission of **Performance Statements** along with at least **two (2) satisfactory completion certificates** from government or reputable private organizations for similar CAAQMS projects.
6. Availability of qualified **Operation & Maintenance personnel on regular payroll**, including: Project Engineer, Electronics / Instrumentation Technicians, Data Management / IT Expert

9. Important Instructions

1. Bidding documents can be obtained/downloaded from the official website or office of the department as mentioned in the tender notice.
2. Incomplete bids or bids without bid security shall be **rejected outright**.
3. The procuring agency reserves the right to **accept or reject any or all bids** as per **Rule 25 of SPP Rules, 2010**.
4. No bid shall be accepted after the prescribed date and time.
5. In case the bid opening date falls on a public holiday, bids shall be opened on the **next working day** at the same time and venue.

6. 10. General Conditions

1. The Procuring Agency shall not be responsible for any costs incurred by bidders in preparation or submission of bids.
2. The detailed technical specifications and terms & conditions are provided in the **Bidding Documents.**

(ABDUL SATTAR SOOMRO)
Section Officer-(Dev)
For Secretary to Govt. of Sindh

C.c. to:-

The PS to Secretary, Environment Climate Change & Coastal Development Department.

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NO. SO(G)(ECC&CDD)I- 543/2021

GOVERNMENT OF SINDH
ENVIRONMENT CLIMATE CHANGE & COASTAL DEVELOPMENT DEPARTMENT

Karachi, Dated: 23rd January, 2021

NOTIFICATION

SO.V.(ECC&CDD)- 155/2023: In pursuance of Rule **7 of the Sindh Public Procurement Rules, 2010 (as amended up to date)**, a **Procurement Committee (PC)** is hereby constituted for the procurement under the following ADP scheme: **"Expansion & Strengthening of Environmental Laboratories in SEPA Buildings at Karachi, Hyderabad & Sukkur"**
ADP Scheme Serial No.: ECDEV-PP-22-0357 General Sr No 865

Composition of the Procurement Committee (PC):

S. No.	Name / Designation	Position
01	Additional Secretary, Environment, Climate Change & Coastal Development Department, Government of Sindh	Chairman
02	Director Laboratories SEPA Sindh	Member
03	A representative of Information Science Technology Department Sindh	Member
04	Deputy Director, Coastal Development Authority, EC&CDD Karachi,	Member
05	Section Officer Dev	Member

Terms of Reference (TORs)

As per Rule 8 of the SPP Rules.

(ZUBAIR AHMED CHANNA)
Secretary
Environment Climate Change
& Coastal Development Department

SO(ECC&CDD) V-174/2025: Karachi, **Dated the 23rd January, 2025**

A copy is forwarded for information & necessary action to:

1. The Accountant General Sindh, Karachi.
2. The Director General, SEPA, Govt. of Sindh.
3. The Chairman/Members (All) of the Committee.
4. The P.S to Chairman, Planning and Development Board, Govt. of Sindh.
5. The P.S to Secretary, Environment, Climate Change & Coastal Development Department.
6. Office File.

(ABDUL SATTAR SOOMRO)
Section Officer Dev
Environment Climate Change
& Coastal Development Department

NO. SO(G)(ECC&CDD)I- 155/2023

GOVERNMENT OF SINDH
ENVIRONMENT CLIMATE CHANGE & COASTAL DEVELOPMENT DEPARTMENT

Karachi, Dated: 23rd January, 2026

NOTIFICATION

SO.V.(ECC&CDD)- 155/2023: In pursuance of **Rule 31 of the Sindh Public Procurement Rules, 2010 (as amended up to date)**, a **Complaint Redressal Committee (CRC)** is hereby constituted to receive and redress any grievance during the procurement / hiring process under the following ADP scheme:**"Expansion & Strengthening of Environmental Laboratories in EPA Buildings at Karachi, Hyderabad & Sukkur" ADP Scheme Serial No.: ECDEV-PP-22-0357 Scheme NO 865**

Composition of the Complaint Redressal Committee (CRC):

S. No.	Name / Designation	Position
01	Special Secretary, Environment, Climate Change & Coastal Development Department, Government of Sindh	Chairman
02	Representative of Accountant General Sindh	Member
03	An Independent Professional from relevant field (to be nominated by Head of Procuring Agency)	Member

Terms of Reference (TORs)

The Complaint Redressal Committee (CRC), upon receipt of a complaint from an aggrieved bidder, may, if satisfied:

1. Prohibit the Procuring Agency from acting or deciding in a manner inconsistent with the Sindh Public Procurement Rules, 2010 and applicable regulations;
2. Annul the procurement proceedings wholly or in part, or declare any action or decision of the Procurement Committee as unauthorized
3. Recommend to the Administrative Head of the Department that the procurement be declared **mis-procurement**, if material violation of the Act, Rules, Regulations, orders, instructions, or any other law relating to public procurement is established;
4. Reverse any decision of the Procurement Committee or substitute its own decision for such decision, **provided that the Complaint Redressal Committee shall not make any decision to award the contract.**

(ZUBAIR AHMED CHANNA)
Secretary
Environment Climate Change
& Coastal Development Department

SO(ECC&CDD) V-155/2023: Karachi, **dated the 23rd January, 2025**

A copy is forwarded for information & necessary action to:

1. The Accountant General Sindh, Karachi.
2. The Director General, SEPA, Govt. of Sindh.
3. The Chairman/Members (All) of the Committee.
4. The P.S to Chairman, Planning and Development Board, Govt. of Sindh.
5. The P.S to Secretary, Environment, Climate Change & Coastal Development Department.
6. Office File.

(ABDUL SATTAR SOOMRO)
Section Officer Dev
Environment Climate Change
& Coastal Development Department

NO. SO(G)(ECC&CDD)I- 155/2023

GOVERNMENT OF SINDH
ENVIRONMENT CLIMATE CHANGE &
COASTAL DEVELOPMENT
DEPARTMENT

Karachi, Dated: 23rd January, 2026

Procurement Plan for the Scheme in the FY 2025-26

Sr.	Description of Procurement	Estimated Cost	Amount Allocated
1.	**& Strengthening of Environmental s in EPA Buildings at Karachi, & Sukkur" ADP Scheme Serial No.: -22-0357 Scheme NO 865**	200.00 million	38 million

(ABDUL SATTAR SOOMRO)
Section Officer Dev
Environment Climate Change
& Coastal Development Department

1. Environment, Climate Change & Coastal Development Department, Government of Sindh Tender Document for Procurement of Goods, Services

Project Title	**"EXPANSION & STRENGTHENING OF ENVIRONMENTAL LABORATORIES IN EPA BUILDINGS AT KARACHI, HYDERABAD & SUKKUR"**
Scheme Number	Scheme No. 865/2025-26
Financial Year	2025-26

1. **Procuring Agency Information**
1. **Name of Department:**
   Environment, Climate Change & Coastal Development Department
   Government of Sindh
2. **Address:**
   Section Officer (Development)
   Environment, Climate Change & Coastal Development Department
   Government of Sindh
   Plot No. ST-2/1, Sector-23
   Korangi Industrial Area
   Karachi-74900, Sindh, Pakistan
3. **Phone:**
   021-9933375
4. **Tender Fee Amount:**
   Rs. 10,000/- (Non-Refundable)

2. Foreword

This Bidding Document has been prepared for the procurement of specialized equipment, goods and services for the **"EXPANSION & STRENGTHENING OF ENVIRONMENTAL LABORATORIES IN EPA BUILDINGS AT KARACHI, HYDERABAD & SUKKUR"** The document is designed to provide all necessary information to the prospective bidders regarding the technical requirements, legal conditions, and the evaluation process. It strictly adheres to the **Sindh Public Procurement Rules (SPPR) 2010 (Amended up to date)** to ensure transparency, efficiency, and equal opportunity for all eligible firms.

General Provisions

Clause No.	Provision Details
1.	This bidding document is prepared by the procuring agency in accordance with the SPP Rules. This document will be the base document for the procurement process of the procuring agency and all the terms and conditions shall be applicable as are mentioned in the SPP Rules 2010 (amended up to date).
2.	The bidding document includes a Letter of Invitation, Instructions to Firms/organizations, Terms of Reference, and a standard Form of Contract.
3.	The Instruction to Firms/organizations and the standard General Conditions of Contract are integral parts of this document.

Structure of the Bidding Document

The document is organized into the following key components to facilitate a comprehensive bidding process:

Structure of the Bidding Document

The document is organized into the following key components to facilitate a comprehensive bidding process:

- **Letter of Invitation (LOI):** Formal notice inviting bids for the project.
- **Instructions to Firms/Organizations (ITB):** Guidelines on how to prepare and submit proposals.
- **General Conditions of Contract (GCC):** The standard legal provisions and clauses that apply to the procurement contract.
- **Special Conditions of Contract (SCC):** Clause-specific modifications or additions to the GCC tailored to this particular assignment.
- **Terms of Reference (TOR):** Detailed technical specifications and scope of the automation project.
- **Standard Form of Contract:** The legal framework and governing agreement between the parties.

- **Integrity Pact**
-

3. Letter of Invitation

(Karachi, _____ 2026)

To: Dear Mr./Ms.

The **Environment, Climate Change & Coastal Development Department, Government of Sindh** (hereinafter referred to as the **"Procuring Agency"**) now invites tenders to provide the following services:

AUTOMATION OF INDUSTRIAL ENVIRONMENTAL MONITORING, INSPECTION AND ASSESSMENT
Tender No.: 865/2025-26

(More details on the services are provided in the Terms of Reference.)

A copy of the **bidding documents**, containing detailed **terms and conditions** and **eligibility criteria** (see Bid Data Sheet), may be obtained **with effect from the date of publication of this advertisement in the newspapers**.

Bidding Information Summary

Category	Details
Method of Selection	Most Advantageous bid in terms of the Sindh Public Procurement Rules, 2010 (amended up to date)
Proposal Fee	Pay order of Rs.10, 000/- (Non-refundable) in the shape of Bank Draft/ Pay Order in favor of Secretary – Environment, Climate Change & Coastal Development Department Government of Sindh.
Bid Security	Bid Security of **Rs. 4 Million** in from of Call Deposit from any scheduled bank of Pakistan in favour of Secretary Environment, Climate Change & Coastal Development Department, Government of Sindh
Proposal Closing Date & Time	As mentioned in Bid Data Sheet
Proposal Opening Date & Time	As mentioned in Bid Data Sheet
Evaluation and Award of Contract	Most Advantageous bid

Terms and Conditions

Procuring Agency reserves the right to select or reject any or all proposals on the basis of prescribed criteria, subject to the relevant provisions of Sindh Public Procurement Rules 2010 (amended up to date) and the decision in the matter shall be final and binding for all.

Regards, Section Officer (Development)

Environment, Climate Change & Coastal Development Department

Government of Sindh

Plot No. ST-2/1, Sector-23

Korangi Industrial Area

Karachi-74900, Sindh, Pakistan

4. Instruction to Bidders

Clause No.	Heading	Details
2.1	Definitions	(a) "Procuring Agency (PA)" means Environment, Climate Change & Coastal Development Department. (b) "Contract" means an agreement enforceable by law and includes General and Special Conditions of the contract. (c) "Data Sheet" means such part of the Instructions to bidders that is used to reflect specific assignment conditions. (d) "Day" means calendar day including holiday. (e) "Government" means the Government of Sindh. (f) "Instructions to bidders" (Section 4 of the bidding documents) means the document which provides Firms/organizations/Service providers with all information needed to prepare their bidding document. (g) "LOI" (Section 3 of the bidding documents) means the Letter of Invitation sent by the procuring agency to the Firm/organization/Service Providers. (h) "Proposal" means the Technical Proposal and the Financial Proposal. (i) "Sub-Firm/organization/ contractor" means any person or entity to whom the Firm/organization subcontracts any part of the Services. (j) "Terms of Reference" (TOR) means the document included in the bidding which explains the objectives, scope of work, activities, tasks to be performed, respective responsibilities of the procuring agency and the Firm/organization/ Service Providers, and expected results and deliverables of the assignment.
2.2	**Introduction**	a. The Procuring agency will choose the bidder through open competitive bidding process. The bidder(s) shall

		be chosen who fulfill the required criteria and are found to be most advantageous. b. The eligible bidders are invited to submit bids, as specified in these bidding documents. c. The bidder should familiarize themselves with rules / conditions and take them into account while preparing their bids. d. The bidder shall bear all costs associated with the preparation and submission of their bids. The Procuring Agency reserves the right to annul the selection process at any time prior to Contract award, without thereby incurring any liability to the bidders. e. Procuring Agency may provide facilities and inputs as specified in Data Sheet.
2.3	**Conflict of Interest**	a. The bidders are required to provide professional, objective, impartial advice and holding the Procuring Agency interest paramount. They shall strictly avoid conflict with other assignments or their own corporate interest. The bidders have an obligation to disclose any situation of actual or potential conflict that impacts their capacity to serve the best interest of the Procuring Agency, or that may reasonably be perceived as having such effect. Failure to disclose said situations may lead to the disqualification of the bidder or the termination of its Contract.
2.4	**Fraud and Corruption**	a. It is Government's policy that bidders under the contract(s), observe the highest standard of ethics during the procurement and execution of such contracts. In pursuit of this policy, the Procuring Agency follows the instructions contained in Sindh Public Procurement Rules 2010 which defines: "corrupt and fraudulent practices" includes the offering, giving, receiving, or soliciting, directly or indirectly of anything of value to influence the act of another party for wrongful gain or any act or omission, including misrepresentation, that knowingly or recklessly misleads or attempt mislead a party to obtain a financial or other benefit or to avoid an obligation; b. Under Rule 35 of SPPR2010, "The PA can inter-alia blacklist Bidders found to be indulging in corrupt or fraudulent practices. Such barring action shall be duly publicized and communicated to the SPPRA. Provided that any supplier or contractor who is

		to be blacklisted shall be accorded adequate opportunity of being heard".
2.5	**Integrity Pact**	Pursuant to Rule 89 of SPPR 2010 Firm/Organization undertakes to sign an Integrity pact in accordance with prescribed format attached hereto.
2.6	**Eligible Firms**	2.6.1 This Invitation for Bids is open to all suppliers from eligible sources as defined in the Sindh Public Procurement Rules, 2010 (as amended), and as further specified in these Bidding Documents, except as provided hereinafter. 2.6.2 Government-owned enterprises within the Province of Sindh may participate only if they are legally and financially autonomous, operate under commercial law, and are not dependent agencies of the Government of Sindh. 2.6.3 Bidders intending to enter into an agreement, or operating under an existing agreement, in the form of a Joint Venture (JV) or Consortium shall be eligible to bid. 2.6.4 Bidders shall be ineligible to participate if they are under a declaration of ineligibility for corrupt or fraudulent practices issued by any government organization, in accordance with the SPP Rules and as per bidding documents. 2.6.5 The bidder must be registered with the e-Pak Acquisition and Disposal System (EPADS) of the Sindh Public Procurement Regulatory Authority (SPPRA) at the time of bid submission.
2.7	**Bid Validity Period**	2.7.1 Bids shall remain valid 90 days after the bid opening date; any bid with a shorter validity period shall be rejected as nonresponsive. 2.7.2 In exceptional circumstances, the Procuring agency may request a written extension of the validity period, requiring a corresponding extension of the bid security, though Bidders may refuse without forfeiting security and those who agree cannot modify their bids.
2.8	**Bid Security**	2.8.1 The Bidder shall furnish, as part of its bid, a bid security of **Rs. 3 three Million** in from of Call Deposit from any scheduled bank of Pakistan in favour of Secretary Environment, Climate Change & Coastal Development Department, Government of Sindh. 2.8.2

		The bid security is required to protect the Procuring Agency against the risk of Bidder's conduct which would warrant the security's forfeiture as the SPP Rules and in accordance with the terms and conditions mentioned in the bidding documents.2.8.3 The form of bid security shall be from of Call Deposit 2.8.4 Any bid not secured in accordance with ITB Clauses 2.8.1 and 2.8.3 will be rejected by the Procuring Agency as non-responsive. 2.8.5 Unsuccessful bidders' bid security will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity prescribed by the Procuring Agency .The successful Bidder's bid security will be discharged upon the Bidder signing the contract, pursuant to furnishing the performance security,. 2.8.7 The bid security may be forfeited: a. if a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or b. in the case of a successful Bidder, if the Bidder fails: i. to sign the contract in accordance the terms and conditions of the Rules and bidding documents; or ii. to furnish performance security in accordance with the SPP Rules.
2.9	**Validity Duration**	Bids shall remain valid for **90 days**. Extensions may be allowed only with the approval of the competent authority and must be requested in writing before the original expiry date. Bidders may refuse any extension, in which case their bid and bid security will be returned, while those agreeing must also extend their bid security and cannot change the bid price or terms.
2.10	**Clarification and Amendment**	a. The bidder(s) may request for a clarification of contents of the bidding document in writing, and procuring agency will respond to such queries in writing within three calendar days, provided they are received at least five calendar days prior to the date of opening of bidding documents. The procuring agency will communicate such response to all parties who have obtained bidding document without identifying the source of inquiry. This shall be done in accordance with the rules. b. At any time before the submission of bidding document, the Procuring Agency may amend the bidding document by issuing an addendum/

		corrigendum in writing. The addendum shall be sent to all bidders and will be binding on them. The bidders shall acknowledge receipt of all amendments. To give bidders reasonable time in which to take an amendment into account in their bidding documents the Procuring Agency may, if the amendment is substantial, extend the deadline for the submission of bidding documents.
2.11	**Preparation of Bidding Documents**	a. Examination of Bidding Documents – In preparing their bids, bidders are expected to examine carefully and in detail all documents comprising the Bidding Documents. Any material deficiency, including but not limited to deviations from the prescribed scope of work, eligibility criteria, experience requirements, or qualifications of proposed personnel, shall render the bid non-responsive and may result in its rejection. b. Completeness and Accuracy of Information – Bidders shall ensure that all information, documents, and forms requested in the Bidding Documents are fully completed, accurate, and submitted in the prescribed format. Failure to provide complete or accurate information may lead to disqualification. c. Compliance with Instructions – The bid shall strictly conform to the instructions, conditions, technical specifications, and contractual requirements set forth in these Bidding Documents. Conditional bids or bids with material deviations shall not be entertained. d. Cost of Bid Preparation – The bidder shall bear all costs associated with the preparation and submission of its bid. The Procuring Agency named in the Bid Data Sheet shall not be responsible or liable for any such costs. e. No Claim Against Procuring Agency – Participation in the bidding process shall not give rise to any claim whatsoever against the Procuring Agency.
2.12	**Language**	The bid as well as all related correspondence exchanged by the bidder(s) and the Procuring Agency shall be written in English. However it is desirable that the firm's Personnel have a working knowledge of the national and regional languages of Islamic Republic of Pakistan.

2.13	**Technical Proposal Format**	a. While preparing the Technical Proposal, bidders must give particular attention to the following: If a bidder considers that it does not have all the expertise for the assignment, it may obtain a full range ofexpertise by associating with other entities to complete their eligibility criteria. It must be noted that all documents and correspondence shall be in the name of the Joint Venture. Nothing mentioned shall make any JV eligible if any entity of the JV lacks Registration with FBR, NTN Certificate and Registration with SRB. Technical Proposal shall include documents: Company Profile; Registration with FBR; NTN Certificate; Registration with SRB; Experience Documents; **Audited Financial Statements (of specified years)**; Turnover Documents (of specified years); List of Staff; Documents of Building; Past Experience (Contracts).
2.14	**Financial Proposals**	The Financial Proposal shall be prepared using the attached Standard Forms of financial proposal. It shall list all costs associated with the assignment. Furthermore, data shall be inserted online as required.
2.15	**Taxes**	The bidder will be subject to all admissible taxes including stamp duty and service charges at a rate prevailing on the date of contract agreement unless exempted by relevant tax authority.
2.16	**Preparation and Signing**	The bid shall be typed and signed by the bidder. The person signing the bid shall initial all pages of the bid to confirm authenticity. The bidder shall submit (upload) a typed bid in the form of an original scanned copy through the SPPRA e-Pak Acquisition and Disposal System (EPADS) portal. The bid shall be duly signed by the authorized signatory of the bidder to bind the bidder to the contract. Any interlineations, erasures, or overwriting shall be valid only if they are duly initialed by the person signing the bid. All bidding documents shall be properly attested, signed, and stamped by the authorized representative of the bidder.
2.17	**Submission through EPADS**	Under the procedures of Open Competitive Bidding, the term “Envelope” shall mean encrypted electronic file(s). The bid shall be submitted exclusively through

		the electronic procurement system of SPPRA (EPADS) and uploaded in the form of separate Technical Proposal and Financial Proposal as encrypted files, in accordance with the instructions provided on EPADS. The scanned copy of the original bid security shall be uploaded on EPADS. The original bid security in physical form shall be submitted at the address mentioned in the Notice Inviting Tender (NIT) / Invitation for Bids (IFB) / Bidding Documents / Bid Data Sheet (BDS) within the prescribed time.
2.18	**Addressing/Identification**	The bids shall be addressed to the Procuring Agency at the address specified in the Bid Data Sheet; and bear the title of the Procurement Activity as indicated in the Bid Data Sheet.
2.19	**Deadline for Submission**	2.19.1 Bids must be received by the Procuring Agency through the SPPRA e-Pak Acquisition and Disposal System (EPADS) not later than the date and time specified in the Bid Data Sheet (BDS). 2.19.2 The Procuring Agency may, at its discretion, extend the deadline for submission of bids by amending the Bidding Documents in accordance with ITB Clause 7. In such case, all rights and obligations of the Procuring Agency and the bidders previously subject to the original deadline shall thereafter be subject to the deadline as extended.
2.20	**Late Bids**	Any bid received by the Procuring Agency after the deadline for submission of bids, as prescribed under ITB Clause 18, shall be rejected and shall not be opened.
2.21	**Modification/Withdrawal**	2.21.1 The bidder may modify or withdraw its bid after submission, provided that written notice of the modification, substitution, or withdrawal is received by the Procuring Agency prior to the deadline prescribed for submission of bids. 2.21.2 The bidder's notice of modification or withdrawal shall be prepared, sealed, marked, and dispatched in accordance with the provisions of ITB Clause 18, and shall be accompanied by a duly signed confirmation copy, postmarked no later than the deadline for submission of bids. 2.21.3 No

		bid may be modified after the deadline for submission of bids. 2.21.4 No bid may be withdrawn during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the bidder in the Bid Form. Withdrawal of a bid during this interval may result in forfeiture of the bidder's bid security, in accordance with bid security clauses. Modification shall be initiated on EPADS.
2.22	**Opening of Bids**	2.22.1 The Procuring Agency shall open all bids electronically through the SPPRA e-Pak Acquisition and Disposal System (EPADS) in the presence of bidders' representatives who choose to attend, at the time, date, and place specified in the Bid Data Sheet (BDS). The bidders' representatives present shall sign an attendance register as evidence of their participation. 2.22.2 At the time of bid opening, the following information shall be announced: Names of the bidders; Any bid modifications or withdrawals; Bid prices and discounts, if any; Presence or absence of the required bid security; and Any other information that the Procuring Agency may, at its discretion, consider appropriate. No bid shall be rejected at the time of bid opening, except for late bids, which shall be rejected in accordance with ITB Clause 20. 2.22.3 Bids, including any modifications submitted pursuant to ITB Clause 21.2, that are not opened electronically and read out at the time of bid opening shall not be considered for further evaluation, irrespective of the circumstances, including but not limited to system errors, software bugs, viruses, unreadable files, or technical glitches. Withdrawn bids shall not be opened. 2.22.4 The Procuring Agency shall prepare minutes of the bid opening, which shall form part of the official record of the procurement proceedings.
2.23	**Clarification of Bids**	During the evaluation of bids, the Procuring Agency may, at its discretion, request a bidder to provide clarification of its bid. Such requests and responses shall be made in writing. No change in the bid price or substance of the bid shall be sought, offered, or permitted as a result of such clarification.

Clause No.	Heading	Details
2.24	**Evaluation of Technical Proposals**	a. The evaluation committee shall evaluate the Technical Proposals on the basis of their responsiveness to the Terms of Reference, applying the evaluation criteria, sub-criteria, and point system specified in the Data Sheet. Each responsive Proposal will be given a technical score (St). A Proposal shall be rejected at this stage if it fails to achieve the minimum technical score indicated in the Data Sheet.
2.25	**Evaluation of Financial Proposals**	a. Financial Proposals shall be opened publicly in the presence of the firm/organizations' representatives who choose to attend. The name of the Firms/organizations and the technical scores of the firm/organizations shall be read aloud. The Financial Proposal of the firms/organizations who met the minimum qualifying mark will then be inspected to confirm that they have remained sealed and unopened. These Financial Proposals shall be then opened, and the total prices read aloud and recorded. Copy of the record shall be sent to all Firms/organizations. b. The Evaluation Committee will correct any computational errors. When correcting computational errors, in case of discrepancy between a partial amount and the total amount, or between word and figures the formers will prevail. In addition to the above corrections, activities and items described in the Technical Proposal but not priced, shall be assumed to be included in the prices of other activities or items. c. The bid being most advantageous in shall be accepted.
2.26	**Negotiations**	No negotiations with regard to financial proposal shall be held after the conclusion of the contract.
2.27	**Technical negotiations**	Technical Negotiations will include a discussion of the Technical Proposal, the proposed technical approach and methodology, work plan, organization and staffing, and any suggestions made by the Firm/organization to improve the Terms of Reference. The PA and the Firms/organizations will finalize the Terms of Reference, staffing schedule, work schedule, logistics, and reporting. These documents will then be

		incorporated in the Contract as "Description of Services". Minutes of negotiations, which will be signed by the PA and the Firm/organization, will become part of Contract Agreement.
2.28	**Financial negotiations**	Not allowed after the conclusion of the contract.
2.29	**Availability of Professional staff/experts**	The contractor shall be required to provide and professional and allied staff and all other facilities needed for the fulfillment of the project.
2.30	**Award of Contract**	a. ,The Procuring Agency shall award the Contract to the bidder being most advantageous in terms getting combined technical and financial score.
2.31	**Confidentiality**	Information relating to evaluation of Proposals and recommendations concerning awards shall not be disclosed to the Firms/organizations who submitted the Proposals or to other persons not officially concerned with the process, until the publication of the award of Contract. The undue use by any Firm/organization of confidential information related to the process may result in the rejection of its Proposal.

5. Bid Data Sheet

Sr. No.	Description	Details
1	**Name of Procuring Agency**	Environment, Climate Change & Coastal Development Department, Government of Sindh
2	**Name of Project**	Expansion & Strengthening of Environmental Laboratories in EPA Buildings at Karachi, Hyderabad & Sukkur
3	**Scope of Work**	Supply, installation, testing, commissioning, operation & maintenance of Continuous Ambient Air Quality Monitoring Stations (CAAQMS) including analyzers, sensors, data acquisition systems, calibration systems, communication infrastructure, software, and related services. Procurement of laboratory items,

Sr. No.	Description	Details
		maintenance services, and furniture & fixtures for EPA laboratories at Karachi, Hyderabad, and Sukkur.
4	**Procurement Procedure**	Single Stage – Two Envelope Procedure (Rule 46(2) of SPP Rules, 2010)
5	**Bid Submission Method**	Through E-Pak Acquisition & Disposal System (EPADS) via www.sindheprocure.com
6	**Bid Price**	Bid price shall be quoted in Pakistani Rupees (PKR) only and shall be fixed, inclusive of all applicable taxes and duties
7	**Bid Security**	PKR 4,000,000 (Four Million) in the form of Pay Order / Call Deposit in favor of Secretary, Environment, Climate Change & Coastal Development Department, Government of Sindh
8	**Validity of Bid Security**	28 days beyond the bid validity period
9	**Eligibility & Qualification Criteria**	**Mandatory Requirements:** I. Valid NTN Registration Certificate from Income Tax Authorities verifying that the Firms on Active Tax Payer List (ATL). II. Proof of valid Registration with the Sindh Revenue Board (SRB) as per the Sindh Sales Tax on Services Act 2011 III. The bidder shall be a **manufacturer or authorized representative** of the manufacturer of air quality monitoring equipment. IV. Minimum **five (5) years' experience** in supply, installation, commissioning, and operation & maintenance of **real-time Ambient Air Quality Monitoring Systems**, covering **environmental parameters**. V. Valid **Manufacturer Authorization Letters** must be submitted for all items not manufactured by the bidder. VI. The bidder shall have a **minimum average annual turnover of PKR equivalent to Rs. 200 million** during the last **three (3) financial years**, supported by audited financial statements and Bank statement. VII. Submission of **Performance Statements** along with at least **two (2) satisfactory completion certificates** from government or reputable private organizations for similar CAAQMS projects. VIII. Availability of qualified **Operation & Maintenance personnel on regular payroll**, including: Project Engineer, Electronics / Instrumentation Technicians, Data Management / IT Expert IX. Affidavit on Stamp Paper of Current Date attesting that the Firm is not blacklisted t (Affidavit required on Rs.500/- Stamp Paper). X. The Firm shall have stand by Generator or alternate Energy Source.

Sr. No.	Description	Details
		XI. **XI. Supply of Goods and Materials** For the supply of goods and other materials, the bidder shall either: (a) demonstrate valid registration and proven experience in the relevant categories; **or** (b) enter into a **Joint Venture / Consortium** arrangement with other duly registered and experienced firms. XII. In case of a Joint Venture / Consortium, the roles and responsibilities of each partner shall be clearly defined and supported by a legally binding agreement. XIII. The Firm shall have to comply with the terms of Reference. XIV. Registration with electrical Inspector for electrical works (Only) XV. Full Acceptance of work Plan given in terms of reference. XVI. ISO 9001 Quality Certification
10	**Availability of Bidding Documents**	1st February 2026
11	**Bid Submission Deadline**	16th February 2026 at 02:30 PM
12	**Technical Bid Opening**	16th February 2026 at 03:00 PM
13	**Place of Bid Opening**	Office of Secretary, Environment, Climate Change & Coastal Development Department, Government of Sindh, Plot No. ST-2/1, Sector-23, Korangi Industrial Area, Karachi-74900
14	**Important Instructions**	Incomplete bids or bids without bid security shall be rejected. Late bids shall not be accepted. Procuring Agency reserves the right to accept or reject any or all bids under Rule 25 of SPP Rules, 2010
15	**General Conditions**	The Procuring Agency shall not be responsible for any costs incurred by bidders. Detailed specifications and conditions are provided in the bidding documents
16	**Address for Correspondence / Bid Security and tender Submission**	Section Officer (Dev), Environment, Climate Change & Coastal Development Department, Government of Sindh, Plot No. ST-2/1, Sector-23, Korangi Industrial Area, Karachi-74900
17	**Performance Security**	10 Percent of Total Cost

Sr. No.	Description	Details
18	**Tender Fees**	10,000 (ten Thousands) Pay order in the favor of Secretary Environment, Climate Change and Coastal Development Department Karachi.
19	**Package**	Bids shall be accepted only for the complete package. No bidder is permitted to submit a partial bid, and any such bid will be rejected.

(ABDUL SATTAR SOOMRO) Section Officer (Dev) *For Secretary to Government of Sindh*

6. General Conditions of Contract

6.1. General Provisions

Definitions Unless the context otherwise requires, the following terms whenever used in this Contract have the following meanings:

- **(a) "Applicable Law"** means the Sindh Public Procurement Act and the Rules (SPP Rules 2010).
- **(b) "Procuring Agency (PA)"** means the Environment, Climate Change & Coastal Development Department.
- **(c) "Firm/Organization/Service Provider/Bidder"** means any individual, firm, company, partnership, joint venture, consortium, or legally registered organization that submits a bid and is legally bound by the Contract.
- **(d) "Contract"** means the Contract signed by the Parties, including General Conditions (GC), Special Conditions (SC), and all Appendices.
- **(e) "Contract Price"** means the price to be paid for the performance of the Services.
- **(f) "Effective Date"** means the date on which this Contract comes into force.
- **(g) "Foreign Currency"** means any currency other than Pak Rupees.
- **(h) "GC"** means these General Conditions of Contract.
- **(i) "Government"** means the Government of Sindh.
- **(j) "Local Currency"** means Pak Rupees.
- **(k) "Member"** means any of the entities that make up a joint venture/consortium/association.
- **(l) "Party"** means the PA or the Firm/Organization, and **"Parties"** means both.
- **(m) "Personnel"** means persons hired by the Firm/Organization or by any Sub-Firms and assigned to the performance of the Services.
- **(n) "SC"** means the Special Conditions of Contract.
- **(o) "Services"** means the services to be performed by the Firm/Organization as described in the Terms of Reference (TOR).

- **(p) "Sub-Firms/Organizations"** means any person or entity to whom the Firm/Organization subcontracts any part of the Services.
- **(q) "In writing"** means communicated in written form with proof of receipt.

6.2. Law Governing Contract

This Contract, its meaning and interpretation, and the relation between the Parties shall be governed by the Applicable Law.

6.3. Language

This Contract is executed in the language specified in the SC, which shall be the binding and controlling language for all matters relating to interpretation.

6.4. Notices

- **(a)** Any notice, request, or consent shall be in writing and deemed delivered when handed in person to an authorized representative or sent to the address specified in the SC.
- **(b)** A Party may change its address for notice by giving the other Party written notice.

6.5. Location

The Services shall be performed at such locations as specified in the SC; where not specified, at locations approved by the PA.

6.6. Authority of Member in Charge

The Firm/Organization authorizes a focal person to deal with the PA.

6.7. Authorized Representatives

Any action or document required under this Contract may be taken or executed by the officials specified in the SC.

6.8. Taxes and Duties

The Firm/Organization and Personnel shall pay all taxes, duties, and fees levied under Applicable Law; such amounts are deemed included in the Contract Price.

6.9. Fraud and Corruption

- **(a)** If the PA determines the Firm has engaged in corrupt, fraudulent, collusive, or coercive practices, the PA may, after 14 days' notice, terminate the Contract and resort to blacklisting under SPP Rules 2010.
- **(b)** Any personnel engaging in such practices shall be removed in accordance with the rules.

6.10. Integrity Pact

If the Firm violates the Integrity Pact (Appendix G), the Client is entitled to:

- **(a)** Recover ten times the sum of any bribe or kickback.
- **(b)** Terminate the Contract.
- **(c)** Recover any loss or damage resulting from such termination.

6.11. Commencement, Completion, Modification and Termination

- **(a) Effectiveness:** Contract is effective upon signing by both parties or as stated in the SC.
- **(b) Commencement:** Services must begin within the number of days specified in the SC.
- **(c) Expiration:** Contract expires at the end of the period specified in the SC unless terminated earlier.
- **(d) Modifications:** Any variation in terms or scope must be made by written agreement.
- **(e) Force Majeure:** Failure to perform is not a default if caused by natural calamities or circumstances beyond control.
- **(f) No Breach:** Inability to perform due to Force Majeure is not a breach if precautions were taken and the other Party was informed.
- **(g) Extension of Time:** Timelines shall be extended by a period equal to the duration of the Force Majeure event.
- **(h) Payments:** During Force Majeure, the Firm is entitled to continued payment and reimbursement of necessary costs for reactivating the Service.

6.12. Termination

- **(a) By the Procuring Agency:** The PA may terminate the contract with 30 days' notice (60 days for item v) if:
  - (i) The Firm fails to remedy a performance failure.
  - (ii) The Firm becomes insolvent or bankrupt.
  - (iii) Corrupt practices are determined.
  - (iv) Force Majeure lasts more than 60 days.
  - (v) The PA decides to terminate at its sole discretion.
  - (vi) The Firm fails to comply with an arbitration decision.
- **(b) By the Firm/Organization:** The Firm may terminate with 30 days' notice if:
  - (i) The PA fails to pay money due without Firm's fault.
  - (ii) Payment is 45 days overdue after notice.
  - (iii) Force Majeure prevents services for more than 60 days.
  - (iv) The PA fails to comply with an arbitration decision.
- **(c) Payment upon Termination:** PA shall pay for services satisfactorily performed and, in specific cases, reasonable costs incident to orderly termination.

6.13. Obligations of the Firm/Organization

- **(i) Standard of Performance:** Perform with due diligence, efficiency, and economy according to professional standards.
- **(ii) Conflict of Interests:** Hold PA's interests paramount and avoid conflicts with other assignments.
- **(iii) Commissions/Discounts:** The Firm shall not accept trade commissions or discounts for their own benefit.

- **(iv) Affiliates:** The Firm and affiliates are disqualified from providing goods/works resulting from these Services.
- **(v) Conflicting Activities:** Personnel shall not engage in activities that conflict with this Contract.

6.14. Confidentiality

Prior written consent from the PA is required before communicating confidential information to any third party.

6.15. Insurance

The Firm shall maintain insurance as specified in the SC at their own cost and provide evidence of coverage upon request.

6.16. Actions Requiring PA's Prior Approval

Written approval is required for: (a) Subcontracting, (b) Appointing unnamed personnel, (c) Other actions in the SC.

6.17. Reporting Obligations

Reports must be submitted as per the Appendix, with final reports delivered in CD ROM and hard copy.

6.18. Documents Prepared to be Property of the PA

All plans, designs, and software remain PA property. The Firm may retain copies but must deliver all documents upon termination.

6.19. Accounting, Inspection and Auditing

The Firm shall keep systematic accounts and permit the PA to inspect and audit records related to the Contract.

6.20. Firm's Personnel

- **(a) Description:** Qualified Personnel listed in Appendix C are approved.
- **(b) Replacement:** Key Personnel may only be replaced for reasons beyond control (death, retirement) with a person of equivalent or better qualifications. If the PA is dissatisfied with performance, a replacement must be provided.

6.21. Obligations of the PA

- **(a) Assistance:** PA shall provide assistance and exemptions as specified in the SC.
- **(b) Change in Law:** Contract Price may be adjusted if changes in Tax Law affect costs.
- **(c) Facilities:** PA shall provide free services and facilities listed in Appendix F.

6.22. Payments to the Firm/Organization

- **(a) Security:** Bid security and performance security must be submitted at the rates mentioned in the SC.
- **(b) Lump-Sum Payment:** Total payment shall not exceed the Contract Price except for additional services agreed under Clause 24.6.
- **(c) Contract Price:** The price is set forth in the SC (PKR/Foreign).
- **(d) Additional Services:** Remuneration for additional services is based on the breakdown in Appendices D and E.

6.23. Terms and Conditions of Payment

Payments are made according to the schedule in the SC. Advance payments require a guarantee in the form of Appendix G.

6.24. Good Faith

Parties shall act in good faith to realize the objectives of this Contract.

6.25. Settlement of Disputes

- **(a) Amicable Settlement:** Parties shall attempt early resolution of all disputes.
- **(b) Dispute Resolution:** If not settled within 30 days, disputes may be submitted for arbitration as specified in the SC.

6.26. Variation

The Procuring Agency may increase or decrease requirements by up to 15% to meet its needs.

7. TECHNICAL EVALUATION CRITERIA (SCORING-BASED)

Total Technical Marks: 100
Minimum Qualifying Score: 70 Marks
Only bidders scoring **70 or above** shall qualify for financial bid opening.

Minimum 50% score is needed in each category from A to F below

A. Firm Experience & Capability (25 Marks)

Criteria	Detail / Scoring Basis	Marks
1. Experience in CAAQMS (Supply, Installation, Commissioning & O&M)	≥ 7 years	10
	6 years	8
	5 years	6
	Less than 5 years	0
2. Similar CAAQMS Projects	≥ 3 projects	8

Criteria	Detail / Scoring Basis	Marks
	2 projects	6
	1 project	4
	None	0
3. Laboratory Items, Maintenance Services & Furniture Experience	≥ 3 similar assignments	7
	2 assignments	5
	1 assignment	3
	None	0
Subtotal		**25**

B. Technical Solution & Methodology (25 Marks)

Criteria	Detail / Scoring Basis	Marks
1. Compliance of CAAQMS Equipment & Specifications	Fully compliant with TORs & standards	8
	Minor deviations	6
	Partial compliance	4
	Non-compliant	0
2. Installation, Testing & Commissioning Methodology	Comprehensive & site-specific	5
	Adequate	4
	Basic	3
	Not provided	0
3. Data Acquisition, Communication & Software Solution	Robust, secure & redundant	6
	Adequate	4
	Basic	2
	Not provided	0

Criteria	Detail / Scoring Basis	Marks
4. Calibration & QA/QC Plan	Comprehensive plan	6
	Adequate	4
	Basic	2
	Not provided	0
Subtotal		**25**

C. Human Resource & Organizational Capacity (10 Marks)

Criteria	Detail / Scoring Basis	Marks
Project Engineer	≥5 years experience	4
	3–4 years	3
Electronics / Instrumentation Technicians	≥5 on payroll	3
	1 on payroll	2
Data Management / IT Expert	Dedicated expert	3
	Shared / general IT	2
Subtotal		**10**

D. Laboratory Support & Furniture / Fixtures Plan (10 Marks)

Criteria	Detail / Scoring Basis	Marks
Laboratory Items & Maintenance Services Plan	Comprehensive	5
	Adequate	4
Furniture & Fixtures Plan (All Locations)	Detailed layout & schedule	5
	Adequate	4

Criteria	Detail / Scoring Basis	Marks
Subtotal		**10**

E. Post-Sale Support, Maintenance & Safety Measures (20 Marks)

Criteria	Detail / Scoring Basis	Marks
1. Post-Sale Maintenance Plan (CAAQMS & Lab Assets)	Comprehensive preventive & corrective maintenance with SLAs	5
	Adequate plan	4
	Basic plan	2
2. Maintenance Work Plan for Existing Equipment / Items	Detailed methodology	4
	Adequate	3
	Basic	1
3. Post-Sale Services & Technical Support	Helpdesk, on-site support, spare parts, defined response time	5
	Limited support	3
	Ad-hoc support	1
4. Health, Safety & Environmental (HSE) Measures	Comprehensive safety plan	4
	Basic safety measures	2
	Not provided	0
5. Standby Generator / Alternate Energy Source	Available with documented capacity	2
	Available but limited	1
Subtotal		**20**

F. Documentation & Legal Compliance (10 Marks)

Criteria	Detail / Scoring Basis	Marks
Mandatory Legal & Technical Documents	All complete & valid	10

Criteria	Detail / Scoring Basis	Marks
	Minor deficiencies	5
	Major deficiencies	0
Subtotal		**10**

FINAL SCORE SUMMARY

Section	Marks
A. Firm Experience & Capability	25
B. Technical Solution & Methodology	25
C. Human Resource Capacity	10
D. Laboratory & Furniture Plan	10
E. Post-Sale Support, Maintenance & Safety	20
F. Documentation & Legal Compliance	10
TOTAL	**100**

Evaluation Notes

- Mandatory requirements must be fulfilled **before scoring**.
- Marks shall be awarded strictly as per the defined bands.
- Financial bids of only technically qualified bidders shall be opened.

Bid Opening and Award Criterion

1. Technical bids shall be evaluated first. **Only bidders who achieve the minimum technical qualification score of 70 marks shall be considered technically responsive.**
2. For all technically responsive bidders, **the financial bids shall be opened and the contract shall be awarded strictly on the basis of the lowest evaluated cost.**
3. Marks obtained above the minimum technical score (70) **shall not influence the financial evaluation or confer any additional advantage**. Bidders failing to achieve the minimum technical score will be disqualified from the financial evaluation.

8. Bill of Quantities

Item No.	Particular	Summary of Items	Total No of Items (the detail shows Sr Nos not unit and quantities) Quantities and number shall be seen below in their table
i	Required Laboratory Equipments	1. Ambient Air Quality Monitoring System,2. Flow Meter, 3 multi- parameterwater quality meter.4. Noise Meter (Sound 5. Ambient Air Quality Portable Detector	**5**
ii	List of Equipments for Repair and Maintenance with Calibration for Karachi, Hyderabad and Sukkur Laboratories	Atomic Absorption Spectrophotometer (AAS), Ion Chromatography System, Stack Gas Emission Analyzer (Lancom III), Spectroquant Merck, Spectrophotometer Nova 60, Dissolved Oxygen (DO) Meter, Multi-Meter pH/TDS, Ultra-Pure Simplicity Water Purification System, Simple Distillation Unit (EYELA 1000S), Laminar Flow Hood, Incubator, Carbon Monoxide Meter, BOD System (Oxi-Direct), Portable Water Flow Meter, Vacuum Pump, Digestion Apparatus, Electro-	**18**

		Thermal Unit, BOD Head with Measuring Device, Water Distillation Unit, Digital Reactor, Thermo-Reactor, Spectrophotometer	
iii	List of Required Chemicals, Reagent, Standard, for Karachi, Hyderabad & Sukkur Laboratories	Acetone, Potassium Chromate, Mg^{2+} Salt of EDTA, COD Vials (0–1500), COD Vials (0–15000), Chromium Test, Copper Test Kit, Manganese Test, Lead Test, Ammonia Test, Nitrate Test, Nitrite Test, Chloride Test, Fluoride Test, Sulfide Reagent Kit, Sulfate Test, Chlorine Test, Total Chlorine Test, Silica Test Kit, Lithium Hydroxide / Potassium Hydroxide, Zinc Powder Pillow, Iron Reagent Powder Pillow, Cyanide Reagent Powder Pillow, Sodium Chloride Standard Solution (TDS Calibration), Nitrite Reagent, Chloride Kit (Nova-60), Fluoride Kit, Cyanide Kit, Sulphate Kit, Ammonia Kit, Cadmium Kit, Chromium Kit, Copper Kit, Lead Kit, Nickel Kit, Zinc Kit, Arsenic Kit, Barium Kit, Iron Kit, Manganese Kit, Boron Kit, Chloride Kit, COD Kit, BOD Kit, COD Test Cell (25–1500 mg/L & 500–2500 mg/L), BOD Pillow and KOH Tablets, Nitrate Kit, Phenolic Compounds (As Phenol), Cadmium Reagent, Coliform 100 Ready Culture (E. coli), Isopropyl Alcohol, FC Agar with Chemicals, Kovács Reagent, Chromocult Coliform Agar, Others (Indicators/Reagents as required)	**55 Items**
iv	Requirement of Apparatus of SEPA Karachi, Hyderabad, Sukkur Laboratories & Items	Micro Pipette (0–1000 µL), Volumetric Flask 100 mL, Volumetric Flask 50 mL, Volumetric Flask 20 mL, Volumetric Flask 10 mL, Volumetric Flask 25 mL, Volumetric Flask 250 mL, Volumetric Flask 1000 mL, Bulk Pipette 1 mL, Bulk Pipette 2 mL, Bulk Pipette 3 mL, Bulk	**43**

		Pipette 5 mL, Bulk Pipette 10 mL, Bulk Pipette 25 mL, Graduated Pipette 1 mL, Graduated Pipette 2 mL, Graduated Pipette 3 mL, Graduated Pipette 5 mL, Graduated Pipette 10 mL, Glass Burette 25 mL, Glass Burette 50 mL, Burette Stand, Pipette Stand, Glass Beaker 250 mL, Glass Beaker 100 mL, Glass Beaker 50 mL, Glass Conical Flask 250 mL, Glass Conical Flask 100 mL, Glass Conical Flask 500 mL, Test Tubes, Petri Dish (Glass), Separating Funnel 250 mL, Separating Funnel 500 mL, Glass Rod, Glass Beads, Washing Bottle 500 mL, Washing Bottle 1000 mL, Filter Paper No. 41 (Whatman), Filtration Assembly, Pipette Filler, Magnetic Bar (1 & 2 inch), Spatula, Beaker (100 mL & 500 mL)	
v	List Of Required Accessories For Karachi, Hyderabad, Sukkur Lab	Ice Boxes, Gloves, Safety Shoes, Fire Extinguishers, Safety First Aid Box, Helmet (Hard Hat), Stickers, Mugs, Sampling Bottles, Accessories Carrier Bag	**10**
vi	Furniture & Fixture For Karachi Hyderabad Sukkur Lab	**Names of Furniture & Fixture Items (one line):** Laboratory Tables (Karachi, Hyderabad & Sukkur), Laboratory Chairs (Karachi, Hyderabad & Sukkur), Shelves (Karachi, Hyderabad & Sukkur), Windows (Karachi, Hyderabad & Sukkur), Cabinets (Karachi, Hyderabad & Sukkur), Almirahs (Karachi, Hyderabad & Sukkur)	**6**

PROJECT COST SUMMARY

Item No.	Particular		
i	Required Laboratory Equipments		
ii	List of Equipments for Repair and Maintenance with Calibration for Karachi, Hyderabad and Sukkur Laboratories		
iii	List of Required Chemicals, Reagent, Standard, for Karachi, Hyderabad & Sukkur Laboratories		
iv	Requirement of Apparatus of SEPA Karachi, Hyderabad, Sukkur Laboratories & Items		
v	List Of Required Accessories For Karachi, Hyderabad, Sukkur Lab		
vi	Furniture & Fixture For Karachi Hyderabad Sukkur Lab		
	Grand Total		

	All rates shall be inclusive of taxes no separate amount for taxes will be admissible.

9. **LIST OF REQUIRED LABORATORY EQUIPMENT

S. No.	Name of Equipment	New Items Proposed	Quantity	Rate
1	Ambient Air Quality Monitoring System (CAAQMS)	All obsolete instruments will be replaced with new CAAQMS equipment for monitoring $PM_{2.5}$, PM_{10}, SO_2, NO, NO_2, CO and O_3 as per US-EPA / European standards and Sindh Environmental Quality Standards (SEQS).	2	
2	HQ-4200 (Hach) Multi-Parameter Water Quality Meter or Equivalent	Portable multi-parameter meter for pH, DO, Conductivity, TDS, Salinity and Temperature for field and laboratory use.	03	
3	Ambient Air Quality Portable Detector	Portable air quality monitoring equipment for SO_2, CO, O_3, VOCs, $PM_{2.5}$, PM_{10} and TSP for field inspections and compliance monitoring.	03	
4	Flow Meter	Portable flow meter for measurement of water, wastewater and industrial effluent discharge.	01	
5	Noise Meter (Sound Level Meter)	Instrument for measurement of environmental noise levels to ensure compliance with SEQS.	03	

S. No.	Name of Equipment	New Items Proposed	Quantity	Rate
	Total Amount inclusive of Taxes			

10. Ambient Air Quality Monitoring System

Air Quality Monitoring System (AQMS) – Comprehensive Specifications

Section 1: Bill of Quantities (Main Equipment)

Sl. No.	Instrument / Equipment / Item	Quantity	Rate
1	Continuous Ambient Carbon Monoxide (CO) Analyzer (HORIBA APMA-370 or equivalent)	2	
2	Continuous Ambient Sulphur Dioxide (SO_2) Analyzer (HORIBA APSA-370 or equivalent)	2	
3	Continuous Ambient Oxides of Nitrogen ($NO/NO_2/NOx$) Analyzer (HORIBA APNA-370 or equivalent)	2	
4	Continuous Ambient Ammonia (NH_3) Analyzer (or equivalent)	2	
5	Continuous Ambient Ozone (O_3) Analyzer (HORIBA APOA-370 or equivalent)	2	
6	Continuous BTX Monitor/Analyzer (or equivalent)	2	
7	Automatic PM_{10} Particulate Matter Monitor (BAM1020 or equivalent)	2	
8	Automatic $PM_{2.5}$ Particulate Matter Monitor (BAM1020 or equivalent)	2	
9	19” Rack Cabinet to accommodate all Analyzers & Systems	2 Sets	
10	Sampling System with 10-port Manifold	2	

Sl. No.	Instrument / Equipment / Item	Quantity	Rate
11	Continuous Automatic Monitoring Station: Sampling line, Internal fittings, Instrument racks, Electrical and Gas line fittings, Data display system, Recommended spares in Housing/Container	2 Sets	
12	Multi-gas Calibration System for Gas, Meteorological, Flow, and Electronic Calibration	2 Sets	
13	Meteorological Sensors for Wind Direction, Wind Speed, Temperature, Relative Humidity, Solar Radiation	2 Sets	

Section 2: Gas Analyzers Specifications

2.1 Ozone (O_3) Analyzer – HORIBA APOA-370 or equivalent

- Principle: Cross flow modulation, Near-Direct Ultraviolet (NDUV)
- Measurement Range: 0–0.1 / 0.2 / 0.5 / 1.0 ppm
- Lower Detection Limit: 0.5 ppb (3σ)
- Accuracy: ±1.0% Full Scale
- Repeatability: ±1.0% Full Scale
- Response Time (T_{90}): ≤60 seconds at lowest range
- Calibration: Built-in calibration line, 9V standard
- Power: 230 VAC, 50 Hz
- Pump: Integrated
- Communication: TCP/IP
- Mounting: 19” handle plate with rails
- Warranty: 2 Years (spare parts and consumables)

2.2 Carbon Monoxide (CO) Analyzer – HORIBA APMA-370 or equivalent

- Principle: Non-dispersive infrared (NDIR) absorption, cross-flow modulation
- Measurement Range: 0–5 / 10 / 20 / 50 ppm
- Lower Detection Limit: 0.2 ppb (3σ)

- Accuracy: ±1.0% Full Scale
- Repeatability: ±1.0% Full Scale
- Response Time (T_{90}): ≤50 seconds at lowest range
- Calibration: Built-in calibration line, 9V standard
- Power: 230 VAC, 50 Hz
- Pump: Integrated
- Communication: TCP/IP
- Mounting: 19” handle plate
- Warranty: 2 Years (spare parts and consumables)

2.3 Sulphur Dioxide (SO_2) Analyzer – HORIBA APSA-370 or equivalent

- Principle: UV fluorescence (UVF)
- Measurement Range: 0–0.05 / 0.1 / 0.2 / 0.5 ppm
- Lower Detection Limit: 0.5 ppb (3σ)
- Accuracy: ±1.0% Full Scale
- Repeatability: ±1.0% Full Scale
- Response Time (T_{90}): ≤120 seconds
- Calibration: Built-in calibration line, 9V standard
- Power: 230 VAC, 50 Hz
- Pump: Integrated
- Communication: TCP/IP
- Mounting: 19” handle plate
- Warranty: 2 Years

2.4 NO/NO_2/NOx Analyzer – HORIBA APNA-370 or equivalent

- Principle: Cross flow modulation, reduced-pressure chemiluminescence (CLD)
- Measurement Range: 0–0.1 / 0.2 / 0.5 / 1 ppm
- Lower Detection Limit: 0.5 ppb (3σ)
- Accuracy: ±1.0% Full Scale
- Repeatability: ±1.0% Full Scale
- Response Time (T_{90}): ≤90 seconds
- Calibration: Built-in calibration line, SV standard

- Power: 230 VAC, 50 Hz
- Pump: Integrated
- Communication: TCP/IP
- Mounting: 19” handle plate
- Warranty: 2 Years

Section 3: Particulate Monitors

3.1 $PM_{2.5}$ Continuous Monitor – BAM1020 or equivalent

- Beta-attenuation principle
- $PM_{2.5}$ inlet head with Smart Heater
- Internal span calibration foil
- Zero filter (optional)
- External sample pump
- Data Logger: Internal large capacity, ≥8 channels
- Warranty: 2 Years

3.2 PM_{10} Continuous Monitor – BAM1020 or equivalent

- Beta-attenuation principle
- PM_{10} inlet head with Smart Heater
- Internal span calibration foil
- Zero filter (optional)
- External sample pump
- Internal data logger, ≥8 channels
- Unique automatic calibration checking system
- Filter Tapes: 12 pieces
- Pump Rebuild Kit: 2 sets
- Warranty: 2 Years

Section 4: Calibration Systems

4.1 Multi-Gas Calibrator – HORIBA APMC-370 or equivalent

- Gas components: SO_2, NOx, O_3, CO
- Gas dilution: GPT (Gas Phase Titration) & internal O_3 generation
- Zero Gas: Built-in generation

- Type: 19” rack
- Protocol: Standard Bayern-Hessen
- CO Scrubber and Built-in Zero Air Generator
- Power: 230 VAC, 50 Hz
- Warranty: 2 Years

4.2 Air Sample Handling System – ASS-370 or equivalent

- Material: Inert, borosilicate glass for sample lines
- Integrated exhaust manifold
- Complete sample routing system

Section 5: Meteorological Sensors

- Wind Direction & Speed
- Ambient Temperature
- Relative Humidity
- Solar Radiation
- Data Logger: Alpha Log DLALB0100 or equivalent
- Communication: RS232, RS485, USB, Ethernet
- Mounting Accessories and Cables included
- Warranty: 2 Years

Section 6: Data Acquisition & Software (Details given below)

Section 7: Calibration Gases

- 10L Aluminum Cylinders (or equivalent)
- Span Gas SO_2 (10 ppm), NO (20 ppm), NO_2 (20 ppm), CO (1500 ppm)
- Cylinder Pressure: 140 bar, CGA 330 valves
- Certified for AQMS calibration

Section 8: Power & Climate Control

- Air Conditioner: 1.5 Ton × 2 units
- UPS: 10KVA × 1
- Power Supply Options: Water-cooled generator 10KVA OR Solar Hybrid 10KW
- Voltage Stabilization and AVR included

Section 9: Shelter / Container

- Insulated container with internal temperature monitoring
- Exhaust fan and air circulation system
- Fire safety: extinguishers, emergency switch, automatic suppression system
- Connectivity: Internet connection for data transmission
- Infrastructure: Power distribution panel, Teflon + Steel piping, AVR/Stabilizer 5KVA, civil foundation works
- Furniture: Almirah/closet, chair/stool, instrument racks × 2

9. SPECIFICATION OF SOFTWARE FOR CAAQMS

This specification covers the **Data Acquisition, Transmission, Display, and Analysis Software** required for Continuous Ambient Air Quality Monitoring Stations (CAAQMS) for Sindh Environmental Protection Agency (SEPA). The software must support two fully functional CAAQMS and any equivalent system.

Table of Contents

A. Data Acquisition System in the Station
B. Data Acquisition System at the Central Station
C. Compatibility
D. Security
E. Other Technical Conditions
F. Annexure – I: Details of Desired Data Validation System
G. List of Protocols the Software Should Support
**H. Checklist to Compare Firm's Technical Capability Table for Specification of Software

9.1 Specification of Software for CAAQMS

Typical Architecture for Data Connectivity

- Data from all CAAQMS stations must transmit to **State Data Center** and **Central Data Centre** simultaneously via internet (leased lines) in real-time.
- All stations must have **static IP connectivity** with CPCB/SEPA servers to ensure uninterrupted National Air Quality Index (NAQI) updates.
- **Local Display**: Each station must provide a display of pollutant parameters, meteorological parameters, and NAQI near the station.
- Each station stores measured data in a **data logger** before transmission.
- Data logger sends data to the **local display system** and transmits simultaneously to **Central and State servers**.
- **Real-time display** of pollutants, meteorological parameters, and NAQI at all connected stations and central servers.

A. Data Acquisition and Handling System at Station

Data Logger Minimum Features

- Latest edition of Windows OS or equivalent open-source OS.
- Standard **RS232 and USB communication** for interfacing with analyzers.
- Remote communication via telephone, cellular, Ethernet, satellite, or short-haul modems.
- **Data storage** for 30+ years of 10-minute interval historical data.
- Capture min, max, average, standard deviation.
- Lightning and surge protection.
- Full control over calibration cycles.
- Internal DVD-RW for data retrieval when network unavailable.
- Records of all maintenance and calibration (ISO 17025 compliance for traceability).
- **Solid-State Drive (SSD)** for risk-free data storage.

Remote Control

- Client/Server model:
    - **Server software** handles communication with analyzers, calibrators, and stores data.
    - **Client software** provides a graphic interface for setup, viewing, and operations.

Calibration Control

- Automatic calibration and control signals via RS232 interface.
- Calibration data flagged separately from measurement data.
- Calibration precision, zero, and multiple span reports included.

Data Pusher (Web)

- Data logger must directly **FTP data** to web servers or other applications without intermediate download.

Station Software Specifications

1. Data Acquisition

- User-selectable averaging duration: 1, 5, 30, 60, 120 seconds.
- Supports **32 channels minimum**, expandable to 64 channels.
- Data input: Analog (0-1V / 0-10V / 2-20mA / 4-20mA) or Digital (RS232/USB/TCP-IP).
- Configurable channels, stations, and equipment communication parameters.
- Analyzer channels include Name, Units, Address, Validity Range, Operation, and Error Status.

- Supports conversion factors (PPB to µg/m³).
- Reads raw data; averaging duration selectable.

2. Data Collection

- Capture per-second data.
- Average over selectable time intervals (1, 5, 30, 60 sec).
- Capture operational status, error status, calibration status every 5 min.
- Diagnostics collected every 5 minutes.
- Calibration values captured (pre & post) and stored for analysis.

3. Data Storage

- Stores data with diagnostics, calibration, alarms.
- Minimum storage of 5 years of per-second data from 32 channels.
- Data stored in **plain text**; if encryption is applied, decryption procedure must be provided.

4. Data Display & Analysis

- Graphs: 4-in-4, 4-in-1, 16-in-1 user-defined time series.
- Tables: 4-in-1 channel list, user-defined intervals.
- Real-time display of instruments and system status.
- Statistical analysis: regression, correlation, SPCB-required calculations.
- Threshold analysis, min/max/average calculations, violation checks.

5. Data Backup

- Defined backup procedure in text/excel format.
- Restore procedure included.
- User notification of backup status.

6. Data Validation at Station

- Automatic zero & span checks, user-definable ±0–10%.
- Alarms transmitted to central software.
- Pre- and post-calibration data stored separately.

7. Data Validation Requests

- Tiered request/approval system (Annexure-I).
- Two databases: raw and corrected.

8. Calibration

- Remote and local calibration supported.
- Records stored for pre/post calibration and diagnostics.

9. Location Tracking

- Fixed and mobile station location, latitude & longitude recorded.

10. Data Transfer to Central

- User-selectable intervals.
- Diagnostics, configuration, and alarms transmitted.

11. Data Transfer to Display Boards

- Software provision for online display.
- User-defined customizable display formats.

B. Data Acquisition System at Central Station

- No restriction on number of stations/computers.
- Real-time tabular and graphical display.
- Data received within 5 minutes or user-defined intervals.
- Supports broadband, wireless, dial-up, 2G/3G/4G/5G, or future technologies.
- Remote calibration and configuration.
- Alarm reports, image management, and validation logs maintained.
- Data export: Excel, text, user-defined intervals.
- Data import from physical media if needed.
- Printing support for all reports.

C. Compatibility

- Compatible with latest OS platforms (Windows/Linux).
- 5-year maintenance and patch support.
- Supports all current and future data transmission protocols.

D. Security

- Password-protected or open access as per SEPA requirements.
- Antivirus or equivalent protection managed by the provider.

E. Other Technical Conditions

- All hardware for data transmission supplied.
- Ability to develop new communication protocols over 5 years.
- Complete system manual provided.
- Hardware & software (OS, MS Office, Networking, Remote software, Display software) provided and maintained for project duration.
- Web deployment compliant with CERT-IN standards (for RTDAS.COM domain).

Workstation Computer for AQI

Sl. No	Item	Specifications
1	CPU	Intel® Core i7 4th gen or higher, or equivalent
2	Memory	8 GB DDR-III 1600MHz or better
3	Ethernet	Integrated Intel® Ethernet LAN 10/100/1000
4	PCI Slots	Two PCIe x16 half height
5	Optical Drive	DVD-RW Internal
6	HDD	1TB 3.5” SATA or equivalent
7	Power Supply	Standard suitable PSU
8	Keyboard	OEM Optical Keyboard or equivalent
9	Mouse	Standard Optical Mouse or equivalent
10	I/O Ports	4 USB 3.0
11	Monitor	17” Wide LCD TFT Color Monitor or better
12	Wireless Adapter	USB Wireless Adapter x1
13	OS Support	Open-source Ubuntu latest release or equivalent
14	Warranty	3 years onsite including spares
15	Type	Tower, black or rack-fitting as required

Network & Remote Management

- **Managed Cisco Switch**: 24-port gigabit, rack-mountable, LAN/WAN, latest series, or equivalent.
- **Remote Monitoring Tool/Software**: Licenses for station and central systems, for project duration.

MANAGEABLE ETHERNET SWITCH (RACK MOUNTABLE)

Managed Ethernet Switch suitable for installation at the **Central Server Location of Sindh Environmental Protection Agency (SEPA)**.

Technical Specifications

- Type: 24-Port Managed Fast / Gigabit Ethernet Switch
- Ports: Minimum 24 × 10/100/1000 Mbps RJ-45 LAN Ports
- Uplink / WAN Ports: Minimum 2 × Gigabit SFP / SFP+ Ports
- Management: Layer-2 / Layer-3 Managed
- Supported Protocols: VLAN, STP, RSTP, MSTP, QoS, IGMP, SNMP, Port Mirroring
- Security Features: MAC Binding, Access Control Lists (ACL), Port Security
- Rack Mountable: Yes, standard 19-inch rack
- Power Supply: AC 230 V, 50 Hz (internal; redundant preferred)
- Operating Temperature: 0 °C to 45 °C
- Compliance: IEEE 802.3 / 802.3u / 802.3ab / 802.3z
- Make: **Cisco (latest series) or equivalent**, with authorized support in Pakistan

REMOTE MONITORING TOOL / SOFTWARE

Remote management software for **CAAQMS station computers and SEPA Central Server**, valid for the entire project duration.

Specifications

- Secure remote desktop and server management capability
- Coverage: All CAAQMS stations and SEPA Central Server
- Licensing: Valid for entire project duration
- User Management: Role-based access control
- Security: Encrypted communication, authentication logs
- Compatibility: Windows and Linux platforms
- Monitoring: CPU, RAM, disk, network, and process monitoring
- Alerts: Email and dashboard alerts
- Make: Any reputed OEM or equivalent

2U INDUSTRIAL RACK

(For Central Server Location – SEPA Head Office)

General Requirements

- Type: 19-inch Industrial Server Rack
- Height: 42U
- Colour: Black
- Load Capacity: Minimum 1000 kg
- Application: Central server installation at SEPA Head Office

Detailed Specifications

Sl. No.	Description	Quantity
1	19” Industrial Rack, 42U	1
2	Steel enclosure, 9-folded profile, 800 mm (W) × 1000 mm (D) × 42U (H), bottom cable entry with knock-out holes, horizontal supports on both sides	1
3	Front and rear doors, 100% perforated, foldable half-opening, provision for fan mounting with concealed AC wiring	2
4	Cooling fans, 230 V, 90 CFM, mounted on rear door	4
5	Vertical AC main channel with 12 × 5/15 A sockets, 32 A MCB (Anchor / Northwest or equivalent)	2
6	Horizontal cable manager	20
7	Vertical cable manager	10
8	Copper earthing strip with minimum 15 earthing points	1 Set
9	Castors with brake	1 Set
10	Adjustable screw legs (4 Nos.) or base frame (1 No.)	As required
11	Automatic light activation on opening of front/rear door	1
12	Hardware packet	2 Sets

Any additional accessories required for complete installation shall be provided by the vendor.

RACK SERVER

(For Central Server Location – SEPA)

Technical Specifications

- CPU: Single Intel Xeon Quad-Core E5-1620 v3 3.50 GHz or higher; motherboard shall support dual sockets
- Memory: 32 GB DDR-4 (expandable up to minimum 128 GB)
- Motherboard: Intel chipset compatible with required configuration
- Storage: 3 × 500 GB SAS or better
- RAID Controller: Minimum RAID-5
- Ethernet: 4 × Gigabit ports (2 dual-port NICs) with iSCSI support
- PCIe Slots: Minimum 2 × PCIe expansion slots
- Optical Drive: External USB DVD-RW
- Form Factor: 2U rack-mount with rail kit
- Keyboard: Wireless optical keyboard
- Mouse: Wireless optical mouse
- I/O Ports: USB (front & rear), VGA, Serial, SAS
- Monitor: 22” wide LCD TFT colour monitor
- Wireless Adapter: USB wireless adapter × 2
- Antivirus: Enterprise antivirus (McAfee / Norton / Trend Micro or equivalent)
- Power Supply: Redundant (1+1)
- Cooling: Redundant fans
- Warranty: 24×7 onsite comprehensive warranty for 3 years with 4-hour response time
- Make: **HP / Dell / Lenovo / Supermicro or equivalent**, with local support in Pakistan

ACCESS POINT (AP)

(For Central Location – SEPA)

Specifications

- Ethernet: 1 × Gigabit Ethernet port
- Wireless: 2.4 GHz, IEEE 802.11 b/g/n
- CPU: Atheros AR9342 600 MHz or equivalent
- Memory: Minimum 64 MB DDR
- Antenna: 2 × RP-SMA connectors
- Expansion: Mini-PCIe slot, USB 2.0

- Power: PoE, 8–30 V DC
- Power Consumption: ≤ 14 W
- Operating Condition: Outdoor rated
- Dimensions: Not exceeding 400 × 150 × 100 mm
- Operating System: OEM proprietary OS
- Accessories: PoE injector, mounting kit
- Frequency Range: 2400–2500 MHz
- Make: MikroTik / Ubiquiti / Cisco or equivalent

UTM (UNIFIED THREAT MANAGEMENT) DEVICE

(For SEPA Central Station)

Certifications

- EAL4+ Certification
- ICSA Firewall Certification

Performance

- Firewall Throughput: ≥ 5 Gbps
- Antivirus Throughput: ≥ 1.2 Gbps
- IPS Throughput: ≥ 1 Gbps
- Concurrent Sessions: ≥ 1 million
- New Sessions per Second: ≥ 45,000
- IPsec VPN Throughput: ≥ 800 Mbps
- IPsec Tunnels: ≥ 1000
- SSL VPN Users: ≥ 50
- All required licenses shall be included in the BOQ

Interfaces

- Minimum 8 × 10/100/1000 Mbps ports
- Hardware bypass supported

Features

- Identity-based firewall
- Intrusion Prevention System (IPS)

- Gateway antivirus and anti-spam
- Web content and application filtering
- Bandwidth management
- Built-in reporting
- Routing: OSPF, RIPv2, BGP, load balancing, high availability, QoS
- SMS-based user authentication
- Country-based blocking
- FQDN support
- Mixed-mode deployment

GATEWAY ANTIVIRUS, ANTI-SPYWARE AND ANTI-SPAM

(As Part of Unified Threat Management (UTM) Device for SEPA)

The proposed Integrated Gateway Antivirus, Anti-Spyware, and Anti-Spam solution shall be provided as an integral part of the UTM appliance to be installed at the **SEPA Central Station**.

General Requirements

- Solution shall provide comprehensive protection against viruses, worms, trojans, spyware, ransomware, and zero-day threats
- Shall support automatic and real-time signature updates
- Shall operate in real time without degrading network performance

Certifications

- The proposed solution shall have **Webroot / West Coast Labs Checkmark Certification or equivalent international certification**, as part of the UTM appliance

Functional Capabilities

- Virus, Worm, and Trojan detection and removal
- Automatic virus signature database updates
- Zero-hour virus outbreak protection
- Real-time blacklist support
- MIME header checking
- Image-based spam filtering
- Redirect spam emails to a dedicated email address
- Spam notification and alerting
- Anti-Spyware with recurrent pattern detection technology

- Self-service quarantine area for end users

WEB AND APPLICATION FILTERING

(For SEPA Network Security Infrastructure)

The proposed Web and Application Filtering solution shall be integrated within the UTM appliance.

Certifications

- Web filtering engine shall have **at least one internationally recognized certification**, such as **West Coast Labs Checkmark or equivalent**

Features

- URL filtering and keyword-based blocking
- File-type blocking
- Blocking of Java applets, cookies, and ActiveX controls
- Protection against malware, phishing, and pharming URLs
- Blocking of Peer-to-Peer (P2P) applications
- Blocking of anonymous proxies and circumvention tools
- Customized policy creation on group and user basis

Database Requirements

- Minimum **70+ URL categories**
- Support for **100 million or more URLs**
- Support for **5,000+ applications** or equivalent

SECURITY FEATURES

Intrusion Prevention System (IPS)

The proposed IPS shall be an integral part of the UTM appliance installed at **SEPA**.

Certifications

- IPS engine shall have **West Coast Labs Checkmark Certification or equivalent**

Protection Coverage

- Mail attacks
- FTP attacks
- HTTP attacks
- DNS attacks

- ICMP attacks
- TCP/IP attacks
- DoS and DDoS attacks
- Telnet attacks

IPS Capabilities

- Default signatures: Minimum **2,000+**
- Support for custom signatures
- Multiple IPS policies with user-based policy creation
- Automatic real-time updates from OEM threat intelligence networks or equivalent
- Protocol anomaly detection

VIRTUAL PRIVATE NETWORK (VPN)

The UTM appliance shall support comprehensive VPN functionality.

VPN Types

- IPsec
- L2TP
- PPTP
- SSL VPN

VPN Features

- VPN redundancy and failover
- Hub-and-Spoke architecture support
- Encryption algorithms: 3DES, DES, AES
- Hash algorithms: MD5, SHA-1
- IPsec NAT traversal
- VPNC certification or equivalent

LOAD BALANCING AND HIGH AVAILABILITY

Load Balancing

- Automated failover and failback
- Multi-WAN failover support
- Weighted Round Robin (WRR) based load balancing

- Round-robin load balancing

High Availability

- Active-Active high availability mode
- Quality of Service (QoS) support

Routing Protocols

- OSPF
- RIPv2
- BGP
- Policy-based routing on application and user basis

BANDWIDTH MANAGEMENT

The UTM appliance shall provide advanced bandwidth management features.

Features

- Application-based bandwidth management
- User and identity-based bandwidth control
- Multi-WAN bandwidth monitoring and reporting
- Guaranteed and burstable bandwidth policies
- Bandwidth allocation based on:
    - User
    - Group
    - Firewall rule
    - URL
    - Application

MONITORING AND REPORTING SYSTEM

The UTM appliance shall include an integrated monitoring and reporting system suitable for **SEPA Central IT and Network Management**.

Monitoring Features

- Centralized management and monitoring
- Command Line Interface (CLI) access
- Real-time gateway monitoring

- Monitoring of suspicious activities and alerts
- Graphical real-time and historical monitoring
- Email notifications for alerts, reports, viruses, and attacks

Reporting Capabilities

- Reports for IPS, Web Filtering, Antivirus, and Anti-Spam
- IP-based and user-based reporting
- Minimum **40+ compliance reports**
- Minimum **1,000+ drill-down reports**
- On-appliance storage capacity of **minimum 250 GB** or equivalent

TECHNICAL SPECIFICATIONS – 10 kVA ONLINE UPS (PAKISTAN)

1. Scope of Supply

The supplier shall provide **10 kVA Online UPS systems** suitable for **Continuous Ambient Air Quality Monitoring Stations (CAAQMS)** in Pakistan, complete with batteries, accessories, cabling, installation, testing, and commissioning.
The UPS shall ensure **continuous, clean, and regulated power** for analyzers, data acquisition systems, servers, communication equipment, and display boards.

2. General Requirements

- UPS Type: **Online Double Conversion**
- Capacity: **10 kVA (minimum 8 kW usable output)**
- Application: 24×7 continuous operation
- Technology: **IGBT-based PWM rectifier and inverter**
- Input / Output Configuration:
    - Single Phase Input / Single Phase Output **OR**
    - Three Phase Input / Single Phase Output (site dependent)
- Designed for operation under **Pakistan grid conditions** (voltage fluctuation & outages)

3. Electrical Specifications

Input

- Nominal Input Voltage:
    - Single Phase: 220–240 V AC

    - Three Phase: 380–415 V AC
- Voltage Tolerance:
    - Single Phase: ±20%
    - Three Phase: ±15%
- Input Frequency: 50 Hz ±10%
- Input Power Factor: ≥ 0.99
- Total Harmonic Distortion (THDi): ≤ 5%
- Input Protection: MCB/MCCB, surge protection device

Output

- Output Voltage: 230 V AC ±1%
- Output Frequency:
    - Normal Mode: synchronized with mains
    - Battery Mode: 50 Hz ±0.1%
- Output Power Factor: ≥ 0.8 (preferred ≥ 0.9)
- Output Voltage Distortion:
    - Linear Load: ≤ 2%
    - Non-Linear Load: ≤ 5%
- Overload Capacity:
    - 110% for 10 minutes
    - 125% for 1 minute
    - 150% for 10 seconds

4. Battery System

- Battery Type:
    - **Sealed Maintenance-Free (SMF) VRLA**
    - or Tubular / Lithium-ion (if specified in BOQ)
    - or equivalent
- Backup Time: **Minimum 1 hour at full load**
- Battery Bank: Internal or external, as per OEM design

- Battery Protection:
    - Over-charge
    - Deep discharge
    - Short circuit
- Battery Monitoring: Battery health and status indication

5. Battery Charger & Management

- Intelligent automatic charger
- Temperature-compensated charging
- Automatic battery testing
- Cold start facility (UPS start without mains)

6. Bypass System

- Static Bypass: Built-in automatic static bypass
- Maintenance Bypass: Manual bypass for servicing
- Transfer Time: Zero interruption

7. Display & Alarms

- Display Type: LCD / LED
- Parameters Displayed:
    - Input voltage, frequency
    - Output voltage, load %
    - Battery voltage and backup time
    - Operating mode and fault status
- Audible & Visual Alarms:
    - Mains failure
    - Battery low
    - Overload
    - UPS fault
    - Bypass active

8. Communication & Monitoring

- Communication Interfaces:
  - RS-232 / USB
  - SNMP / Ethernet (LAN) card
- Remote Monitoring:
  - Compatible with network monitoring software
- Integration:
  - Compatible with CAAQMS computers and data acquisition systems

9. Protection Features

- Input surge & lightning protection
- Output short circuit protection
- Over-voltage / under-voltage protection
- Over-temperature protection
- Reverse polarity protection
- Optional isolation transformer (if required)

10. Environmental Conditions

- Operating Temperature: 0°C to 40°C
- Storage Temperature: –20°C to +60°C
- Relative Humidity: Up to 95% non-condensing
- Altitude: Up to 1000 m without derating

11. Mechanical Specifications

- Enclosure: Powder-coated CRCA steel
- Protection Class: Minimum IP20
- Cooling: Forced air cooling with fans
- Installation: Floor mounted / rack compatible
- Noise Level: ≤ 65 dB at 1 meter

12. Standards & Compliance

The UPS shall comply with **internationally recognized standards**, such as:

- **IEC 62040-1 / 62040-2 / 62040-3**
- **ISO 9001** (manufacturer quality certification)
- **ISO 14001** (environmental management, preferred)
- CE or equivalent international safety certification

13. Testing & Commissioning

- Factory testing prior to supply
- Site installation, testing & commissioning
- Load testing at site
- Submission of test and commissioning reports

14. Documentation

Supplier shall provide:

- User and service manuals
- Technical datasheets
- Electrical schematics
- Warranty certificates
- Compliance declarations

15. Warranty & After-Sales Support

- UPS Warranty: **Minimum 3 years onsite comprehensive**
- Battery Warranty: **Minimum 2 years**
- Availability of spare parts for at least **5 years**
- Local service support in Pakistan
- Maximum response time: **48 hours**

11. HQ-4200 (Hach) Multi-Parameter Water Quality Meter

(OR EQUIVALENT)**

Quantity: 03 Nos.

Technical Specifications

- **Type:** Portable, handheld multi-parameter water quality meter
- **Measured Parameters:**
  - pH
  - Dissolved Oxygen (DO)
  - Electrical Conductivity
  - Total Dissolved Solids (TDS)
  - Salinity
  - Temperature
- **Accuracy:** As per manufacturer standard for regulatory water quality monitoring
- **Measurement Mode:** Field and laboratory use
- **Display:** Large backlit digital display, readable in outdoor conditions
- **Data Logging:** Internal memory for storing readings with date and time stamp
- **Calibration:**
  - Multi-point calibration supported
  - Automatic calibration recognition
- **Interface:** USB or equivalent data transfer interface
- **Power Supply:** Rechargeable battery with minimum 8 hours continuous operation
- **Environmental Protection:** Splash and dust resistant, suitable for field conditions
- **Standards Compliance:** Suitable for surface water, groundwater, and industrial effluent monitoring as per Pak-EPA / SEQS guidelines
- **Accessories:**
  - Sensors/probes for all listed parameters
  - Calibration solutions
  - Carrying case
- **Warranty:** Minimum 1 year

- **Make:** Hach HQ-4200 **or equivalent**

12. Ambient Air Quality Portable Detector (OR EQUIVALENT)**

Quantity: 03 Nos.

Technical Specifications

- **Type:** Portable ambient air quality monitoring instrument
- **Measured Parameters:**
  - $PM_{2.5}$
  - PM_{10}
  - SO_2
  - CO
  - O_3
  - VOCs
  - TSP (Total Suspended Particulates)
- **Measurement Principle:** Optical / Electrochemical / Equivalent approved technology
- **Response Time:** Real-time or near real-time measurement
- **Display:** Digital color display with numerical and graphical output
- **Data Logging:** Internal storage with time-stamped data
- **Alarm System:** Audible and visual alarms for exceedance of set limits
- **Calibration:** Field calibration capability
- **Interface:** USB / Bluetooth / Wi-Fi for data download (as applicable)
- **Power Supply:** Rechargeable battery with minimum 6–8 hours operation
- **Portability:** Lightweight, rugged design suitable for field inspections
- **Compliance:** Suitable for SEQS and Pak-EPA ambient air quality monitoring
- **Accessories:** Carrying case, charger, calibration accessories
- **Warranty:** Minimum 1 year
- **Make:** Reputed international brand **or equivalent**

13. Flow Meter

(OR EQUIVALENT)**

Quantity: 01 No.

Technical Specifications

- **Type:** Portable flow meter
- **Application:**
  - Water
  - Wastewater
  - Industrial effluents
- **Measurement Type:** Ultrasonic / Electromagnetic / Equivalent technology
- **Flow Range:** Suitable for low to high flow rates in open channels and pipes
- **Accuracy:** ±2% or better
- **Display:** Digital display with instantaneous and totalized flow readings
- **Data Logging:** Internal memory for storing measured data
- **Installation:** Clamp-on / non-intrusive preferred
- **Power Supply:** Rechargeable battery with minimum 8 hours operation
- **Environmental Protection:** Suitable for outdoor and industrial environments
- **Compliance:** Suitable for industrial discharge monitoring under SEQS
- **Accessories:** Sensors, mounting accessories, carrying case
- **Warranty:** Minimum 1 year
- **Make:** Reputed manufacturer **or equivalent**

14. Noise Meter (Sound Level Meter)

(OR EQUIVALENT)**

Quantity: 03 Nos.

Technical Specifications

- **Type:** Portable Sound Level Meter
- **Standards Compliance:** IEC 61672 Class 1 or Class 2 (latest edition)
- **Measurement Range:** Minimum 30 dB(A) to 130 dB(A)

- **Frequency Weighting:** A, C, and Z weighting
- **Time Weighting:** Fast, Slow, and Impulse
- **Display:** Digital backlit display
- **Data Logging:** Built-in memory for noise measurement records
- **Calibration:** Acoustic calibrator compatible, field calibration supported
- **Output:** USB or equivalent data transfer
- **Power Supply:** Battery operated with minimum 8 hours operation
- **Application:** Environmental noise, industrial noise, and occupational noise monitoring
- **Compliance:** Suitable for monitoring under Sindh Environmental Quality Standards (SEQS)
- **Accessories:** Wind screen, calibration certificate, carrying case
- **Warranty:** Minimum 1 year
- **Make:** Reputed international brand **or equivalent**

15. Schedule of Requirements – Laboratory Chemicals & Reagents

S. No.	Chemical / Reagent	Approved Company (or Equivalent)	Quantity	Rate quoted
1	Acetone	Merck or Equivalent	6 Liters	
2	Potassium Chromate	Merck or Equivalent	500 gm	
3	Mg^{2+} Salt of EDTA	Merck or Equivalent	350 gm	
4	COD Vials (0–1500)	HACH or Equivalent	02 Packets	
5	COD Vials (0–15000)	HACH or Equivalent	02 Packets	

6	Chromium Test Kit	HACH or Equivalent	02 Packets	
7	Copper Test Kit	HACH or Equivalent	02 Packets	
8	Manganese Test Kit	HACH or Equivalent	02 Packets	
9	Lead Test Kit	HACH or Equivalent	02 Packets	
10	Ammonia Test Kit	HACH or Equivalent	02 Packets	
11	Nitrate Test Kit	HACH or Equivalent	02 Packets	
12	Nitrite Test Kit	HACH or Equivalent	02 Packets	
13	Chloride Test Kit	HACH or Equivalent	02 Packets	
14	Fluoride Test Kit	HACH or Equivalent	02 Packets	
15	Sulfide Reagent Kit	HACH or Equivalent	02 Packets	
16	Sulfate Test Kit	HACH or Equivalent	02 Packets	
17	Chlorine Test Kit	HACH or Equivalent	02 Packets	
18	Total Chlorine Test Kit	HACH or Equivalent	02 Packets	
19	Silica Test Kit	HACH or Equivalent	02 Packets	
20	Lithium / Potassium Hydroxide	HACH or Equivalent	02 Packets	
21	Zinc Powder Pillow	HACH or Equivalent	02 Packets	

22	Iron Reagent Powder Pillow	HACH or Equivalent	02 Packets	
23	Cyanide Reagent Powder Pillow	HACH or Equivalent	02 Packets	
24	Sodium Chloride (Std. Solution for TDS)	HACH or Equivalent	02 Packets	
25	Nitrite Reagent	HACH or Equivalent	02 Packets	
26	Chloride Kit (Nova-60 Compatible)	Approved Brand or Equivalent	02 Boxes	
27	Fluoride Kit (Nova-60 Compatible)	Approved Brand or Equivalent	02 Boxes	
28	Cyanide Kit (Nova-60 Compatible)	Approved Brand or Equivalent	02 Boxes	
29	Sulphate Kit (Nova-60 Compatible)	Approved Brand or Equivalent	02 Boxes	
30	Ammonia Kit (Nova-60 Compatible)	Approved Brand or Equivalent	02 Boxes	
31	Cadmium Kit	Approved Brand or Equivalent	02 Boxes	
32	Chromium Kit	Approved Brand or Equivalent	02 Boxes	
33	Copper Kit	Approved Brand or Equivalent	02 Boxes	
34	Lead Kit	Approved Brand or Equivalent	02 Boxes	
35	Nickel Kit	Merck or Equivalent	02 Boxes	
36	Zinc Kit	Merck or Equivalent	02 Boxes	
37	Arsenic Kit	Merck or Equivalent	02 Boxes	

38	Barium Kit	Approved Brand or Equivalent	02 Boxes	
39	Iron Kit	Merck or Equivalent	02 Boxes	
40	Manganese Kit	Approved Brand or Equivalent	02 Boxes	
41	Boron Kit	Approved Brand or Equivalent	02 Boxes	
42	Chloride Kit	Approved Brand or Equivalent	02 Boxes	
43	COD Kit	Merck or Equivalent	03 Boxes	
44	BOD Kit	Merck or Equivalent	02 Boxes	
45	COD Test Cell (25–1500 & 500–2500 mg/L)	Merck or Equivalent	04 Boxes	
46	BOD Pillow & KOH Tablets	Approved Brand or Equivalent	02 Boxes	
47	Nitrate Kit	Approved Brand or Equivalent	02 Boxes	
48	Phenolic Compounds (as Phenol)	HACH or Equivalent	02 Packets	
49	Cadmium Reagent	HACH or Equivalent	02 Packets	
50	Coliform 100 Ready Culture (E. coli)	Approved Brand or Equivalent	04 Units	
51	Isopropyl Alcohol	Approved Brand or Equivalent	02 Liters	
52	FC Agar with Chemicals	Approved Brand or Equivalent	02 Packs	
53	Kovács Reagent	Approved Brand or Equivalent	02 Bottles	

54	Chromocult Coliform Agar	Approved Brand or Equivalent	02 Packs	
55	Other Indicators / Reagents (as required)	Approved Brand or Equivalent	Lump Sum	
	Total Amount			

16. Requirement of Apparatus

SEPA Karachi, Hyderabad & Sukkur Laboratories

S. No.	Apparatus Name	Specifications	Approved Brand (or Equivalent)	Quantity	Rate Quoted
1	Micro Pipette	Adjustable, volume range 0–1000 µL, autoclavable, high accuracy	Approved Brand or Equivalent	02	
2	Volumetric Flask	100 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	10	
3	Volumetric Flask	50 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	10	
4	Volumetric Flask	20 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	05	
5	Volumetric Flask	10 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	05	
6	Volumetric Flask	25 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	05	
7	Volumetric Flask	250 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	05	
8	Volumetric Flask	1000 ml, Borosilicate glass, Class A	Approved Brand or Equivalent	05	

9	Bulk Pipette	1 ml, Borosilicate glass, calibrated	Approved Brand or Equivalent	02	
10	Bulk Pipette	2 ml, Borosilicate glass, calibrated	Approved Brand or Equivalent	05	
11	Bulk Pipette	3 ml, Borosilicate glass, calibrated	Approved Brand or Equivalent	05	
12	Bulk Pipette	5 ml, Borosilicate glass, calibrated	Approved Brand or Equivalent	05	
13	Bulk Pipette	10 ml, Borosilicate glass, calibrated	Approved Brand or Equivalent	05	
14	Bulk Pipette	25 ml, Borosilicate glass, calibrated	Approved Brand or Equivalent	03	
15	Graduated Pipette	1 ml, Borosilicate glass, graduated	Approved Brand or Equivalent	03	
16	Graduated Pipette	2 ml, Borosilicate glass, graduated	Approved Brand or Equivalent	03	
17	Graduated Pipette	3 ml, Borosilicate glass, graduated	Approved Brand or Equivalent	03	
18	Graduated Pipette	5 ml, Borosilicate glass, graduated	Approved Brand or Equivalent	03	
19	Graduated Pipette	10 ml, Borosilicate glass, graduated	Approved Brand or Equivalent	03	
20	Glass Burette	25 ml, PTFE stopcock, Class A	Approved Brand or Equivalent	03	
21	Glass Burette	50 ml, PTFE stopcock, Class A	Approved Brand or Equivalent	03	
22	Burette Stand	Heavy base with clamp, corrosion resistant	Approved Brand or Equivalent	03	
23	Pipette Stand	Acrylic / Polypropylene, multi-slot	Approved Brand or Equivalent	03	
24	Glass Beaker	250 ml, Borosilicate glass	Approved Brand or Equivalent	02	

25	Glass Beaker	100 ml, Borosilicate glass	Approved Brand or Equivalent	10	
26	Glass Beaker	50 ml, Borosilicate glass	Approved Brand or Equivalent	10	
27	Glass Conical Flask	250 ml, Borosilicate glass	Approved Brand or Equivalent	05	
28	Glass Conical Flask	100 ml, Borosilicate glass	Approved Brand or Equivalent	10	
29	Glass Conical Flask	500 ml, Borosilicate glass	Approved Brand or Equivalent	05	
30	Test Tubes	Borosilicate glass, heat resistant	Approved Brand or Equivalent	02	
31	Petri Dish (Glass)	Glass, autoclavable	Approved Brand or Equivalent	05	
32	Separating Funnel	250 ml, Borosilicate glass, PTFE stopcock	Approved Brand or Equivalent	03	
33	Separating Funnel	500 ml, Borosilicate glass, PTFE stopcock	Approved Brand or Equivalent	03	
34	Glass Rod	Borosilicate glass, smooth finish	Approved Brand or Equivalent	03	
35	Glass Beads	Inert, uniform size, laboratory grade	Approved Brand or Equivalent	02 Packs	
36	Washing Bottle	500 ml, Polyethylene	Approved Brand or Equivalent	05	
37	Washing Bottle	1000 ml, Polyethylene	Approved Brand or Equivalent	02	
38	Filter Paper No. 41	Whatman No. 41 or equivalent, ashless	Whatman or Equivalent	05 Packs	
39	Filtration Assembly	Vacuum compatible, complete set	Approved Brand or Equivalent	01	

40	Pipette Filler	Rubber / Mechanical, chemical resistant	Approved Brand or Equivalent	02	
41	Magnetic Bar	PTFE coated, 1 & 2 inch	Approved Brand or Equivalent	02	
42	Spatula	Stainless steel, corrosion resistant	Approved Brand or Equivalent	05	
43	Beaker Set	100 ml & 500 ml, Borosilicate glass	Approved Brand or Equivalent	05 Sets	

17. Required Accessories – SEPA Laboratories

S. No.	Accessory Name	Specifications	Quantity	Rate Quoted by the bidder
1	Ice Boxes	Insulated, portable, durable	05	
2	Gloves	Disposable, powder-free, nitrile/latex	10 Packets	
3	Safety Shoes	Steel toe, anti-slip, industrial grade	06	
4	Fire Extinguishers	ABC type, portable, certified	05	
5	First Aid Box	Complete laboratory emergency kit	03	
6	Helmet	Industrial safety helmet, adjustable	03	
7	Stickers	Waterproof, durable labels	30 Packets	
8	Mugs	Heat resistant, laboratory use	06	
9	Sampling Bottles	Plastic/Glass, leak-proof, lab grade	1500	
10	Accessories Carrier Bag	Heavy-duty, field-use compatible	03	

1. Scope of Supply

- **Bidder must supply chemicals exactly as specified in the bidding documents (grades, quantities, packaging).**
- **Intended for analytical, research, or testing purposes.**

2. Grade & Quality Standards

- **Only approved laboratory grades accepted (AR, ACS, LR, HPLC, etc.).**
- **Industrial or technical grades are not allowed unless specified.**

3. Compliance with Standards

- **Chemicals must meet recognized international standards: ISO, ASTM, ACS, BP, USP, or equivalents.**

4. Manufacturer & Brand Approval

- **Supply from reputable, approved manufacturers only.**
- **No unbranded, refilled, or repackaged chemicals.**

5. Shelf Life Requirement

- **Minimum 75% remaining shelf life at delivery.**
- **Expired or near-expiry chemicals will be rejected.**

6. Packaging & Labeling

- **Original, sealed manufacturer packaging.**
- **Required labeling:**
    - **Chemical name & grade**
    - **Batch/lot number**
    - **Manufacture & expiry dates**
    - **Safety symbols & hazard classification**

- **Manufacturer details**

7. Safety Data Sheets (SDS/MSDS)

- **Must accompany each chemical.**
- **Compliant with GHS standards, in hard copy or electronic form.**

8. Safety & Regulatory Compliance

- **Bidder must comply with all health, safety, environmental, and hazardous material regulations.**

9. Transportation & Handling

- **Chemicals must be transported safely to prevent leakage, contamination, or reactions.**
- **Damage during transit is bidder's responsibility.**

10. Inspection & Testing

- **Procuring agency can inspect, reject, or send samples for testing.**

11. Replacement of Rejected Items

- **Non-compliant, damaged, or expired chemicals must be replaced at no extra cost.**

12. Prohibition of Substitution

- **No substitution of grade, brand, concentration, or packaging without written approval.**

13. Quantity Tolerance

- **Quantities must exactly match the purchase order.**

14. Warranty / Quality Assurance

- **Bidder guarantees quality, purity, and performance throughout shelf life.**

15. Payment Terms

- **Payment after complete delivery, inspection, and acceptance.**

16. Right of Acceptance / Rejection

- **Procuring agency can accept or reject any supply, fully or partially, without explanation.**

17. Governing Procurement Rules

- **Governed by Sindh Procurement Rules (as amended).**

Special Measures for Inflammable, Hazardous & Controlled Chemicals

18. Special Measures

a) Regulatory Approval & Licensing

- **Valid licenses required for handling, storage, transport, and supply.**

b) Approved Packaging

- **UN-approved, leak-proof, pressure-resistant containers per international transport regulations (UN, ADR, IMDG, IATA).**

c) Clear Hazard Identification

- **Containers must display hazard labels, flammable symbols, handling instructions, and emergency info per GHS.**

d) Safe Transportation Requirements

- **Use approved vehicles with fire extinguishers, spill kits, and trained personnel.**
- **No mixing of incompatible chemicals during transport.**

e) Temperature & Environmental Control

- **Maintain required conditions to prevent degradation or fire risk.**

f) Emergency Response & Spill Management

- **Provide procedures for spills, leakage, and accidents; immediate containment & reporting required.**

g) Trained Personnel Requirement

- **Staff must be trained in chemical safety, emergency response, and PPE usage.**

h) Storage Compatibility & Segregation

- **Segregate flammable chemicals from oxidizers, acids, and incompatible substances.**

i) Insurance & Liability

- **Bidder is fully responsible for loss, damage, fire, environmental harm, or injury from mishandling.**

j) Right of Rejection

- **Chemicals non-compliant with labeling, safety documentation, or regulations will be rejected immediately.**

18. List of Equipments for Repair and Maintenance with Calibration for Karachi, Hyderabad and SukkurLaboratories

S. #	Name of Equipment	Existing Condition	Description / Justification	Qty	Details of works to be performed by the bidder	Rate Quoted by the bidder
1	Atomic Absorption Spectrophotometer (Thermo Scientific ICE-3000)	Available at Karachi & Hyderabad Labs	Used to detect & quantify trace elements (Pb, Cd, Cr, Ni, Zn, Cu, Fe, Mn, Hg) in water, wastewater, industrial effluents. Complete repair, maintenance & 3-year warranty required.	2		
2	Ion Chromatography	Available at SEPA Lab Karachi	Separates anions/cations in water, wastewater, industrial samples (F^-, Cl^-, NO_3^-, SO_4^{2-}). Complete repair & 3-year warranty required.	1		
3	Stack Gas Emission Analyzer (Lancom III, UK)	Portable analyzer	Measures O_2, CO, CO_2, NOx, SO_2 in industrial stack emissions. Complete repair & 3-year warranty required.	3		
4	Spectroquadrant (Merck)	Available at Karachi & Hyderabad	Used for water & wastewater analysis (COD, BOD, nutrients, heavy metals). Maintenance required.	2		
5	Spectrophotometer NOV-60	Available at Karachi & Hyderabad	Measures absorbance/transmittance in UV-visible range. Maintenance & calibration required.	2		
6	Dissolved Oxygen Meter	Available at Karachi & Hyderabad	Measures DO in water to assess water quality. Maintenance & calibration required.	2		
7	Multi Meter pH/TDS	Available at SEPA Lab	Measures pH and total dissolved solids in water	1		

S. #	Name of Equipment	Existing Condition	Description / Justification	Qty	Details of works to be performed by the bidder	Rate Quoted by the bidder
			samples. Maintenance required.			
8	Ultra-Pure Simplicity Water Purification System (56AA0451)	Available at Karachi Lab	Produces high-purity distilled/deionized water for laboratory use. Maintenance required.	1		
9	Simple Distillation Unit (EYELA-1000S)	Available at Karachi Lab	Separates and purifies liquids by boiling points. Maintenance required.	1		
10	Laminar Flow Hood	Available at Karachi Lab	Provides sterile, dust-free work environment for microbiology labs. Maintenance required.	1		
11	Incubator	Available at Karachi & Hyderabad Labs	Maintains controlled temperature/humidity for microorganism/cell culture growth. Maintenance required.	2		
12	Carbon Monoxide Meter	Available at Lab	Measures CO levels for air quality monitoring. Maintenance required.	1		
13	BOD System (Oxi-direct)	Available at SEPA Lab	Measures biological oxygen demand in water samples. Maintenance required.	1		
14	Portable Water Flow Meter	Available at SEPA Lab	Measures flow rate of water. Maintenance required.	1		
15	Vacuum Pump	Available at SEPA Lab	Removes air/gases from sealed systems. Maintenance required.	1		

S. #	Name of Equipment	Existing Condition	Description / Justification	Qty	Details of works to be performed by the bidder	Rate Quoted by the bidder
16	Digestion Apparatus	Available at SEPA Lab	Breaks down complex samples for analysis. Maintenance required.	1		
17	Electro-Thermal Heater	Available at SEPA Lab	Provides controlled heating for laboratory samples. Maintenance required.	1		
18	BOD Head with Measuring Device	Available at SEPA Lab	Measures oxygen consumed by microorganisms in water. Maintenance required.	1		
19	Water Distillation Unit	Available at SEPA Lab	Produces distilled water for laboratory use. Maintenance required.	1		
20	Digital Reactor	Available at SEPA Lab	Controls temperature, pressure, stirring for chemical reactions (COD digestion). Maintenance required.	1		
21	Thermo-Reactor (COD)	Available at SEPA Lab	Maintains accurate conditions for COD analysis. Maintenance required.	1		
22	Spectrophotometer	Available at SEPA Lab	Detects water quality parameters. Maintenance required.	1		

Specific Terms & Conditions for Bidders

Procurement of Services for Repair, Maintenance, Testing & Commissioning of Equipment

1. Nature of Work

This procurement covers comprehensive **repair, maintenance, testing, and commissioning** of the specified equipment to ensure it is fully operational, regardless of the nature or extent of faults, defects, or damages.

2. Unknown Faults & Condition of Equipment

- The procuring agency **does not guarantee the current operational condition** of the equipment.
- Faults may be **latent, hidden, partial, or complete failures**.
- The bidder is responsible for **satisfying itself** regarding the condition of the equipment before submission of the bid.

3. Mandatory Inspection & Diagnosis

- All bidders must **conduct a mandatory site visit** and technical inspection.
- Assessment should include identifying possible faults, deficiencies, or required interventions.
- **Failure to inspect** will not be considered a valid reason for additional claims.

4. Lump-Sum Quotation

The bidder shall submit a **single lump-sum price** covering all activities, including but not limited to:

- Fault diagnosis and troubleshooting
- Repair and corrective maintenance
- Replacement of defective or non-functional components
- Supply of spare parts and consumables
- Tools, labor, transportation, and logistics
- Testing, calibration, and commissioning

Note: No separate or additional payments shall be made for any of the above activities.

5. Replacement of Parts

- The bidder must replace any parts/components required to make the equipment functional, whether identified during bidding or not.
- All replaced parts must be **new, genuine, and compatible**, unless approved otherwise.

6. Functional Performance Requirement

The equipment shall be considered successfully completed only when it:

1. Operates as per its intended function
2. Passes operational testing and demonstration

3. Is certified functional by the procuring agency

7. No Extra Claims

No claims for additional cost, variation, escalation, or extension shall be entertained on account of:

- Discovery of additional faults
- Replacement of major components
- Incorrect assessment by the bidder
- Market price fluctuations of parts

8. Time for Completion

- The bidder shall complete all required works **within the timeframe** specified in the work order.
- Delays may result in **liquidated damages** as per applicable procurement rules.

9. Warranty / Defect Liability

- The bidder shall provide a minimum **warranty/defect liability period** of 3–6 months from the date of successful commissioning.
- Any faults arising during this period shall be **rectified at no additional cost**.

10. Safety & Risk Responsibility

- The bidder is fully responsible for the **safety of personnel, equipment, and site** during execution.
- Any **loss, damage, or accident** shall be borne by the bidder.

11. Compliance with Standards

All work shall comply with:

- Relevant **technical standards**
- **Manufacturer guidelines**
- Applicable **government regulations**

12. Payment Terms

- Payment will be made **after successful completion, testing, and certification** of functionality by the procuring agency.

13. Right to Accept or Reject

The procuring agency reserves the right to **accept or reject any or all bids** in accordance with applicable procurement rules.

14. Governing Rules

This procurement shall be governed by **applicable PPRA / Sindh Procurement Rules**, as amended from time to time.

Furniture and Fixture

Item	Material & Build Quality	Technical Specifications	Rate quoted by the bidder
Lab Tables	**Epoxy Resin or Phenolic Resin** worktops. C-Frame or H-Frame heavy-duty steel structure.	Chemical & heat resistant tops. Anti-vibration leveling feet. Integrated reagent shelves and trunking for electrical sockets.	
Lab Chairs	High-grade **Polyurethane (PU)** or Vinyl upholstery.	Ergonomic, 360° swivel, height-adjustable (Gas lift). Easy-to-clean/sanitize surfaces. Five-star base with glides or lockable castors.	
Shelves	Powder-coated **Galvanized Iron (GI)** or Stainless Steel (SS 304/316).	Adjustable height brackets. Weight capacity of 40–50 kg per shelf. Chemical-resistant epoxy coating.	
Windows	Double-glazed **Tempered Glass** with Aluminum/uPVC frames.	Airtight sealing for contamination control. UV-protective coating for microbial areas. Fixed or sliding with mesh screens.	
Cabinets	**Cold Rolled Steel** with chemical-resistant powder coating.	Base-mounted or wall-hung. Soft-close hinges. Optional glass front for visibility. Resistant to moisture and acids.	
Almirahs	Heavy-duty **GI Sheet (1.2mm thickness)**.	Dual-locking mechanism. Internal adjustable partitions. Ventilation louvers for chemical storage safety.	
	Total Amount		

1. Forms

Form–1

STATION PROTOCOL FOR CAAQM STATION (UNDER O&M CONTRACT)

Name of CAAQM Station: _____
Date: _____

Calibration & Status Record

S. No.	Parameter	Status	Zero Value (Pre)	Zero Offset (Post)	Span Calibration (Pre)	Span Calibration (Post)	Span Source	K-Factor (Pre)	K-Factor (Post)	Remarks
1	CO Analyzer									
2	SO_2 Analyzer									
3	NOx Analyzer									
	NO									
	NO_2									
	NOx									
4	NH_3 Analyzer									
5	O_3 Analyzer									
6	BTX Analyzer									
	Benzene									
	Toluene									
	Ethyl Benzene									
	m+p Xylene									
	o-Xylene									
7	Dust Analyzer									
	$PM_{2.5}$									

S. No.	Parameter	Status	Zero Value (Pre)	Zero Offset (Post)	Span Calibration (Pre)	Span Calibration (Post)	Span Source	K-Factor (Pre)	K-Factor (Post)	Remarks
	PM_{10}									
8	Meteorological Parameters									
	Temperature									
	Humidity									
	Wind Speed									
	Wind Direction									
	Solar Radiation									
	Rainfall									

Maintenance Details

1. **Maintenance Requirement:**
2. **Specific Observation(s):**

Station Maintained By: _____

Station Supervised By: _____

Form -2

DAILY REPORTING FORMAT FOR METREOLOGICAL PARAMETERS

(To be submitted daily at 12 Noon for the previous day ending 12 midnight) Location: Date:

HOURS	WIND SPEED	WIND DIRECTION	HUMIDITY	TEMPERATURE	SOLAR RADIATION	RAINFALL	REMARKS
00-01							
01-02							
02-03							
03-04							
04-05							
05-06							
06-07							
07-08							
08-09							
09-10							
10-11							
11-12							
12-13							
13-14							
14-15							
15-16							
16-17							
17-18							
18-19							
19-20							
20-21							
21-22							
22-23							
23-24							
Min.							

Max.							
Average							

Form 3

MONTHLY REPORTING FORMAT FOR METREOLOGICAL PARAMETERS

(To be submitted monthly next day ending month)

Location: Month:

DATE	WIND SPEED	WIND DIRECTION	HUMIDITY	TEMPERATURE	SOLAR RADIATION	RAINFALL	REMARKS

Min.							
Max.							
Average							

Form-4

DAILY REPORTING FORMAT FOR MAIN POLLUTANTS

(To be submitted daily at 12 Noon for the previous day ending 12 midnight) DAILY AMBIENT AIR QUALITY DATA

Location: Month:

Hrs.	SO2	NO	NO2	NOX	NH3	CO	O3	PM2.5	PM10	Benzene	Toluene	Xylene	Remarks
00-01													
01-02													
02-03													
03-04													
04-05													
05-06													
06-07													
07-08													
08-09													
09-10													
10-11													
11-12													
12-13													
13-14													
14-15													
15-16													
16-17													
17-18													
18-19													

19-20													
20-21													
21-22													
22-23													
23-24													
Standards													
Min.													
Max.													
Average													

Form-5

MONTHLY REPORTING FORMAT FOR MAIN POLLUTANTS

(To be submitted monthly at 12 Noon next day ending month)

Location: Month:

Date	SO2	NO	NO2	NOX	NH3	CO	O3	PM2.5	PM10	Benzene	Toluene	Xylene	Remarks
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
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19													
20													
21													

22													
23													
24													
25													
26													
27													
28													
29													
30													
31													
Min.													
Max.													
Average													

FORM -1. BID PROPOSAL SUBMISSION FORM

[*Location, Date*]

Technical Proposal Submission Form

To: The Secretary,

Environment, Climate Change & Coastal Development Department,

Government of Sindh.

Subject: Submission of Proposal for [Title of Assignment]

Dear Sirs:

We, the undersigned, offer to provide the services for **[Title of Assignment]** in accordance with your Request for Proposal dated **[Insert Date]** and our Proposal. We are hereby submitting our Proposal, which includes this Required [Technical Proposal], and a Financial Proposal sealed under a one envelope.

We hereby declare that all the information and statements made in this Proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

The firm fully satisfies with the terms and conditions and the firm will fulfill its responsibilities fully.

We undertake, if our Proposal is accepted, to initiate the provision of services related to the assignment not later than the date indicated in the Data Sheet.

We understand you are not bound to accept any Proposal you receive.

We remain,

Yours sincerely,

Field	**Details**
Authorized Signature:	[In full and initials] _____
Name of Signatory:	[Insert Name]
Title of Signatory:	[Insert Title]
Name of Firm:	[Insert Firm Name]
Address:	[Insert Full Address]

FORM 3 Acceptance of Project Activities

ANNEXURE–A

FORM A: Firm Experience & Capability

(To be filled by the Bidder)

Bidder Name: _____
Address: _____
Year of Establishment: _____

A1. Experience in CAAQMS (Supply, Installation, Commissioning & O&M)

Total Years of Experience Brief Description of Experience

Supporting Documents Attached:
☐ Company Profile
☐ Completion Certificates
☐ Client References

FORM -2. FIRM/ORGANIZATION'S ORGANIZATION AND

EXPERIENCE

B - Firm/organization's Experience [*Using the format below, provide information on each assignment]*

Assignment name:	Approx. value of the contract (in current PKR)
Country: Location within country:	Duration of assignment (months):
Name of PA:	Total No of staff-months of the assignment:
Address:	Approx. value of the services provided by your firm under the contract (in current PKR)

Start date (month/year): Completion date (month/year):	No of professional staff-months provided by associated Firms/organizations:
Name of associated Firms/organizations, if any:	Name of senior professional staff of your firm involved and functions performed (indicate most significant profiles such as Project Director/Coordinator, Team Leader):
Narrative description of Project:	
Description of actual services provided by your staff within the assignment:	

Firm's Name: _____

A2. Details of Similar CAAQMS Projects

S. No Project Name Client Location Year Scope of Work

1

2

3

A3. Experience in Laboratory Items, Maintenance Services & Furniture

S. No Client Nature of Assignment Year Contract Value

1

2

S. No	Client	Nature of Assignment	Year	Contract Value
3				

ANNEXURE–B

FORM B: Technical Solution & Methodology

(To be filled by the Bidder)

B1. Compliance of CAAQMS Equipment & Specifications

☐ Fully compliant with TORs & standards
☐ Compliant with minor deviations (details below)

Deviation Details (if any):

B2. Installation, Testing & Commissioning Methodology

Describe site-wise installation, testing, and commissioning approach:

B3. Data Acquisition, Communication & Software Solution

Component	Description
Data Logging System	
Communication Protocol	
Server / Cloud Arrangement	
Data Security & Backup	

B4. Calibration & QA/QC Plan

Calibration frequency, reference standards, and QA/QC procedures:

ANNEXURE–C

FORM C: Human Resource & Organizational Capacity

(To be filled by the Bidder)

C1. Key Professional Staff

Position	Name Qualification	Experience (Years)	Employment Status
Project Engineer			
Electronics / Instrumentation Technician(s)			
Data / IT Expert			

☐ CVs attached
☐ Experience Certificates attached

ANNEXURE–D

FORM D: Laboratory Support & Furniture / Fixtures Plan

(To be filled by the Bidder)

D1. Laboratory Items & Maintenance Services Plan

Describe supply, maintenance, warranty, and calibration support:

D2. Furniture & Fixtures Plan (All Locations)

Location	Tables	Chairs	Cabinets	Shelves	Almirahs
Karachi					
Hyderabad					
Sukkur					

☐ Layout Drawings Attached
☐ Installation Schedule Attached

ANNEXURE–E

FORM E: Post-Sale Support, Maintenance & Safety Measures

(To be filled by the Bidder)

E1. Post-Sale Maintenance Plan

Describe preventive & corrective maintenance, response time, and SLAs:

E2. Maintenance Work Plan for Existing Equipment

Describe methodology and tools:

E3. Post-Sale Services & Technical Support

☐ Helpdesk
☐ On-site Support
☐ Spare Parts Availability
☐ Defined Response Time

E4. Health, Safety & Environmental (HSE) Measures

Provide details of HSE arrangements:

E5. Standby Generator / Alternate Energy Source

☐ Available
☐ Capacity (kVA): _____
☐ Supporting documents attached

ANNEXURE–F

FORM F: Documentation & Legal Compliance

(To be filled by the Bidder)

Mandatory Documents Checklist

☐ Company Registration Certificate
☐ NTN / GST Registration
☐ Relevant Licenses / Certifications
☐ Affidavit (Non-Blacklisting)
☐ Undertaking of Compliance
☐ Authorization of Signatory

Bidder's Declaration

I/We hereby declare that the information provided in these forms is true and correct.

Authorized Signatory Name: _____
Designation: _____
Signature & Company Stamp: _____
Date: _____

CURRICULUM VITAE (CV) FORMAT

(To be filled by the Bidder for each proposed staff member)

---

1. Personal Information

Full Name: _____
Father's Name: _____
CNIC / Passport No.: _____
Nationality: _____
Date of Birth: _____
Contact No.: _____
Email Address: _____

2. Position Proposed in This Project

Proposed Position: _____
Type of Engagement: ☐ Full-Time ☐ Part-Time ☐ Contractual
Availability (Start Date): _____

3. Educational Qualifications

Degree / Certificate Discipline Institution Year of Completion

4. Professional Experience (Relevant Experience Only)

Organization Position Held From (Month/Year) To (Month/Year) Key Responsibilities

Total Relevant Experience: _____ Years

---

5. Specific Experience Related to This Assignment

Describe experience relevant to CAAQMS / Laboratory Equipment / Environmental Monitoring / Maintenance / IT Systems (as applicable):

---

6. Technical Skills & Competencies

☐ CAAQMS Installation & Commissioning
☐ Calibration & QA/QC Procedures
☐ Laboratory Equipment Maintenance
☐ Data Acquisition & Software Systems
☐ Instrumentation / Electronics
☐ Environmental Monitoring & Sampling
☐ Health, Safety & Environmental (HSE)

(Please tick applicable and elaborate if required)

7. Trainings, Certifications & Licenses

Training / Certification Issuing Organization Year

8. Employment Status

☐ Permanent Employee of the Firm
☐ Contractual Employee
☐ Consultant

Name of Firm: _____

9. References

Name Organization Designation Contact

---

10. Declaration

I hereby certify that the information provided above is true and correct to the best of my knowledge. I understand that any false information may lead to disqualification.

Signature of Candidate: _____
Date: _____

11. Certification by the Bidder

This is to certify that the above-mentioned individual is proposed for this assignment and will be available for the project if the contract is awarded.

Authorized Signatory (Bidder): _____
Name & Designation: _____
Company Stamp & Signature: _____
Date: _____

3. Bid Security Form (Pay Order)

BID SECURITY FORM

(To be submitted on Bidder's Letterhead / Bank Guarantee format)

To:
[Name of Procuring Entity]
[Address]

Date: [Insert Date]

Tender / Bid Reference No.: [Insert Reference]
Tender / Bid Title: [Insert Title]

---

1. Bid Guarantee

We, the undersigned, [Name of Bidder], hereby furnish as part of our bid for the above-mentioned tender a Bid Security in the amount of PKR [Insert Amount] (Pakistani Rupees [In Words]) valid until [Insert Expiry Date], in accordance with the instructions of the tender.

---

2. Guarantee Undertaking

We undertake that:

1. **Our bid shall remain valid for the period specified in the tender documents.**
2. **If we withdraw or modify our bid during the bid validity period, or fail to execute the contract if awarded, the Bid Security shall be forfeited by the Procuring Entity.**
3. **This bid security is irrevocable, unconditional, and enforceable upon demand by the Procuring Entity.**

---

3. Forfeiture Conditions

The bid security shall be forfeited in the following cases:

1. **If the bidder withdraws the bid after the bid submission deadline.**
2. **If the bidder modifies or alters the bid in a manner not permitted by the tender after submission.**
3. **If the bidder, upon being awarded the contract, fails to:**
    - **Sign the contract within the stipulated period; or**
    - **Provide the required performance guarantee / security; or**

- **Execute the contract as per the terms and conditions.**

4. **If the bidder supplies false or misleading information in support of eligibility or bid submission.**

---

4. Issuing Bank / Institution (if applicable)

Bank Name: [Insert Bank Name]
Branch: [Insert Branch]
Guarantee / Reference No.: [Insert Number]
Amount: PKR [Insert Amount]

5. Authorized Signatory

We hereby declare that the information provided above is true and correct. This bid security is submitted in accordance with the terms and conditions of the tender document.

Bidder Name / Company Stamp: _____

Authorized Signatory: _____

Name & Designation: _____

Signature & Date: _____

4. Manufacturer's Authorization Form (MAF)

Here's a ready **Manufacturer's Authorization Form (MAF)** you can use for bidders to submit. I've included fields to be filled, clear language, and compliance statements as per international standards:

MANUFACTURER'S AUTHORIZATION FORM (MAF)

Tender / Bid Reference No.: [Insert Reference Number]
Tender / Bid Title: [Insert Title]

1. Manufacturer Details

Field	**Details to be Filled**
Manufacturer Name	[Insert Manufacturer Name]
Address	[Insert Manufacturer Address]
Country	[Insert Country]
Contact Person	[Name, Designation, Email, Phone]
Product / Equipment Name	[Specify Item(s) being authorized]
Model / Type	[Specify Model or Type]

2. Authorized Representative (Bidder)

Field	**Details to be Filled**
Bidder / Supplier Name	[Insert Bidder Name]
Address	[Insert Address]
Contact Person	[Name, Designation, Email, Phone]
Relationship with Manufacturer	[Authorized Representative / Distributor / Agent]

3. Authorization Declaration

We, **[Manufacturer Name]**, hereby **authorize [Bidder Name]** to submit a bid and act as our **authorized representative** for the supply, installation, commissioning, and support of the above-mentioned product(s) for the tender **[Tender Reference / Title]**.

We confirm that:

1. We shall **provide necessary technical support, spare parts, and warranty services** for the products supplied by the authorized bidder.
2. The bidder is **not restricted** in any way from selling or supporting the products mentioned in this tender.
3. This authorization is **valid for the duration of the contract** and for all associated obligations including installation, commissioning, training, and post-sale services.

4. Confirmation

We confirm that the equipment offered by the authorized bidder is **genuine, original, and complies fully with the technical specifications** mentioned in the tender.

Authorized Signatory of Manufacturer: _____

Name & Designation: _____

Company Stamp / Seal: _____

Date: _____

Place: _____

Note:

- The MAF must be **on the original letterhead of the manufacturer**, signed, and stamped.
- **Without MAF**, bids for items not manufactured by the bidder **shall be considered non-responsive**.

5. Non-Blacklisting Affidavit

AFFIDAVIT OF NON-BLACKLISTING

(To be executed on Rs. 500/- Stamp Paper and notarized)

I, [Full Name of Authorized Signatory], son/daughter of [Father's Name], holding CNIC No. [Insert CNIC Number], in my capacity as **[Designation, e.g., Managing Director / CEO]** of **[Name of the Bidder / Company]**, having its registered office at **[Full Address]**, do hereby solemnly affirm and declare as under:

1. Declaration

1. That **[Name of the Bidder / Company]** is a legally registered entity under the laws of Pakistan and is eligible to submit bids for government or semi-government projects.
2. That the undersigned and the company/firm I represent have **never been blacklisted, debarred, or declared ineligible** by any Government, Semi-Government, Autonomous Body, or Public Sector Organization in Pakistan or abroad for any reason.
3. That the company/firm has **no pending litigation or regulatory action** that would affect its eligibility to participate in tenders or contracts.
4. That the company/firm **is not under investigation or prosecution** by any governmental, quasi-governmental, or judicial authority in relation to any contractual, financial, or ethical misconduct.

2. Affirmation

I understand that providing false information in this affidavit **shall render the bid liable for rejection**, and the company may be **liable for legal action** under applicable laws of Pakistan, including forfeiture of Bid Security and termination of contracts awarded.

3. Confirmation

I hereby confirm that the information provided in this affidavit is **true and correct to the best of my knowledge and belief**, and I fully understand the consequences of making a false declaration.

DEPONENT:

Signature: _____
Name: [Full Name of Authorized Signatory]
Designation: [e.g., CEO / Managing Director]
Company / Firm: [Bidder Name]
Date: _____
Place: _____

VERIFICATION / NOTARY PUBLIC

Verified at **[City]** on this **[Day]** of **[Month, Year]** that the contents of this affidavit are true and correct to the best of my knowledge and belief.

NOTARY PUBLIC / OATH COMMISSIONER:
Signature: _____
Name & Stamp: _____
Seal / Registration No.: _____

Technical Compliance Sheet

Project: Expansion & Strengthening of Environmental Laboratories – Karachi, Hyderabad & Sukkur
Bidder Name: _____
Date: _____

Item No.	Particulars	Details Given at Annexure(s)	Compliance Requirement / Specification	Compliant (Yes/No)	Page No. in Technical Proposal	Remarks / Justification
i	Required Laboratory Equipments	Annexure i	As per TOR & technical specifications			
ii	List of Equipments for Repair and Maintenance with Calibration for Karachi, Hyderabad and Sukkur Laboratories	Annexure ii	Equipment must be repaired, calibrated & fully operational			
iii	List of Required Chemicals, Reagent, Standard, for Karachi, Hyderabad & Sukkur Laboratories	Annexure iii	Chemicals must meet purity standards & storage requirements			
iv	Requirement of Apparatus	Annexure iv	Apparatus as per required			

Item No.	Particulars	Details Given at Annexure(s)	Compliance Requirement / Specification	Compliant (Yes/No)	Page No. in Technical Proposal	Remarks / Justification
	of SEPA Karachi, Hyderabad, Sukkur Laboratories & Items		specifications and laboratory standards			
v	List of Required Accessories For Karachi, Hyderabad, Sukkur Lab	Annexure v	Accessories as per specification and usability requirements			
vi	Furniture & Fixture For Karachi Hyderabad Sukkur Lab	Annexure vi	Furniture must meet lab safety, durability, and ergonomics standards			
Grand Total / Summary						

Instructions for Bidders:

1. Bidder must **confirm compliance** against each specification with **Yes / No**.
2. Where partial compliance exists, remarks must clearly explain **deviation and justification**.
3. Page numbers should **refer to the detailed annexures or supporting documents** in the technical proposal.
4. Bidders must provide **manufacturer datasheets, certificates, or lab test reports** as proof of compliance where applicable.
5. This sheet will be used **only for technical evaluation**; non-compliance may result in rejection.

Certification by Authorized Signatory:

I hereby certify that all information provided above is **true, correct, and fully compliant** with the technical requirements of the TOR. Supporting documents have been provided in the technical proposal.

Name & Designation: _____
Company / Firm: _____
Signature & Seal: _____
Date: _____

7. Performance Security Form

Performance Security Form (Bank Guarantee)

To: [Name and Address of the Procuring Agency]

WHEREAS [Name of Contractor] (hereinafter called "the Contractor") has undertaken, in pursuance of Letter of Acceptance No. [Reference Number] dated [Date] to execute the procurement of **Office/School Furniture** (hereinafter called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a Bank Guarantee by a scheduled bank for the sum specified therein as security for compliance with his obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you, on behalf of the Contractor, up to a total of **[Amount in figures] ([Amount in words])**, such sum being **[10%]** of the Contract Price, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of [Amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

This guarantee shall be valid until the [Date] day of [Month], 20[Year], being 90 days after the end of the warranty period.

Signature and Seal of the Guarantor: _____ **Name of Bank:** _____ **Address:** _____

8. Form of Contract Agreement

FORM OF CONTRACT AGREEMENT

THIS AGREEMENT is made and entered into at Karachi/Hyderabad this _____ day of _____ 2026.

BETWEEN

[Name of Procuring Agency], through its **[Designation of Head]**, having its office at [Address] (hereinafter referred to as the **"Procuring Agency"**, which expression shall include its successors-in-interest and assigns) of the **First Part**.

AND

M/s [Name of Supplier/Firm], a company incorporated under the laws of Pakistan, having its registered office at [Address], acting through its **[Name of Authorized Representative]** (hereinafter referred to as the **"Supplier"**, which expression shall include its successors, heirs, and permitted assigns) of the **Second Part**.

1. RECITALS

WHEREAS the Procuring Agency invited bids for the **Procurement of Lab Equipment, Chemicals, and Furniture (NIT Ref: [Number])** and the Supplier, being the lowest evaluated responsive bidder, has been awarded the contract via Letter of Acceptance (LoA) No. [Ref No.] dated [Date].

NOW, THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

2. CONTRACT DOCUMENTS (The "Legal Bundle")

The following documents shall be deemed to form and be read and construed as an integral part of this Agreement, as per **SPP Rule 35**:

1. This **Contract Agreement**;
2. The **Letter of Acceptance (LoA)**;
3. The **Integrity Pact** (Signed by the Supplier under Rule 89);
4. The **Performance Security** (Bank Guarantee/Pay Order);
5. The **Schedule of Requirements** & **Technical Specifications**;
6. The **Price Schedule / Bill of Quantities (BoQ)**;
7. The **General Conditions of Contract (GCC)** and **Special Conditions of Contract (SCC)**.

3. SCOPE OF WORK & FINANCIAL SUMMARY

The Supplier shall provide the following goods and services for the Karachi, Hyderabad, and Sukkur Laboratories. **All rates are inclusive of all applicable provincial and federal taxes (GST, Income Tax, Stamp Duty, etc.).**

Item No.	Particulars	Annexure	Amount (PKR)
i	Required Laboratory Equipment	Annex-A	[0.00]
ii	Repair, Maintenance & Calibration (KHI, HYD, SKZ)	Annex-B	[0.00]
iii	Chemicals, Reagents & Standards (KHI, HYD, SKZ)	Annex-C	[0.00]
iv	Lab Apparatus & Items (SEPA KHI, HYD, SKZ)	Annex-D	[0.00]
v	Laboratory Accessories (KHI, HYD, SKZ)	Annex-E	[0.00]
vi	Furniture & Fixture (KHI, HYD, SKZ)	Annex-F	[0.00]
	GRAND TOTAL (Inclusive of all Taxes)		**[Total Amount]**

4. KEY COMPLIANCE TERMS

- **Performance Security:** The Supplier has provided a Performance Security of **[5-10%]** of the contract value, which shall be retained until the end of the Warranty Period.
- **Delivery Period:** The items shall be delivered and installed at the respective sites within **[Number] days** from the date of signing this agreement.
- **Inspection:** Final acceptance is subject to a satisfactory **Inspection Report** issued by the Procurement Committee/Technical Team at the delivery site.
- **Liquidated Damages (Rule 39):** In case of delay, the Supplier shall pay a penalty of **0.1% per day** of the contract price, up to a maximum of **10%**, after which the contract may be terminated.
- **Payment Terms:** 100% payment shall be made after complete delivery, installation, and issuance of the **Sales Tax Invoice** and **Delivery Challan**.

5. SIGNATURES & SEALS

FOR THE PROCURING AGENCY	FOR THE SUPPLIER
_____	_____
Name: [Name]	**Name:** [Name]
Designation: [Designation]	**Designation:** [Designation]
CNIC: [00000-0000000-0]	**CNIC:** [00000-0000000-0]
Official Seal:	**Official Seal:**

9. Integrity Pact

The document you provided earlier. This is mandatory for all contracts exceeding **PKR 10 Million** (though often required for smaller amounts in Sindh as well).

Integrity Pact

INTEGRITY PACT

DECLARATION OF FEES, COMMISSION AND BROKERAGE ETC.

PAYABLE BY THE SUPPLIERS/CONTRACTORS/CONSULTANTS

Contract Number: _____

Contract Value: _____

Contract Title: _____

Dated: _____

[Name of Supplier/Contractor/Consultant] hereby declares that it has not obtained or induced the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Sindh (GoS) or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoS) through any corrupt business practice.

Without limiting the generality of the foregoing, **[Name of Supplier/Contractor/Consultant]** represents and warrants that it has fully declared the brokerage, commission, fees etc. paid or payable to anyone and not given or agreed to give and shall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through any natural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter, shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whether described as consultation fee or otherwise, with the object of obtaining or inducing the procurement of a contract, right, interest, privilege or other obligation or benefit, in whatsoever form, from Procuring Agency (PA), except that which has been expressly declared pursuant hereto.

[Name of Supplier/Contractor/Consultant] certifies that it has made and will make full disclosure of all agreements and arrangements with all persons in respect of or related to the transaction with PA and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

[Name of Supplier/Contractor/Consultant] accepts full responsibility and strict liability for making any false declaration, not making full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of this declaration, representation and warranty. It agrees that any contract, right, interest, privilege or other obligation or benefit obtained or procured as aforesaid shall, without prejudice to any other right and remedies available to PA under any law, contract or other instrument, be voidable at the option of PA.

Notwithstanding any rights and remedies exercised by PA in this regard, **[Name of Supplier/Contractor/Consultant]** agrees to indemnify PA for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to PA in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by **[Name of Supplier/Contractor/Consultant]** as aforesaid for the purpose of obtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefit, in whatsoever form, from PA.

On behalf of the Procuring Agency: *(Signature & Stamp)* _____

[Name of Procuring Agency]

On behalf of the Supplier/Contractor: *(Signature & Stamp)* _____

[Name of Supplier/Contractor/Consultant]

MANDATORY REQUIREMENTS CHECKLIST

(To be filled and submitted by the Bidder)

Bidder Name: _____
Bid Title: _____

S. No.	Mandatory Requirement	Compliance (Yes / No)	Document Submitted	Page No(s). in Bid
I	Valid NTN Registration Certificate and verification of Active Taxpayer List (ATL)	☐ Yes ☐ No	NTN Certificate / ATL Proof	
II	Valid Registration with Sindh Revenue Board (SRB) under Sindh Sales Tax on Services Act, 2011	☐ Yes ☐ No	SRB Registration Certificate	
III	Bidder is Manufacturer or Authorized Representative of Manufacturer of Air Quality Monitoring Equipment	☐ Yes ☐ No	Manufacturer Certificate / Authorization	
IV	Minimum five (5) years' experience in supply, installation, commissioning & O&M of real-time CAAQMS	☐ Yes ☐ No	Experience Certificates / Contracts	

S. No.	Mandatory Requirement	Compliance (Yes / No)	Document Submitted	Page No(s). in Bid
V	Valid Manufacturer Authorization Letters for all items not manufactured by the bidder	☐ Yes ☐ No	Authorization Letters	
VI	Minimum average annual turnover of PKR 200 million during last three (3) financial years	☐ Yes ☐ No	Audited Financial Statements & Bank Statement	
VII	Performance Statements with at least two (2) satisfactory completion certificates for similar CAAQMS projects	☐ Yes ☐ No	Completion Certificates	
VIII	Availability of qualified O&M personnel on regular payroll (Project Engineer, Technicians, IT Expert)	☐ Yes ☐ No	Payroll Records / CVs	
IX	Affidavit on Rs. 500/- Stamp Paper (Current Date) stating firm is not blacklisted	☐ Yes ☐ No	Notarized Affidavit	
X	Availability of Standby Generator or Alternate Energy Source	☐ Yes ☐ No	Ownership Proof / Specification	
XI	Supply of Goods & Materials: (a) Valid registration & experience **OR** (b) JV / Consortium arrangement	☐ Yes ☐ No	Registration / JV Agreement	
XII	Joint Venture / Consortium Agreement with defined roles & responsibilities (if applicable)	☐ Yes ☐ No	Legally Binding Agreement	
XIII	Compliance with all Terms of Reference (TORs)	☐ Yes ☐ No	Undertaking / Signed TOR	
XIV	Registration with Electrical Inspector (for electrical works only)	☐ Yes ☐ No	Registration Certificate	
XV	Full acceptance of Work Plan provided in TOR	☐ Yes ☐ No	Signed Acceptance	
XVI	Valid ISO 9001 Quality Management System Certification	☐ Yes ☐ No	ISO Certificate	

Bidder's Declaration

I/We hereby confirm that all mandatory requirements listed above are fully complied with and the supporting documents are true, valid, and attached at the page numbers indicated.

Authorized Signatory Name: _____
Designation: _____
Signature & Company Stamp: _____
Date: _____

INSTRUCTIONS FOR SUBMISSION OF PROPOSAL

1. General Instructions

1. Bidders shall submit their proposal in **one main envelope** containing:
    - **Eligibility / Mandatory Requirements**
    - **Technical Proposal**
2. The **Financial Proposal** shall be submitted in a **separate sealed envelope** inside the main envelope.
3. The envelope(s) should be clearly marked with:
    - Bid Title
    - Name of the Bidder
    - Submission Date
4. Proposals must be **complete, organized, paginated**, and **signed by authorized signatory**.
5. **Incomplete or unorganized submissions** may be rejected or scored lower.

2. Proposal Sections

A. Eligibility / Mandatory Requirements

Bidders must submit **all documents** proving compliance with eligibility criteria, in the following order:

1. NTN Registration Certificate (Active Tax Payer List)
2. Sindh Revenue Board (SRB) Registration Certificate
3. Manufacturer or Authorized Representative Certificates
4. Minimum 5 years of experience in CAAQMS supply, installation, commissioning, and O&M
5. Manufacturer Authorization Letters for all items not produced by the bidder
6. Financial Statements & Bank Statements (last 3 years, average turnover ≥ PKR 200 million)
7. Performance Statements & Completion Certificates for at least 2 similar projects
8. List of qualified personnel on payroll (Project Engineer, Technicians, Data/IT Expert)
9. Affidavit on Stamp Paper (Rs. 500/-) confirming the firm is not blacklisted
10. Evidence of standby generator or alternate energy source
11. Supply of Goods & Materials documents or JV/Consortium agreement, if applicable
12. Compliance with TORs and Work Plan
13. Registration with Electrical Inspector (for electrical works, if applicable)
14. ISO 9001 Quality Certification

Note: Attach a **checklist of mandatory documents** with **page numbers** for ease of evaluation.

B. Technical Proposal

The technical proposal must **address all technical evaluation criteria (100 marks)**:

1. **Firm Experience & Capability**
2. **Technical Solution & Methodology**
3. **Human Resource & Organizational Capacity**
4. **Laboratory Support & Furniture / Fixtures Plan**
5. **Post-Sale Support, Maintenance & Safety Measures**
6. **Documentation & Legal Compliance**

Each section should **follow the evaluation form**. Include **page references** for easy scoring. All CVs, layouts, work plans, and relevant technical documents must be attached.

C. Financial Proposal

1. The Financial Proposal must be submitted in a **separate sealed envelope** labeled **"Financial Proposal"**.
2. **Format of financial proposal:**

S#	Item / Description	Unit Rate (PKR)	Quantity	Total (PKR)
1				
2				
…				
Grand Total				**PKR xxx**

3. Include a **consolidated total** at the end of all items.

3. Formatting & Submission Guidelines

1. All pages must be **numbered sequentially**.
2. Each section should start with a **cover page and table of contents**.
3. Use **dividers or tabs** to separate Eligibility, Technical, and Financial sections.
4. Sign and stamp all submitted documents.

4. Deadline and Address

1. Proposal must reach the office **before the submission deadline**. Late submissions will **not be accepted**.
2. Submit to:
   [Insert Address / Procurement Office]

5. Evaluation Notes

1. Only bids meeting the **eligibility criteria** will be technically evaluated.
2. Minimum **70/100 marks** required in technical evaluation to qualify for financial opening.
3. Minimum **50% score is required in each technical category (A–F)**.
4. Financial proposals of technically non-qualifying bidders will **remain unopened**.