



**MINISTRY OF DEFENCE THROUGH THE PROJECT DIRECTOR OF ITS GREENAI  
PROJECT MANAGEMENT UNIT ("PROCURING AGENCY")**

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**CORRIGENDUM – I**

**REQUEST FOR PROPOSAL  
NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP01/2024**

FOR

**ESTABLISHMENT OF "AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD  
FACILITY (PILOT PHASE)"**

**AS A COMPONENT OF PSDP APPROVED PROJECT TITLED "DEVELOPMENT OF ICT  
AND ARTIFICIAL INTELLIGENCE (AI) BASED PRECISION AGRICULTURE  
SYSTEMS UTILIZING DUAL-USE AEROSPACE TECHNOLOGIES - GREENAI"**

1. With reference to Pre-Bid Meeting held on 21 March, 2024 at NASTP the last date for submission of bidding document i.e 27 March, 2024 has been extended till **17 April, 2024** upto **11:00 AM**. Bids will be opened on same day **17 April, 2024** at **11:30 AM**.
2. **2<sup>nd</sup> Pre-Bid** meeting has also been scheduled on **15 April, 2024** at **1100 hrs** (at NASTP) for further deliberation before the final bid opening.
3. Add following sentence in para-6 **Cloud Orchestration Software Requirements (Page 26) on line No 9** "*The cloud network layer must support high performance low latency network*". "The application leverages a microservices architecture, employing containers spread across numerous nodes. Communication between these containers are facilitated by a mesh network, utilizing technologies like Linkerd or Istio, and communication protocols such as gRPC. "
4. Page 66, "Annex-k" to be read as Appendix "A" To Annex "XIV" of URD-01
5. Page 78, "Criteria - (Hardware Requirement)", To be read as criteria -(Software Requirements)
- 6-14 Page 78, " Table Description/example column have been updated and should be read as below .

5	Criteria - (Software Requirement)	Description/example	Marks	self-assessment	PMU assessment not to be filled
	Mandatory software requirement that needs to be cater to in cloud setup		-		
	Modules and software components Functional requirements	-	-		
	Managed HA Onprem Cloud Platform	Openstack	-		
6	Managed HA Kubernetes	Openstack Magnum. Must allow admins to create new k8s clusters dynamically via dashboard.	-		
7	Compute nodes with GPU support	Openstack Nova. Must allow GPU-VM passthrough	-		
8	Managed Postgres Database with HA Active-Active support	Openstack Trove. Must allow admins to create new DBs dynamically via dashboard.	-		
	Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	-		
	Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	-		
	Load Balancers	OpenStack Octavia	-		
9	Autoscaling for nodes, clusters, and containers	OpenStack Heat + Kubernetes HPA and cluster autoscaling	-		
	Container image storage	OpenStack Glance	-		
10	Network accessible storage with NFSv4 and RWX support (Fault tolerant and PB scalable)	OpenStack Manila. Must be petabyte scalable	-		
11	Object storage with HTTP range request support (Fault Tolerant and PB scalable)	Minio, OpenStack Swift. Must be petabyte scalable	-		
12	Encryption at rest for storage	OpenStack Cinder + Key encryption using AES-256	-		
	Internal network level encryption	TLS 1.3 Enabled	-		
	Private and secure Git managed repository with CI/CD support	GitLab	-		
	Dashboard for administration with RBAC support	OpenStack Horizon	-		
	Administration APIs for future integration and automation		-		
13	Container image signing and automatic verification	Cosign, Notary	-		
14	FaaS support	Qinling, OpenFaaS (if provided =5, else =0). Must allow JS, Python	5		

15. Page 82 : Network Connectivity Bandwidth (BW) criteria to be read as if (BW connectivity  $\geq 400$  Mbps = 5marks, else if  $200 \text{ Mbps} > \text{Bwconnectivity} < 400 \text{ Mbps} = 3$ , else =0

16. Remaining terms and conditions of tender document are same.



**Project Director**

GreenAI NASTP, Rawalpindi

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Date:- **27** March, 2024



**MINISTRY OF DEFENCE THROUGH THE PROJECT DIRECTOR OF ITS GREENAI  
PROJECT MANAGEMENT UNIT (“PROCURING AGENCY”)**

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**REQUEST FOR PROPOSAL**

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**FOR**

**ESTABLISHMENT OF “AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD  
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AND ARTIFICIAL INTELLIGENCE (AI) BASED PRECISION AGRICULTURE  
SYSTEMS UTILIZING DUAL-USE AEROSPACE TECHNOLOGIES - GREENAI”**

Issue Date: **12 MARCH, 2024**

6. Project GreenAI, National Aerospace Science & Technology Park, Rawalpindi invites sealed bids from authorized distributors/suppliers/ Data Centre Design & Development Firms, registered with Income Tax and Sales Tax Department, for **AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)** during financial year 2023-24 on “Turnkey Basis”.

7. Bids prepared in accordance with instructions in the bidding document must reach at following address on or before **27 March, 2024 upto 11:00 AM**. Bids will be opened on same day **27 March, 2024 at 11:30 AM** in presence of bidders or their authorized representatives. The advertisement along with bidding document is also available on PPRA web address [www.ppra.org.pk](http://www.ppra.org.pk)

**Project Director**

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Date:- **12 March, 2024**

## **ESTABLISHMENT OF AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”**

1. Participating bidders are required to submit bids according to instructions mentioned in bidding documents. These bids should meet the requirements / criteria illustrated in bidding documents along with fulfilment of other terms and conditions of contracts.
2. According to rule 31 of Public Procurement Rules, 2004 (“PPR 2004”) no bidder is allowed to alter or modify his bids after the bids have been opened. Moreover, as per rule 36 (b)(vi) of **PPR** 2004 states that no amendment in the technical proposal is permitted during technical evaluation. Therefore, in the light of prevailing Govt. procedures, requests for amendments in quotations and clarifications leading to change of substance of bid after opening of bids cannot be accepted and bids not conforming to contract requirements are liable to be rejected.
3. Participating bidders are therefore requested to read the bidding documents thoroughly and submit their proposals accordingly without any condition in conformance to all contract requirements including Advance Payment, Bid validity, provisioning of original proposals from foreign principal, Bank Guarantee confirmation etc., for consideration of bid. Bid found nonconforming to the requirements is liable to be rejected on opening date.
4. **Pre-bid Meeting.** To clarify any ambiguity / lack of understanding before submission of final bids, a meeting is planned for convenience of bidders on i.e. **21 March, 2024 at 11:00 AM** at NASTP address. Participating firms are requested to provide particulars of their reps on Ph. No. 051-9529532 / 03009884624 at least one (01) day prior to the opening date.



**Project Director**

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[diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Date:- **12 March, 2024**

## **DISCLAIMER**

1. All information provided/ clarified in this Request for Proposal (RFP) is in the best interest and faith of the parties involved. This RFP is neither an agreement nor an offer/ invitation of agreement by the procuring agency to the prospective bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their proposals pursuant to this RFP. The information published in this document is not intended to be exhaustive. Though adequate care has been taken in the presentation of this RFP document, the assumptions, assessments, statements, and information contained in this RFP, may not be complete, accurate, adequate, or correct. Interested bidders shall, therefore, are required to make their own investigations and assumptions wherever required and satisfy themselves that the RFP document is complete in all respects. Intimation of discrepancy, if any, should be given to the specified office immediately. If no intimation is received by the office till the date mentioned in the document, it shall be deemed that the RFP document is complete in all respects and parties submitting their proposals are satisfied with respect to RFP document.

2. Information provided in this document or imparted to any respondent as part of RFP process is confidential to the procuring agency and shall not be used by the bidders for any other purpose(s), distributed to, or shared with any other person or organization.

## PLEASE READ CAREFULLY

1. Participating bidders are required to submit bids according to instructions mentioned in bidding documents. These bids should meet the requirements / criteria illustrated in bidding documents along with fulfilment of other terms and conditions of contract.
2. According to rule 31 of Public Procurement Rules, 2004 ("PPR 2004") no bidder is allowed to alter or modify his bids after the bids have been opened. Moreover, as per rule 36 (b)(vi) of PPR 2004 states that no amendment in the technical proposal is permitted during technical evaluation. Therefore, in the light of prevailing Govt. procedures, requests for amendments in quotations and clarifications leading to change of substance of bid after opening of bids cannot be accepted and bids not conforming to contract requirements are liable to be rejected.
3. Participating bidders are therefore requested to read the bidding documents thoroughly and submit their quotes accordingly without any condition in conformance to all contract requirements including Down Payment, Bid validity, provisioning of original quotation from foreign principal, Bank Guarantee confirmation etc., for consideration of bid. Bid found non-conforming to the requirements is liable to be rejected on the opening date.
4. **Participating firms are requested to provide particulars of their reps on Ph No 051-9529532 / 03009884624 at least 02 day prior to bid opening date.**

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5.	Financial year for the operations of the procuring agency
6.	Invitation of Bid
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10-11	Condition Governing Contracts
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## ANNEXURES

Annexure	Title
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Annex "III"	Bidder Information Form
Annex "IV"	Undertaking
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Annex "VI"	Certificate for correctness of data/ documents/ Information
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Annex "VIII"	Performance Guarantee
Annex "IX"	Financial Proposal Form
Annex "X-A":	Bidder's JV Members Information Form
Annex "X-B"	Power of Attorney to be provided by Lead Member
Annex "XI"	Special Instructions
Annex "XII"	Format of Affidavit / Undertaking
Annex "XIII"	Draft Contract Agreement
Annex "XIV"	User Requirement Document (URD)

# INVITATION TO CONTRACT AND GENERAL INSTRUCTIONS TO BIDDERS (SINGLE STAGE TWO ENVELOPE BASIS) (DDP IN PAK RUPEES)

1. **Name of Procuring Agency:** Ministry of Defence through the Project Director of its GreenAI Project Management Unit.
2. **Bid Reference No.** NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP01/2024
3. **Delivery period.** Stores are required of within minimum possible delivery period but not later than **03 Months** after signing of the Letter of Acceptance by the supplier unless otherwise specified for any particular item(s). Offers with minimum delivery period are likely to be preferred. However, delivery period is to be factual as no extension will be subsequently granted except under unavoidable circumstances beyond control of BIDDER or under Force Majeure for which intimation with full justification / evidences is to be dispatched well in advance for consideration.
4. **Commencement Date for delivery of Goods.** signing of the Letter of Acceptance by the supplier
5. **Financial year for the operations of the procuring agency.** 2024-25
6. **Invitation of Bid** Project GreenAI NASTP, Alpha 03, Old Airport Road, Rawalpindi invites sealed bids from reputed firms for establishment of **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** on **“Turnkey Basis”** as per RFP.
7. **Last Date & Time for Submission of Bid.** **27 March, 2024 upto 11:00 AM**
8. **Bid Opening Date & Time.** **27 March, 2024 at 11:30 AM**
9. **Bid Opening Address.** Project GreenAI NASTP, Alpha 03, Old Airport Road, Rawalpindi Tel: +92-51-9529532 Email: **diritcgreenai@outlook.com, diragriverse@outlook.com.**
10. **Condition Governing Contracts.** The procuring agency may, at any time whether on its own initiative or in response to a clarification requested by a prospective bidder, amend the RFP. Any amendment in the RFP shall be issued in writing through addendum/corrigendum.
11. The “Contract” made as a result of this Inquiry shall mean the agreement entered into between the parties i.e. the “Purchaser” (Project GreenAI) and the “Bidder” (M/s -----) in accordance with the law of Contract Act, 1872 and those contained in purchase procedures and other special conditions that may be added to give contract for the supply of stores specified therein.
12. **Execution of Contract.** The successful bidder shall enter into a formal contract, as per the draft placed as **Annex “XIII”** with procuring agency on judicial stamp paper of value as prescribed by the relevant laws. The stamp duty cost etc. would be borne by the successful bidder.
13. **Procurement Procedure.** The bid shall comprise of five sealed separate envelopes. Each envelope shall contain separately the Technical Proposal (one (1) original and two (2) copies), Financial proposal (01 Envelop in original) and the Bid Security (01 Envelop). The envelopes should be clearly marked with “Technical Proposal”, “Financial Proposal” and “Bid

Security". In the first instance, only technical proposal will be opened and scrutinized. The financial proposal and bid security of only technically qualifying firms will be opened. The financial proposals and bid security of firms not meeting the required specifications/ criteria will be returned unopened.

(a) **Technical Proposal:** - It shall contain all relevant specifications along with essential literature / brochure in **duplicate** in a separate envelope and clearly marked "**Technical Proposal without prices**", contract number and date of opening. **Bid Security** shall be sealed in an envelope **separate** from technical and financial proposals clearly marked **Bid Security** and contract Number and will be received with technical proposal.

(b) **Financial Proposal:** It shall indicate prices quoted in figures as well as in words and clearly marked on face of a separate envelope "**Financial Proposal with prices**", along with the contract number (**Annex "IX"**).

(c) Both the "**Envelopes**" of Technical and Financial proposals should be enclosed in one cover, properly sealed and bear the address of **GreenAI NASTP** with contract number and opening date.

(d) The procuring agency reserves the right to verify the letters, documents or information provided by any bidder from issuing parties and may (together with its advisers) visit and hold meetings with them which shall be facilitated by the bidder. Furthermore, failure to provide the Financial Proposal in the form required under this RFP document may also result in disqualification of the Bid.

(e) **Forms** duly filled-in are to be returned with the offer duly signed by the authorized signatory person of bidding firm (**Annex "XI"**).

(f) **Single/Multiple Offers:** Only one proposal can be made in relevant currency (PKR) for same item. Multiple rates, if quoted, will be rejected. Multiple bids against the proposal will also be rejected.

14. **Pre-Bid Meeting.** A pre-bid meeting may be held before 7 days of final date of opening contract.

15. **Language.** The English text of the Contract shall be treated as the authentic text for all purposes including interpretation.

16. **Bid Security.** The amount of the bid security shall be in Pak Rupees. The bidders are required to deposit **Bid Security (refundable) equal to 2% of the total bid value including taxes** in the shape of **pay order, call deposit, bankers' cheque or demand draft** in favour of "**Project Director GreenAI**".

(a) Bid security shall be sealed in an envelope separate from Technical and Financial Proposals.

(b) Bids not accompanied by bid security of the required amount will not be entertained.

(c) Bid security of successful bidders will be released upon submission of **Performance Guarantee** at the time of signing of contract. In event of the successful bidder failing to execute the contract and to submit the performance bond/Guarantee in the period specified, the procuring agency shall be entitled to forfeit the bid bond of the abandoning bidder and may approach the bidder second in line for signing of the contract.

17. **Rights Reserved:** The procuring agency Project GreenAI NASTP reserves the right to accept or reject any proposal and to annul the procurement process and reject all bids or proposals at any time prior to acceptance of a bid or proposal as per rule 33 of PPR 2004 without thereby incurring any liability to the affected Bidder.

18. **Addition and Deletion of Scope of Work.** The procuring agency may increase or decrease the scope of work in accordance with the PPR 2004. Such information will be passed on to the supplier / bidder through the fastest means e.g. telegram or fax etc.

19. **Bid Validity Period.** The validity period of bids must be indicated and should invariably be **90 days** from the date of opening of bids. Within the original validity of the bids, the procuring agency may request the bidders to extend their bid validity for another period not exceeding the original bid validity (**Annex “IV”**). The bidder who chooses not to extend their bid validity as may be required by procuring agency; their bids will be deemed withdrawn and their bid bonds/Guarantee shall be returned.

20. **Technical Literature, Specifications and Interchangeability.** The bidders are required to submit (in triplicate) brochures and technical literature in original. Bids must conform to **User Requirement Document (URD) (Annex “XIV”)**. For any query regarding technical issues, firms may contact Tel: +92-51-9529532 Email: diritcgreenai@outlook.com, diragriverse@outlook.com.

21. **Deviation from Specifications.** In the event that AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) is found not conforming to the TSR will be rejected (**Annex “VI”**). Moreover, the successful bidder is responsible to replace the rejected items at its own cost as per delivery schedule laid down in the contract and the replacement will be provided without any additional cost.

22. **Restriction of Export / Import License.** Bids subject to restriction of Import/Export License will not be entertained.

23. **Application of Official Secrets Act, 1923.** All matters connected with this RFP and subsequent actions arising thereafter fall within the scope of the Pakistan Official Secrets Act, 1923 which forbids providing contractual information to un-authorized / un-concerned person / organization. It is therefore, requested to ensure complete secrecy regarding documents and stores concerned with the inquiry to limit the number of employees having accesses to this information (**Annex “V”**).

24. **Quoting of Prices: ‘DDP price in PKR inclusive of all taxes’** for Goods Manufactured Outside the Purchaser’s Country, to be Imported. Delivered Duty Paid (DDP) prices means that bidder assumes all of the responsibility, risk and costs associated with transporting goods until the purchaser receives the goods at specified locations. Prices are to be quoted on the format attached as.

- (a) **‘DDP price in PKR inclusive of all taxes’** for Goods Manufactured Outside Pakistan, already Imported and Goods Manufactured in Pakistan.
- (b) **‘DDP price in PKR inclusive of all taxes’** for related Services.
- (c) **‘DDP’ price of the stores (Line Item Wise) in Pak Rupees Only inclusive of all applicable taxes, duties, levies and charges.**
- (d) The prices must be stated for each item separately both in figures and words. Additional information if any must be linked with entries on the Schedule to proposal (Annex-IX)
- (e) The price shall be fixed.

- (f) All items constituting AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) (Line Item Wise) **inclusive of all applicable taxes, duties, levies and charges** mentioned separately.
- (g) The prices must be stated for each item separately both in figures and words. Additional information if any must be linked with entries on the Schedule to proposal.
25. Principal is to endorse following certificate on the original quotation: -
- (a) Certified that AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) offered are factory new and from latest production and prices quoted are not more than the international market prices and also not more than those being charged from other buyers”.
- (b) Shelf / installation life of each item (if applicable) is to be mentioned separately.
- (c) Certificate as per attached Annex “III” duly signed by the principal and agent must be attached with financial proposal.
26. **Transportation.** Equipment and supplies will be delivered up to the place of installation / final destination by the bidder at their cost including mode of transportation, loading / unloading.
27. **Custom Clearance.** Equipment and supplies will be cleared (from airport/seaport) customs department by the successful bidder and charges/duty/taxes if any will be paid by the successful bidder.
28. **Rejection of Bid.** Bids are liable to be rejected if:-
- (a) There is a material deviation from any instruction described in this RFP.
- (b) Proposals are found conditional or incomplete in any respect.
- (c) Multiple bids against the proposal.
- (d) Multiple rates are quoted against one item.
- (e) Manufacturer relevant brochure is not attached (in case of equipment or major assemblies of equipment).
- (f) Form-A-12 (Letter of Proposal) GreenAI NASTP duly filled in, printed on bidder’s letter head and signed by the Bidders are not received with the bid.
- (g) All Annexures are duly filled – in and signed by the Bidders are not received with the offer.
- (h) Bids received later than appointed date and time.
- (i) Bid is not conforming to the URD.
- (j) Bids subject to restriction of Export License.
- (k) Over writing / erasing in prices without initial.
- (l) Change in prices by the supplier after opening of financial offers.
- (m) Validity of bid is not quoted as required in IT or made subject to confirmation later.
- (n) Bid Security is not provided.
- (o) Bid is without certification of OEM.

- (p) If OEM and principal name, contact details (Ph No, Fax No, Email etc) and complete address is not mentioned.
- (q) Bid is with prior sale condition.
- (r) Partial quotation, received on non-turnkey basis.
- (s) The store will be supplied on supplier's warranty / guarantee with regard to quality and quantity and if found not confirming to specifications, the store will be liable to rejection.
- (t) Documentary Proof of brand to be supplied by the supplier.
- (u) The warranty period should be as per TSR.
- (v) Only OEM or OEM's authorized dealers are to quote. The dealer must provide manufacturer authorization letter (MAL).
- (w) The firm must have repair / maintenance support office at least at Islamabad / Rawalpindi, Lahore, Karachi & Peshawar.
- (x) In case of hard disk warranty, company will not claim Unserviceable hard disk, only Cage of Unserviceable hard disk may be returned on demand and media will be retained by PAF.
- (y) Documentation, media kit (USB/SSD/HDD) of software and drivers etc is to be provided as delivered by OEM.
- (z) The manufacturing date of hardware should not be beyond one year from date of delivery at the depot.
- (aa) Compliance sheet as per TSR must be submitted by the vendor.

29. **Bidder's Eligibility.** Bidders must fulfil all the requirements as per the eligibility criteria provided in these bidding documents. Otherwise, the bidders will be disqualified and their bids will not be considered for further evaluation.

30. **Date & Time for Receipt of Bid.** The bid must reach Project GreenAI by the date and time specified in **Para-7** above. Bids received after the prescribed date and time will, NOT be entertained. The appointed time will, however fall on next working day in case of closed/forced holiday. Telegraphed / Faxed / Telexed bids will be rejected unless specifically asked for. offer can also be sent through mail courier. However, to avoid misplacement of the quotations, all firms are required to intimate this office **via email** [diragriverse@outlook.com](mailto:diragriverse@outlook.com) regarding dispatch of their quotation through courier giving details of the courier through email, so that courier service may be tracked to ensure your participation in the competition. In case bid is dispatched by courier then same should reach Project GreenAI at least 01 day prior to bid opening date. Bidder or the representative may also attend the proceeding (Name / Designation of attendees" along with copy of CNIC will be required 01 working day prior to bid opening date for arranging their entry).

31. **Bid Opening.** Technical offer i.e. without prices will be opened on the date and time mentioned of RFP in the presence of bidders" representatives who choose to attend. The bidders" representatives who are present shall sign a bid opening register / form evidencing their attendance. However, time and date for opening of Commercial offers of all those firms whose technical offers are accepted will be intimated later. Commercial offers of firms, which are not technically accepted will be returned to the firms un-opened. No unauthorized person will be allowed to attend the financial bid opening other than technically qualified bidders.

32. **Rights Reserved.** Procuring agency reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to contract award as per rule 33 of PPRA 2004 without thereby incurring any liability to the affected Bidder. Moreover, past performance of the firms may also be considered.

33. **Payment Schedule.** The Payment Schedule is mentioned in Draft Contract as per following details: -

S. No	Milestone	Payment (As %age)
(a)	Mobilization Advance	Up to 20% of Total Contract amount after receipt of Bank Guarantee/CDR of the same amount of mobilization advance from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(b)	Detailed Specification and Design Documents	10% of total amount will be paid after completion, submission and acceptance of detailed specification and design documents against (CDR of 10%) of contract amount from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(c)	Delivery, Installation, Integration, Testing of Hardware, provisioning of licences and trainings	50% of Total contractual amount will be paid after Delivery, Installation, Integration, Testing of Hardware and operationalization & provisioning of licences and trainings. (80% of the total amount can be released)
(d)	Final Inspection & Completion	20% of Total amount will be paid after 02 months of operationalization and issuance of FINAL ACCEPTANCE CERTIFICATE from End User. (100% percent of the total amount to be released).

For payment of goods / services supplied / rendered following procedure will be adopted:-

- (a) Submission / Payment of Bills
- (b) No advance payments will be made
- (c) Payment for the supply of goods of the itemized amounts thereof, after deduction of the applicable taxes and duties, shall be made within thirty (30) days **with 15 days of grace period** by M/s Solid State Electronics (SSE), upon receipt of error free invoice from supplier. The invoice, in favour of “M/s Solid State Electronics, Rawalpindi” shall be submitted to the purchaser.
- (d) Firm is to present a Sales Tax invoice (where applicable) / numbered bill for the amount agreed upon for the goods / services provided.
- (e) Income Tax on the amount of bill will be deducted at source.

34. **Sequence of Quotation.** Quotation must be prepared in sequence according to the Proposal. (Annex “IX”)

35. **Warranty / Guarantee of Store.** Warranty / guarantee for a period of **one year** be applicable for stores commencing from acceptance of store at consignee.



36. **Country of Origin and Mode of Shipment.** Following details must be provided in offer / quotation and Performa invoice: -

(f) Country of origin, place of manufacture of store and beneficiary should be mentioned.

(g) Name of port where from the store will be shipped. Mode of shipment is to be by Air Sea and road. However, preference will be given to **by air shipment**.

37. **Bid Supporting Documents.** Following documents are required to be submitted with bid.

(a) Audited Bank Statements of last 3 years.

(b) Authenticated Certificate of Tier-1 Partnership from OEM.

(c) Photo copies of National Tax number (NTN) and Sales Tax registration certificate. Foreign firms are required to provide copy of the company's valid Tax Compliance certificate issued by Revenue Authority of the domiciled country, valid as at the bid closing date. Proof of appearance on Active tax payer list of FBR.

(d) Company Profile including proof of existence in particular business.

(e) Proof of Income Tax status in ATL is "Active" and GST status "Operative" issued by Tax Authorities.

(f) Any other document if required during procurement proceedings according to Rule 17 of PPRA rules 2004.

(g) Firm/Supplier name, complete address, contact numbers, and email addresses.

(h) An affidavit on judicial stamp paper that the Firm / Company has never been in litigation/blacklisted by any Ministry / Division / Department of the Government / Semi government / Autonomous body of Federal Government of Pakistan or by any procuring agency in the past (**Annex XII**).

(i) List of major clients and references (complete with names of contact persons, address and telephone numbers) of which the company has supplied similar items in the last 05 years. Number of years in the business or dealing in similar items shall also be mentioned.

(j) In case of foreign supplier photocopy of resident card, passport or equivalent identification card of person signing the bid is to be provided along with 02 passport size photographs.

38. **Performance Guarantee.** The successful bidder shall provide a Performance Guarantee in the prescribed Form annexed to this document at the time of signing of contract or within fourteen (14) days after the receipt of Letter of Acceptance in favour of "PD GreenAI, NASTP (Private) Limited" whichever is earlier. The Performance Guarantee shall be of an amount equal to **ten percent (10%)** of the Contract Price in the currency of the Contract, in the form of unconditional and irrevocable Bank Guarantee (**Annex "VIII"**) from any Scheduled Bank in Pakistan. The validity of Performance Guarantee shall be kept Two clear Months ahead of the original / extended delivery period or the warranty of the Agriverse Cloud which so ever is later in duration.

39. **End User Certificate (EUC):** EUC if required at any stage may be mentioned in the quotation.

40. **Withdrawal of Offer:** If the firm withdraws its offer or backs out from providing items won by the firm within validity period at any stage of contract finalization, Project GreenAI NASTP may place such bidder under embargo for a period of six months, which may extend upto one year along with forfeiture of the Bid Security.
41. **Maximum Time of Completion of Project.** The maximum time to complete the work is 12 months from signing of contract.
42. **Authority to Sign Documents.** Bid must be accompanied by Letter of Authorization to sign the bid on behalf of the Bidder. Bidder must prove that the person who signs this bid is fully authorized to bind his establishment / company. Such proof shall be in the form of clear official documents fully legalized by designated authorities in respective countries.
43. **Prior Intimation Regarding Submission of Bid.** To avoid misplacement of the bids, all bidders are required to intimate this office regarding dispatch of their quotation through courier giving details of the courier through telephone / fax/email, so that courier service may be tracked to ensure your participation in the competition.
44. **Grievances Redressal Committee (GRC).**
- (a) After submission of bid and prior to award of the contract, any bidder feeling aggrieved by any act of GreenAI NASTP may lodge a written complaint concerning his/her grievances to GRC constituted under Rule 48 of PPR 2004 within 07 days of announcement of the technical evaluation report and 05 days after issuance of final evaluation report.
  - (b) GRC will immediately initiate the investigative action and decide the complaint within ten days of its receipt. The decision of GRC shall be intimated to the complainant / aggrieved bidder. The decision of the GRC shall be binding upon all the parties.
45. **Litigation.** In case of any dispute only Court of Jurisdiction at Islamabad Pakistan will have the Jurisdiction to decide the matter.
46. **Bid of Joint Venture/Consortium:** The Bid submitted by a partnership/ joint venture/ consortium comprising of two or more organizations/ companies/ entities shall comply with the requirements given below:
- (a) The Bidder's legal status, in case of partnership, joint venture or consortium, shall remain locked-in during the entire procurement/operationalization process including successfully achieving AGRIVERSE: PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE), in case declared successful.
  - (b) The partnership, joint venture or consortium shall nominate one (01) of the members as lead member and this authorization shall be evidenced by submitting a power of attorney signed by each member itself or its legally authorized signatory(ies). The power of attorney shall be certified by Notary Public and shall be in the format specified in Annex "X-A" to be issued by the lead member and in the format specified in Annex "X-B" to be issued by other members.
  - (c) The lead member shall be authorized to incur liabilities (if any) and receive instructions for and on behalf of any and all members of the partnership, joint venture or consortium during the procurement process.
  - (d) All members of the partnership, joint venture or consortium shall be liable jointly and severally for performance of the Contract and fulfilling the obligations stipulated therein.

(e) The successful Bidder shall at the time of execution of the Contract furnish an executed copy of joint venture agreement to PD GreenAI, NASTP.

(f) Joint Venture /Consortium shall be registered in accordance with applicable rules/regulations.

47. **Force Majeure.** “Force Majeure” means an exceptional event or circumstance, which is beyond a Party’s control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.

(a) The Supplier shall, within fifteen (15) days of its commencement, notify the Purchaser of any such event, act or circumstance which is relied upon by the Supplier for its inability to comply with its obligation. The Purchaser shall have the right to conduct investigations to satisfy itself about the genuineness of the “Force Majeure” event, act or circumstance. Non-availability of raw material for the manufacture of the Goods or export permit for the export of the Goods from the country of its origin shall not constitute “Force Majeure.”

(b) If by reason of “Force Majeure” the Goods are not delivered by the due date, then the Delivery Period may be extended appropriately for the purpose, provided the said Goods shall be ready to be delivered within one (1) month of the stipulated delivery date. If the said Goods are not ready to be delivered after the lapse of one (1) month as aforementioned, then the Purchaser shall have the right to cancel the Contract by informing the Supplier of the cancellation in writing. This, however, will not apply to consignments of Goods already accepted and delivered according to the terms of the Contract. The Supplier shall not be entitled to any compensation whatsoever as a result of this cancellation.

48. **Arbitration.** All matters of dispute or difference, except regarding rejection of stores / Services by the inspector and or cancellation of the contract by the Purchaser arising out of this contract between the parties hereto, shall be settled by mutual agreement, failing which they shall refer for Arbitration to a final settlement by an Arbitration Tribunal, in Pakistan.

(a) The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party, who before entering upon the reference shall appoint an umpire by mutual agreement, and if they do not agree a judge of the Superior Court of Pakistan will be requested to appoint the umpire. The arbitration proceedings shall be held in Pakistan and under Pakistan Law & Arbitration Act, 1940. Arbitration award will be firmed and final and un- challengeable in any court of law.

49. **Risk Purchase.** In the event of failure on the part of the Bidder to comply with the contractual obligations, the contract is liable to be cancelled at his risk and expense in accordance with General Condition Governing Contracts.

50. **Termination of Contract.** If at any time during the currency of the Contract, the Purchaser decides to terminate the Contract for any reason whatsoever (other than for reason of failure to Deliver the Goods), it shall have the right to do so by giving the Supplier a notice to that effect. In that event, the Purchaser will accept delivery, at the itemized price and terms, of such of the Goods then in the actual possession of the Purchaser.

(a) In the case of remainder of the undelivered Goods, the Purchaser may select either:

(i) To have any part thereof completed and take the delivery thereof at the itemized prices, or

(ii) To cancel the residue and pay to the Supplier for the Goods or components thereof in the actual possession of Supplier at the prices to be determined by the Purchaser in which case Goods in the possession of Supplier shall be delivered by the Supplier.

(b) No payment shall, however, be made for any Goods not yet in the actual possession of Supplier on the date notice of termination is received.

(c) GreenAI may by written notice sent to Contractor and Offshore Supplier terminate the Agreement in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for GreenAI, NASTP convenience, the extent to which performance of Work under the Agreement is terminated, and the date upon which such termination becomes effective.

51. **Late Delivery.** The Supplier shall deliver the Goods to the Purchaser within the time frame specified in the Contract. If failure to deliver the Goods within the specified time frame, shall not have arisen because of "Force Majeure", the Purchaser shall be entitled at its option:

(a) To cancel the Contract and forfeit the Performance Guarantee; or

(b) To withhold any payment due to the Supplier until all the Goods have been Delivered and directly deduct or recover, where considered necessary, as liquidated damages the sum up to 2% but not less than 1% of the itemized prices of the un-Delivered Goods for each and every month, or part thereof thereafter, beyond the specified dates of Delivery during which these may not be delivered, subject to a maximum of 10% of the total Contract Price of the Goods; or

(c) To repurchase from elsewhere, at the risk and expense of the Supplier, other goods of the same or similar description as it thinks fit to make good this default to the extent necessary, by cancelling the Contract, either wholly or for the un-Delivered balance and with or without intimation to the Supplier who shall be liable for any loss which the Purchaser may sustain due to repurchase but shall not be entitled to any gain on repurchase.

(d) The Goods shall be deemed to have been delivered when repurchased Goods are delivered to the Purchaser.

(e) In the event of the contractor refusing to carry out the work, or leaving incomplete, at any time or after the commencement of work, the contractor shall pay as compensation an amount equal to, ten percent or such smaller amount as PD GreenAI NASTP(whose decision in writing shall be final) may decide, on the amount of the estimated cost of the whole work as shown in the BOQ, by notice in writing, rescind the contract in which case the whole of the security deposit of the supplier (whether paid in one sum or deducted by instalments) shall stand forfeited and be

absolutely at disposal of Project GreenAI and the same consequences shall ensure as if the contract has been rescinded under clause 37 hereof.

52. **Bid Discount.** There will be no Bid Discount

53. **Bidding Clarifications to Proposal.** In Case any clarification is required regarding proposal, firm may contact on following address however, queries in regards to the proposal shall only be entertained till one week prior to the deadline for submission of bids.

Technical Clarification : 0333-4231634

Bidding / Contracting Procedure : 0321-9400527

54. **Correction of Arithmetical Errors.** Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

55. Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction, shall result in the rejection of the Bid.

Yours sincerely,



**Project Director**

GreenAI NASTP, Rawalpindi

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com),  
[diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Date:- **12** March, 2024

**Annex “XIV”  
(URD-01)**

**TECHNICAL USER REQUIREMENTS FOR PROVISIONING OF  
“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY  
(PILOT PHASE)”**

**Introduction**

1. The objective of this User Requirements Document URD is to clearly specify the overall architectural concept and related technical requirements pertaining to key components of **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** and its delivery to the procuring agency on TURNKEY basis. It is expected that bidders will utilize the given information to come up with a comprehensive design of said cloud facility based on their respective supply chains along with a well thought plan to operationalize it (including deployment within a 3<sup>rd</sup> party datacentre facility for one year).
2. TURNKEY in the context of this RFP means fully integrated and operational Agriverse: National Precision Agriculture Cloud Facility consisting of following three components: -
  - (a) **Cloud Hardware Solution.** The core of the requirements is centred around design and provisioning of complete cloud hardware.
  - (b) **Cloud Orchestration Software.** Another critical requirement is the deployment of various software elements that enable core cloud orchestration layer for multiple users as well as 3rd party cloud-native applications to be run on the Agriverse Cloud. OpenStack and its related ecosystem of open source modules / software is the preferred choice for cost effective and functional demonstration of cloud.
  - (c) **Data Center Hosting:** The entire solution is to be deployed in a Tier-3 (Ready/Certified) data centre facility, minimizing setup and management complexities. One year hosting plan to be included as part of financial proposal. (Purchasing agency reserves the right to select an alternate data center hosting facility).
3. This document describes the technical requirements of the NATIONAL PRECISION AGRICULTURE CLOUD FACILITY. The document is structured such that the bidder is aware of the complete set of requirements which include allied services, equipment, systems, integration, configuration, processes, post installation work and subsequent operating support. This documentation will be carried over to the implementation agreements as well. No deviation in specification given in this document will be accepted.
4. **Documentation.** The cloud solution provider should furnish comprehensive documentation, organized in the following sections:-
  - (a) **Proposal Document:** This should outline the bidder's understanding of our requirements, proposed solution, implementation approach, timeline, and cost breakdown. It should also include details on the team's expertise and relevant experience.
  - (b) **Statement of Work (SOW):** A detailed document specifying the scope of work, deliverables, milestones, acceptance criteria, and any assumptions or constraints. It provides a clear understanding of what will be delivered and when.
  - (c) **Executive Summary:** A concise overview highlighting the solution's key features, benefits, and outcomes.

- (d) **Technical Architecture Design\*:** This document should describe the proposed architecture (Architecture Diagram, Network Diagram, Data Flow Diagram, etc) for the cloud equipment and cloud software deployment, including.
- (i) **Hardware Specifications:** Description of hardware components, including types, capacities, and performance guarantees.
  - (ii) **Storage Documentation:** Details on storage types, configuration performance characteristics, capacity, and scalability.
  - (iii) Power, Energy efficiency and peak throughput (theoretical) Worksheets
- (e) **Cloud Orchestration Documentation:** Details on cloud solution layer, including components, services, and functional and non-functional capabilities specified as per Appendix “B”.
- (f) **Installation and Configuration Plan (deployment Guide):** A step-by-step plan detailing how the bidder intends to install and configure the cloud equipment and cloud software, including any customizations, additions or integrations required.
- (g) **Testing and Validation Plan\*:** Documentation outlining the bidder's approach to testing the OpenStack or equivalent deployment to ensure it meets requirements (See Appendix “A”) and performs as expected. This may include functional testing, performance testing, and security testing.
- (h) **Support and Maintenance Plan\*:** The bidder provides documented support offerings, including response times, escalation procedures, updates and patches workflow, and ongoing maintenance services. Documentation relevant to the level of support (SLA) is included and any additional costs associated with ongoing maintenance.
- (i) **Training Materials\*:** Upon completion of the installation and configuration the bidder is to provide training materials and training relevant to Cloud equipment and also training against Cloud software that will be provided to a team of 2 to 3 people (Local/international should be mentioned). This should include user manuals, administration guides, and any custom documentation specific to the proposed solution.

## Introduction

### AGRIVERSE: A National Precision Agriculture Cloud Platform (Pilot Phase)

1. We're developing Agriverse, a national cloud platform specifically designed for precision agriculture. Initially launching as a pilot project, Agriverse aims to create a comprehensive ecosystem of computational services. (Note: the Agriverse application is being developed internally and is not a part of this RFP). This ecosystem will encompass several key components:

- (a) **Geographic Information System (GIS) Framework:** A user-friendly platform for visualizing and analyzing agricultural data overlaid on geographical maps.
- (b) **High-Performance Computing (HPC) Services:** Powerful computing resources dedicated to accelerating AI and machine learning workloads related to agriculture.
- (c) **Data Lake:** A vast repository for storing and managing a diverse range of agricultural data, primarily collected from imaging sensors.

2. The Agriverse cloud infrastructure will act as the foundation for these services. It will not only support Agriverse's own software applications but also provide open interfaces and APIs (Application Programming Interfaces) for external developers and collaborators. This openness will foster innovation and collaboration within the agricultural technology space. See (Fig T-01) below for a conceptual overview of the Agriverse Ecosystem.

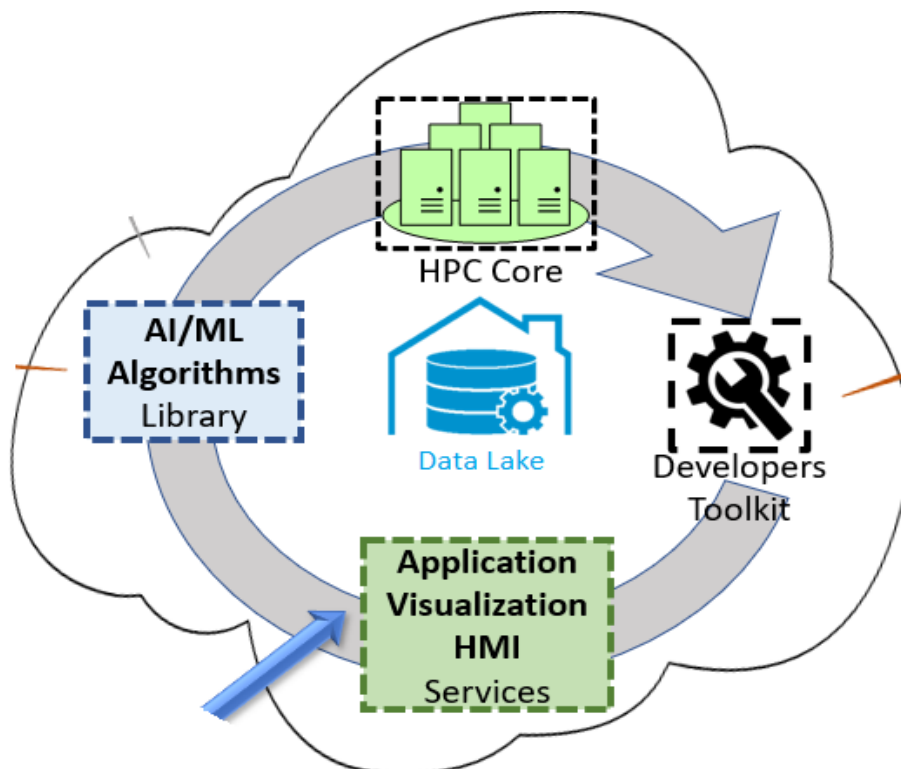


Fig T-01

3. The Agriverse Cloud hardware is conceptually segmented into three zones as shown in Fig T-02. Each zone is to be designed with a specific set of tasks, to be executed within it and as envisioned in the Agriverse ecosystem architecture, further elaborated below:-

- (a) Application (A) Zone



- (b) High Performance Computing (H) Zone
- (c) Data (D) Zone

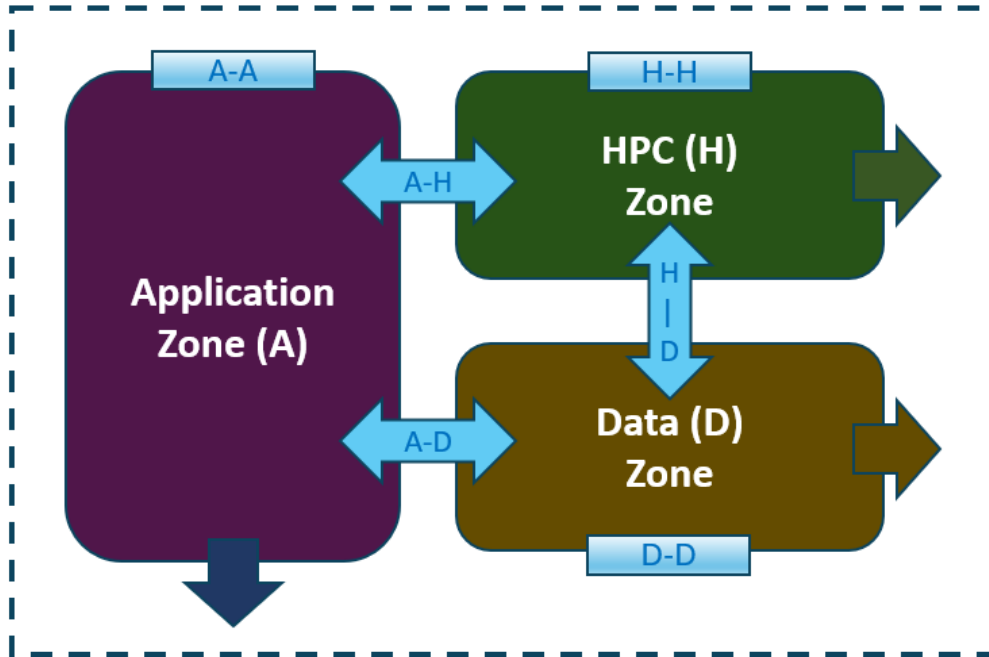


Fig T-02

4. In order to give the bidders clarity with regards to the functional components and their scale within each zone in terms of high level design requirements as shown in the following figure (Figure T-03).

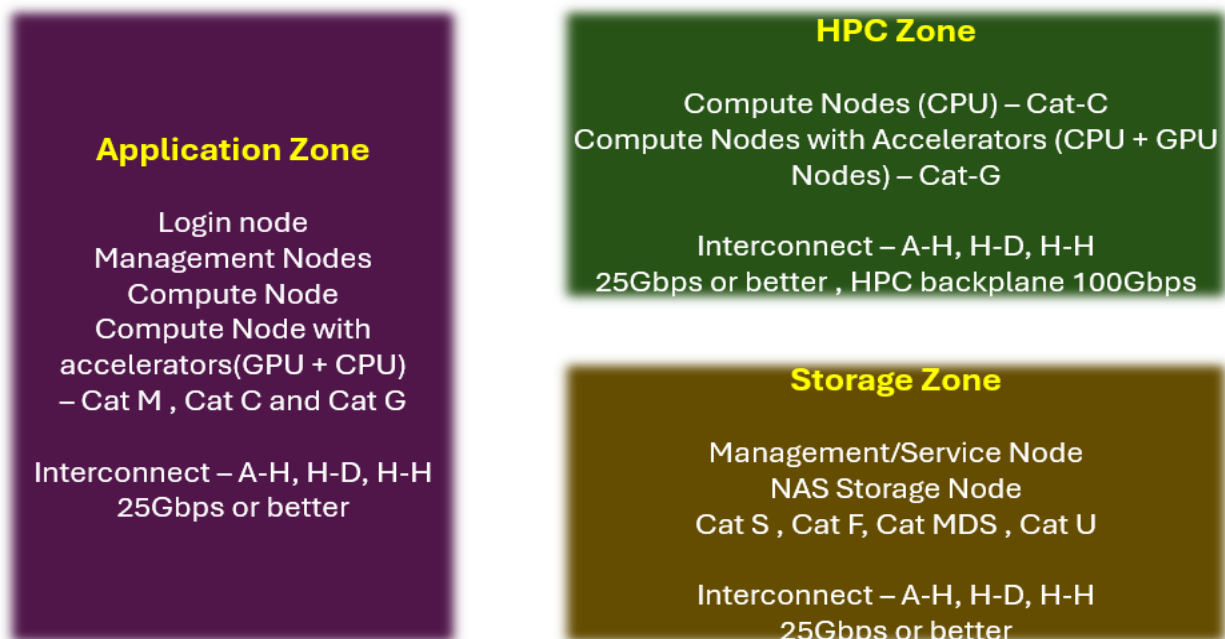


Fig T-03

5. While this RFP focuses on deploying the system at a single site (marked in red on Figure T-04), the winning solution should be designed with scalability in mind. This

scalability applies to both individual growth within each of the three zones (Data Lake, HPC, GIS) and future replication across multiple sites nationwide.

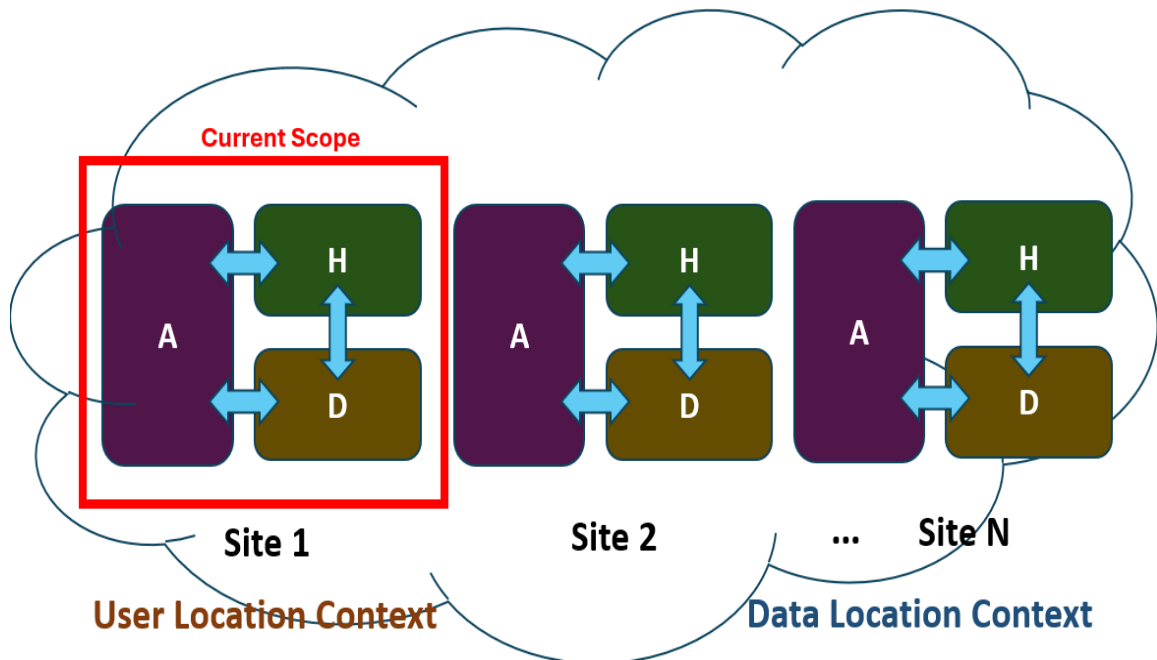


Fig T-04

6. There are several reasons for considering a multi-site deployment, such as disaster recovery (DR) and addressing user and data localization performance limitations (as shown in the following figure). Therefore, bidders are encouraged to propose architectures that can scale efficiently to accommodate these future needs.

## Technical Requirements

1. The Procuring Agency aims to obtain a comprehensive proposal for the setup of the “AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)” on turnkey basis from the bidding teams in the form of a detailed designs of all the three sub-zones identified above, namely Application, HPC and Data Zones. In order to clarify the scope of each zone, this document provides key information to help you prepare your bid for the proposal. The requirements have been further divided into Sizing Information, Network & Interconnects, Cloud Orchestration Software and Performance Benchmarks for the solution.

- (a) **Sizing Information:** This document outlines the scale of computational resources needed, including various node configurations for your reference.
- (b) **Network Design:** The document specifies network design requirements within and between zones under the "Network" section for each zone.
- (c) **Performance Benchmarks:** Benchmarks are provided to indicate the expected performance of each zone.
- (d) **Cloud Orchestration:** This section below details the cloud orchestration layer to be included in the turnkey solution.

2. To meet our requirements.

- (a) We encourage the bidder to leverage resources and components offered by your Original Equipment Manufacturers (OEMs).

(b) This document's specifications form the basis for the technical evaluation criteria in Appendix "A". It will be used to compare technical proposals and designs.

(c) The bidders may request any further clarifications before the Pre-bid Meeting.

3. **Application (A) Zone Requirements.** The application zone is the core zone of the cloud facility focused on serving as the point-of-entry for all end users accessing services of Agriverse. The zone, in addition to providing user access control and login functionalities, would be hosting the graphical user interface (GUI) application with dashboards for all Agriverse services. Fundamentally, the zone is to provide a GIS framework for display and manipulation of agriculture data in the form of 2D & 3D map overlays. The zone is to also include some computational capacity for regular map manipulation and some data pre-processing functions. These requirements are further elaborated below: -

(a) **Sizing Information.** The following information is being provided to serve as a reference for bidders to assess the capacity and capability of the Application Zone in terms of compute, memory and storage aspects (For details on various category nodes mentioned below refer to **Appendix "A"**):-

(i) Qty 03 x Management Nodes (**Category "M"**)

- For High-Availability (HA) OpenStack, Kubernetes or equivalent cloud software deployment.
- Is used to manage entire cloud.

(ii) Qty 06 x Compute Nodes (**Category "C"**)

- Will host application services.
- Focus on geographically annotated multispectral image processing.
- Focus on memory intensive applications.

(b) **Network & Interconnect Requirements** (A-D, A-H, A-A) Gbps:

(i) 25, 25, 25 or "better" (A-D, A-H, A-A)

(ii) "Better" is considered to be next best performance level i.e.  $\geq 40$  Gbps

(c) **Benchmarks:** Geek benchmark (Single/multicore), linpack/SpecHPC, iperf3, iozone/ IO benchmark

4. **High Performance Computing (H) Zone Requirements.** The purpose of H-zone is to provide large scale computational services as an HPC sub-cloud within the Agriverse framework, primarily focused on AI/ML models development. This zone will contain all the necessary services and third-party libraries relevant to implementing an ML Ops pipeline. Through a job scheduler the H-zone shall allocate computational resources for the development and training of AI/ML Models through processing of large amounts of data and any other large scale image processing algorithms. The H-zone needs to be supplemented with Graphic Processing Units (GPUs) to support high performance demands of AI/ML and image processing compute loads. In general, it is special consideration needs to be given to per watt performance being delivered from proposed configuration i.e. maximum

(a) **Sizing Information:** The following information is being provided to serve as a reference for bidders to assess the capacity and capability of the High Performance Computing Zone in terms of compute along with GPU-based acceleration, memory and

storage aspects (For details on various category nodes mentioned below refer to **Appendix “A”**):-

- (i) Qty-04 x Compute Nodes with Accelerator **Category ‘G’** (CPU + GPU)
  - Focus on AI/ML model training GPU workload
  - Focus on multicore image processing
  - Focus on memory intensive applications.
  - Tensor Ops for AI/ML Model based inference and training applications. (Single & Double Precision and Tensors Ops throughput (measured in Teraflops))
  - For hardware *specification please See Cat “G”*
- (b) **Network & Interconnect Requirements (A-H, H-D, H-H) Gbps:**
  - (i) 25, 100, 100 or better (A-H, H-D, H-H)
  - (ii) InfiniBand or “Better” (Better is considered to be next best performance level i.e.  $\geq 40$  Gbps for 25 Gbps interconnect or similar  $\geq 200$  Gbps for 100 Gbps interconnect).
- (c) Benchmarks. Linpack /SpecHPC, STREAM (Tensorflow), iperf3, iotzone/ IO benchmark

5. **Data (D) Zone Requirements.** The D-Zone aims to implement a highly scalable cloud-based Datalake service of Agriverse Cloud ecosystem for all structured and un-structured agriculture data. The Scalable data repository’s intended purpose is to archive, store, retrieve and disseminate time-series agriculture related data for Agriverse users. D-zone is required to be designed with high data throughput requirements of both GIS & Mapping requirements of A-zone and training data requirements of H-zone. This may be catered in the design using and appropriate mode of data storage i.e Unified, block, object, archival etc. Further details to serve as reference for design of this zone are given below.

- (a) **Sizing Information** (For details on various category nodes mentioned below refer to **Appendix “A”**):
  - (i) Qty-02 x Management (Data) **Category “MDS”**
    - For processing and storage of metadata
  - (ii) Qty-02 x Storage node, (SSD storage ...) **Category “S”**
    - Store for Object / block data for further processing
  - (iii) Qty-04 x Fast Storage, **Category “F”**
    - Focus on large files with fast random access to parts of it
  - (iv) Qty-02 x Storage (Unified/object storage. etc) **Category “U”**
    - The archival data store component that may store and/or further provide data on different tier as required for processing
- (b) **General Guidelines:** for all storage types,
  - (i) Capability for object, block storage and parallel file system
    - Support NFS v4.1+
    - Support Object storage with HTTP GET and Range request support

(c) **Network Requirements (D-A, D-H, BP) Gbps:**

(ii) 25, 100 , 25 or better (D-A, D-H, BP)

(iii) The current design of the Agriverse (Precision Agriculture) HPC cloud features 25 Gbps connectivity between the previously identified zones. This connectivity can be **scaled upwards to the next best standard, such as 40 Gbps**

(d) **Benchmarks:** Bonnie++, iozone/ IO benchmark ,iperf3

6. **Cloud Orchestration Software Requirements.** The system should leverage OpenStack or similar cloud stack software. The infrastructure should be built using a software-defined architecture (SDA), enabling its deployment as Infrastructure as a Service (IaaS). Additionally, container orchestration (like Kubernetes with Docker) will be implemented on top of the core cloud infrastructure, along with their necessary configuration. The cloud solution shall use free and open-source Linux based OS (e.g. Ubuntu). The cloud solution must support high performance bare metal containers for running AI/ML training and inference workload on H-Zone compute resources. The cloud network layer must support high performance low latency network. This integration could be built around as individual server consisting of Cat “MDS”, “S”, “F”, “U” or it could be built with combination of unified and block storage catering to the storage needs specified vide in the Appendix “A”. For detailed functional and non-functional requirement see Appendix “B”.

7. **Perpetual and Permanent License Requirement**

See Clause 38 of Draft Contract (Annex “XIII”)

**Appendix “A”**  
**To Annex “XIV” of URD-01**

**REFERENCE CATEGORY HARDWARE SPECIFICATIONS**

Hardware Category	Purpose	Specification	Qty
<b>Application Zone Nodes</b>			
<b>Cat 'M'</b>	Management	<ul style="list-style-type: none"> <li>-Dual processor series (32 cores or more per processor (or equivalent) Latest generation processors)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>Preferred minimum 2.6Ghz per core clock (better is preferred)</li> <li>RAM = 256 Gb DDR 5 ECC (and upgradable)</li> <li>-2*480GB SSD and 5 x 960GB SSD (with Hotspare). Or, 6*960 SSD (with hotspare) (Enterprise level Storage)</li> <li>-RAID Controller (12 Gb/s SAS, 6Gb/s SAS/ SATA, PCIe 3, RAID Levels 0,1,5,6,10,50,60)</li> <li>-Drives are hot swappable</li> <li>-At least two(2) 25Gbps ports and two(2) (10Gbps or 25Gbps as design demand) ports network Connectivity</li> <li>-devices support Link aggregation (LAG)</li> <li>-NVIDIA GPU supported</li> <li>-PCIe SSD Supported</li> <li>-External storage connectivity to proposed storage (provide connectivity to Storage to be used as external storage)</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency power supply (N+N)</li> </ul>	3
<b>Cat 'C'</b>	Compute Node (CPU) Parallel Processing	<ul style="list-style-type: none"> <li>-Dual processor series (60 cores or more per processor (or equivalent) latest generation)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>-Minimum 2.6 Ghz per core clock (better is preferred)</li> <li>-RAM = 512 GB DDR 5 ECC (and upgradable)</li> <li>-High speed internal enterprise Storage SSD/ NVME (with raid capability Levels 0,1,5,6,10,50,60)</li> <li>-prefer storage capacity 4 TB (usable) with hot spare</li> <li>-Enterprise level Storage</li> <li>-Drives are hot swappable.</li> <li>-At least two(2) 25Gbps ports and two(2) 25Gbps (or better) ports network Connectivity</li> <li>-Devices support Link aggregation (LAG)</li> <li>-CUDA supported.</li> <li>-PCIe SSD Supported</li> <li>-infiniband or equivalent</li> <li>- External connectivity to proposed storage (provide connectivity to Storage to be used as external storage)</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency power supply (N+N)</li> </ul>	6

HPC Zone Components / Nodes			
Cat 'G'	Parallel Processing with accelerator (CPU + GPU)	<p>CUDA supported (either option 1 and option 2)</p> <ul style="list-style-type: none"> <li>-NVIDIA HGX H100 - H100 SXM4 80GB GPU Assembly or equivalent /better</li> <li>-Option 1) 4 server with four GPU per server</li> <li>-Option 2) 8 server with two GPU per server (option 2)</li> <li>-Dual processor series (30 cores or more per processor or better)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>-Minimum preferred 2.6 Ghz per core clock (better is preferred)</li> <li>-RAM = Minimum 256 Gb DDR 5 ECC (and upgradable)</li> <li>-High speed internal enterprise Storage qty 4 (or more)* SSD/ NVME (with raid capability) with preferred 8TB (Usable) ( or different combination may be allowed for Separate OS and High processing storage drive )</li> <li>-Drives are hot swappable.</li> <li>-At least two(2) 25Gbps ports and ideally 100Gbps (backplane) or equivalent ports network Connectivity</li> <li>-devices support Link aggregation (LAG)</li> <li>-External Storage Connectivity to proposed storage</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency Power Supply (N+N)</li> <li>-Internal storage scalable</li> <li>-infiniband or equivalent</li> </ul>	4 or 8
Data Zone Components / Nodes			
Storage (High Performance Computing Storage ) (Cat "MDS" , Cat "S" , Cat "F" , Cat "U" )	Generalize requirements for all Storage related servers	<p><b>Generalized requirements for all storage related equipment be it Individualized storage server (Cat "MDS", Cat "S", Cat "F", Cat "U") Or Multi-tier (unified) or equivalent/better storage solution)</b></p> <p><b>Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.</b></p> <p>Redis Compatible</p> <ul style="list-style-type: none"> <li>-Processor configuration if required should be similar to Cat M or better. Capability for Object, block storage and parallel file system.</li> <li>-in case RAM Latency: 40ns or less</li> <li>High throughput Raid Controllers and hotspare drive capability.</li> <li>Cloud ready / compatible</li> <li>Data ware house/lake ready</li> <li>-Modules such as "redis", "swift", "Cinder","Ceph" and "elastic search" integration capability</li> <li>-Hosts that provide Block Storage volumes must have Logical Volume Manager (LVM) support</li> <li>-Redundant High Efficiency Power Supply (N+N).</li> <li>-Storage Connectivity minimum 25GBPS (depend on Vendor Solution along with -Storage (25Gbps or better)</li> <li>-Preferable features (Thin provision supported, -Replication storage deduplication and compression capability</li> <li>-Drives are hot swappable.</li> <li>-Switches / connecting devices support Link aggregation (LAG) where applicable</li> </ul>	
Cat "MDS"	Management of Storages	<ul style="list-style-type: none"> <li>-Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.</li> <li>-NVME SSD mixed use ideally 30 TB or more (with hotspare)</li> </ul>	2

<b>Cat “S”</b>	HDD Storage	-SAS SSD 12 TB (Usable) (or more) SAS SSD (Usable) high-speed enterprise (or SSD/NVME) -SAS SSD capability to add more drives (for approximately 10 TB to be added later)	2
<b>Cat “F”</b>	Fast Storage	-NVME 50 TB (Usable) or more (with hotspare) NVME capability to add more drives (for approximately 10 TB to be added later)	4
<b>Cat “U”</b>	Storage	Expansion bay/housing provided for future expansion upto 1 PB (500 TB preloaded +500TB expansion) or more storage. 500 TB archival (NLSAS) or higher Option for SAS SSD based storage i.e HPCS Data Deduplication	2
<b>Network Components</b>			
<b>Network Cat 'Core' , Cat 'RoCE' , Cat 'Access', Cat 'Distribution' , Firewall, Router</b>	Networking	The internal networking Router/switch for connectivity between A, H & D Zones. (25Gbps or better)  Cabling for mention equipment connectivity  Switches / connecting devices support Link aggregation (LAG) and use the same protocol	
<b>Cat 'Core'</b>	Core Switch	48 port 25 Gbps per node (all interface) (core Switch) Qty 2 or equivalent	2
<b>Cat 'Access'</b>	Network interconnect for management, application, storage, HPC	48 port 25 Gbps per node (all interface) Qty 4 or more dependent on solution	4
<b>Cat 'RoCE'</b>	High Speed Backplane	100 Gbps switch for HPC backplane preferably Infiniband or RoCE or equivalent (more if required by designed)	1
<b>Cat 'Distribution'</b>	management	management switch 48 port 10 Gbps per node (all interface) qty2	2
<b>Firewall</b>	Firewall	Fortigate 1101 series or equivalent with support	2
<b>Router</b>	Router	Cisco ISR 8300 or equivalent with support	2
<b>clock</b>	Rack mounted clock	Meinberg LANTIME NTP Server or equivalent	1



**Appendix “B”**  
**To Annex “XIV” of URD-01**

<b>CLOUD ORCHESTRATION -FUNCTIONAL REQUIREMENT</b>			
	Examples	Mandator y	Remarks
Managed HA Onprem Cloud Platform	OpenStack	Yes	
Managed HA Kubernetes	OpenStack Magnum	Yes	
Compute nodes with GPU support	OpenStack Nova	Yes	
Managed Postgres Database with HA Active-Active support	OpenStack Trove	Yes	Must be HA Active-Active configured
Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	Yes	Must be HA Active-Active configured
Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	Yes	Must be HA Active-Active configured
Load Balancers	OpenStack Octavia	Yes	
Autoscaling for nodes, clusters, and containers	OpenStack Heat	Yes	
Container image storage	OpenStack Glance	Yes	
Container image signing and automatic verification	Cosign	Yes	
FaaS support	Qinling, OpenFaaS	No	
Network accessible storage with NFSv4 and RWX support	OpenStack Manila	Yes	Must be fault tolerant and PB scalable

Object storage with HTTP range request support	Minio, OpenStack Swift	Yes	Must be fault tolerant and PB scalable
Encryption at rest for storage	OpenStack Cinder + Key encryption	Yes	
Internal network level encryption	TLS 1.3 Enabled	Yes	
Private and secure Git managed repository with CI/CD support	GitLab	Yes	
Dashboard for administration with RBAC support	OpenStack Horizon	Yes	
Administration APIs for future integration and automation			
Replication and disaster recovery support		No	backup VMs, storage, container, etc
<b>Non Functional Requirements</b>			
GPU Passthrough			
Infiniband or similar HPC Network Supported			
No single point of failure			
Nodes/hardware could be added or removed by our Admin team (scalability)			
Must be well-integrated and well-tested			
Should not rely on internet for usage, configuration, and setup			

**Annex “I”**

**RFP FORMS**

<b>Form A-1</b>	Bidder's General Data Information Form
<b>Form A-2</b>	Financial Soundness
<b>Form A-3</b>	Summary of similar nature projects completed in last 5 years
<b>Form A-4</b>	Details of similar nature projects completed in last 5 years
<b>Form A-5</b>	Summary of similar nature projects in hand
<b>Form A-6</b>	Details of similar nature projects in hand
<b>Form A-7</b>	Summary of Data Centre Consultancy & resident supervision projects in last 5 years
<b>Form A-8</b>	Personnel capabilities in various specialties
<b>Form A-9</b>	Candidate Summary
<b>Form A-10</b>	Format of Curriculum Vitae (CV) For Proposed Key
<b>Form A-11</b>	Litigation History
<b>Form A-12</b>	Letter of Proposal

## **BIDDERS’ GENERAL DATA**

[Name of Department/Entity]

**Assignment:**

**Project: Date:**

### **INFORMATION FORM**

1. Name of bidder
  - (a) Address
  - (b) Telephone
  - (c) Fax Number
  - (d) E-mail address
  - (e) Registration No. with PEC
  - (f) Registration No. with SECP
  - (g) Description of bidder firm (ownership/organization)
  - (h) Experience (Number of Years)
  - (i) Local / National
  - (j) International
  - (k) Regional (within the country-details)
  - (l) Experience of the Bidders (on appended forms) during the past 10 years:
    - (m) Specific
    - (n) General
2. **Organization chart showing Bidder’s structure.**
  - (a) Capital of Bidder (Financial Statements for the last three (03) years).
  - (b) Subsidiaries and associates.
  - (c) Annual fees in the last five years in current index.
  - (d) Financial reference [ name/address of bank(s)]
3. **Professional staff available for the assignment on the appended format.**
  - (a) Additional information.

Yours truly,

Name of Authorized Representative

Position:

Date:

**Annex “I”  
Form “A-2”**

### FINANCIAL SOUNDNESS

Name of Bidder: \_\_\_\_\_

Applicant participating for bid is required to provide financial information to demonstrate that they meet the requirements of Evaluation Criteria. Use separate sheets to provide complete information. A copy of the audited financial statements of the past three (3) financial years must be attached.

Year	Turnover (in Actual Currency)	Rupees in Million
2019 — 2020		
2020 — 2021		
2021 — 2022		
2022 __ 2023		
Average of above		

**Annex “I”  
Form “A-3”**

**SUMMARY OF SIMILAR NATURE PROJECT COMPLETED  
IN LAST FIVE (05) YEARS**

Name of Bidder: \_\_\_\_\_

Applicant applying for prequalification is required to complete the information in this form.

<b>Project Name</b>	<b>Year of Completion</b>	<b>Location</b>	<b>Value in PKR (Million)</b>

Note: "Each project provided in this form requires a corresponding Form A-4 and adequate documentary evidence in order to be eligible for consideration.

**Annex “I”  
Form “A-4”**

### **DETAILS OF SIMILAR NATURE PROJECTS COMPLETED IN LAST FIVE (05) YEARS**

Name of Bidder: \_\_\_\_\_

A separate form with adequate documentary evidence (Completion Certificate / Contract Agreement indicating Consultancy Cost) shall be provided for each project in Form B-4.

1.	Name of Contract	
	Location	
2.	Name of Employer	
3.	Employer Address	
4.	Nature of Works and special features of the consultancy Assignment	
5.	Contract Role (Tick One) Sole Bidder Sub- Bidder	
6.	Total Project Cost	PKR _____
7.	Value of the total Consultancy contract	PKR..... USD.....
8.	Date of Award	
9.	Date of Completion	

**Annex “I”  
Form “A-5”**

**SUMMARY OF SIMILAR NATURE PROJECT IN HAND**

Name of Bidder
----------------

Applicant applying for prequalification is required to complete information in this form.

Project Name	Date of Award	Expected Date of completion	Location	Value in PKR (Million)

Note: Each project provided in this form requires a corresponding **Form A-6** and adequate documentary evidence in order to be eligible for consideration.



**Annex “I”  
Form “A-6”**

**DETAILS OF SIMILAR NATURE PROJECTS IN HAND**

Name of Bidder:

A separate form with adequate documentary evidence (Letter of Award / Agreement indicating Consultancy Cost) shall be provided for each project in Form A-6.

1.	Name of Contract
	Location
2.	Name of Employer
3.	Employer Address
4.	Nature of Works and special features of the consultancy Assignment
5.	Contractor Role (Tick One) (a) Sole Bidder      (b) Sub- Bidder      (c) Member in a
6.	Total Project Cost PKR _____
7.	Value of the total contract PKR.....
8.	Date of Award
9.	Planned Date of Completion

**Annex “I”  
Form “A-7”**

## SUMMARY OF CLOUD DATA HPC HOISTING CONSULTANCY & RESIDENT SUPERVISION PROJECTS IN LAST 5 YEARS

Name of Bidder:

A separate form with adequate documentary evidence (Letter of Award / Agreement indicating Consultancy Cost) shall be provided for each project in Form B-6.

1.	Name of Contract
	Location
2.	Name of Employer
3.	Employer Address
4.	Nature of Works and special features of the consultancy Assignment
5.	Contractor Role (Tick One) (a) Sole Bidder      (b) Sub- Bidder                  (c) Member in a
6.	Total Project Cost                                  PKR _____
7.	Value of the total contract                                  PKR.....
8.	Date of Award
9.	Planned Date of Completion

**Annex “I”  
Form “A-8”**

**PERSONNEL CAPABILITIES IN VARIOUS SPECIALTIES**

Name of Bidder: \_\_\_\_\_

1	Title of Position	
	Name of Candidate	
2	Title of Position	
	Name of Candidate	
3	Title of Position	
	Name of Candidate	
4	Title of Position	
	Name of Candidate	
5	Title of Position	
	Name of Candidate	

Note: A corresponding **Form A-10** and **Form A-11** be filled in for each person in order to be eligible for consideration.

From	To	Company	Project	Position	Relevant Technical & Management Experience

## CANDIDATE SUMMARY

Name of Bidder: \_\_\_\_\_

Position	Candidate		
Candidate Information	Name of Candidate		Date of Birth
	Professional Qualification:		
PEC / EPI Registration No.	Attach copy of PEC / EPI certificate		
Present Employer	Name of Employer:		
	Address of Employer		
	Telephone:		Fax:
	Job Title of Candidate	Years with Present Employer	

Summarize professional experience in reverse chronological order.

**Annex “I”  
Form “A-10”**

**FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED KEY STAFF**

Proposed Position: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Name of Staff: \_\_\_\_\_

Profession: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Years with Firm: \_\_\_\_\_

Nationality: \_\_\_\_\_

Membership in Professional Societies: \_\_\_\_\_ (Membership of PEC is Mandatory)

Detailed Tasks Assigned on the Project: \_\_\_\_\_

Key Qualifications: [Give an outline of staff member’s experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use up to one page].

Education: [Summarize college/university and other specialized education of staff member, giving names of institutions, dates attended and degrees obtained.]

Employment Record: [Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, title of positions held and location of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate.

Languages: [Indicate proficiency in speaking, reading and writing of each language: excellent, good, fair, or poor].

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these bio-data correctly describe myself, my qualifications and my experience.

\_\_\_\_\_  
Signature of Staff Member

Date: \_\_\_\_\_  
Day/Month/Year

\_\_\_\_\_  
Authorized official from the firm

**Annex “I”  
Form “A-11”**

**LITIGATION HISTORY**

Name of Applicant

Applicants, shall provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution. Details must be provided related to (a) year and matter in dispute, (b) value of award if awarded against the applicant and (c) award as a percentage of net worth of applicant.

<b>Year</b>	<b>Award FOR or AGAINST Applicant</b>	<b>Name of client, cause of litigation, and matter in dispute</b>	<b>Disputed amount (current value Pak Rs. or equivalent)</b>	<b>As percentage of net worth</b>

**Annex "I"**  
**Form "A-12"**

**LETTER OF PROPOSAL**

*[Letterhead paper of the Applicant including full postal address, telephone no., fax no., e-mail address etc.]*

Date:

To:

Project Director GreenAI

NASTP, Rawalpindi

Tel: +92-051-9529541

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com), [diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Sir,

1. Reference is made to the GreenAI NASTP contract Enquiry No. \_\_\_\_\_.
2. Being duly authorized to represent and act on behalf of ..... (hereinafter "the Bidder"), and having reviewed and fully understood all the bidding information provided, the undersigned hereby apply as a bidder for the ... and below under the "AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)", for PSDP funded PROJECT GREENAI OF NATIONAL AEROSPACE SCIENCE AND TECHNOLOGY PARK (NASTP)"
3. Attached to this letter are copies of original documents defining:
  - (a) The Bidder's legal status;
  - (b) The principal place of business;
  - (c) The place of incorporation;
  - (d) Copy of valid registration certificate with PEC and SECP; and
  - (e) Duly filled-in Proposal Forms along with required supporting documents.
4. Your agency and its authorized representatives are hereby authorized to conduct security clearance of the Bidder, its directors, shareholders, affiliates sub-contractors and personnel, raise any inquiries or investigations to verify the statements, documents, and information submitted in connection with this Proposal, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Letter of Proposal will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves or the authorized representative to verify statements and information provided in this Proposal, or with regard to the resources, experience, and competence of the Applicant.
5. Your Agency and its authorized representatives may contact the following persons for further information, if needed.

General and Managerial Inquiries	
Contact 1	Tel:

Contact 2	Tel:
-----------	------

Technical Inquiries	
Contact 1	Tel:
Contact 2	Tel:

Financial Inquiries	
Contact 1	Tel:
Contact 2	Tel:

6. This Proposal is made with the full understanding that:
- (a) Bids will be subject to verification of all information submitted for Request for Proposal at the time of bidding;
  - (b) Your Agency reserves the right to:
    - (i) amend the scope and value of any Contract under this project; and
    - (ii) reject or accept all Proposal, cancel the procurement process, and reject all bids.
  - (c) Your Agency shall not be liable for any such actions and shall be under no obligation to inform the bidders of the grounds for actions at 5(b) hereinabove.
  - (d) Your Agency shall not be liable for consequence of, and shall be under no obligation to inform the bidder of the grounds for, actions taken under para 5(b) hereinabove.
7. We agree to abide by this Bid for a period of 90 days after the date fixed for technical proposal opening, or as extended, as per instructions given in RFP and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
8. The undersigned declare that the statements made and the information provided in the duly completed Proposal are complete, true, and correct in every detail.

Signed  
Name  
For and on behalf of Bidder



**Annex “II”**

**EVALUATION CRITERIA FORM B**

<b>Form B</b>	Evaluation Criteria
<b>Form B-1</b>	Company Profile
<b>Form B-2 (a)</b>	Bidder’s Experience (Cloud Application)
<b>Form B-2 (b)</b>	Bidder’s Experience (HPC)
<b>Form B-2 (c)</b>	Bidder’s Experience (Data Lake)
<b>Form B-3 (a)</b>	Quality of Bidder’s (HR) expertise (Application/Cloud)
<b>Form B-3 (b)</b>	Quality of Bidder’s (HR) expertise (HPC)
<b>Form B-3 (c)</b>	Quality of Bidder’s Expertise Data Lake (HR)
<b>Form B-4</b>	Application Zone (Cat "M" & Cat "C)
<b>Form B-5</b>	High Performance Computing Zone (Cat "G")
<b>Form B-6</b>	Data zone (Cat “MDS” , Cat “S” , Cat “F” , Cat “U”)-
<b>Form B-7</b>	Network – criteria
<b>Form B-8</b>	Cloud software requirements
<b>Form B-9</b>	Hosting criteria
<b>Form B-10</b>	Work Sheet

**Annex “II”  
Form B**

**EVALUATION CRITERIA**

1. The evaluation committee appointed by the GreenAI NASTP shall carry out its evaluation, applying the evaluation criteria and point system specified hereunder:
2. Provide documentary evidences to conform the following
3. **Mandatory Requirements**
  - (a) Registration with Pakistan Engineering Council (PEC);
  - (b) SECP Incorporation Certificate;
  - (c) Active Tax Payer’s List with FBR and Sales Tax Department
  - (d) Non-Blacklisting with any Government department/ agencies/ authorities. An affidavit of “Non-blacklisting” of authorized signatory on judicial stamp paper to the effect that the firm has never been black-listed.
  - (e) Participating bidder must have expertise in Computing, HPC, Cloud, Enterprise Storage Solutions, Data Centres, Networking, Switching, Security etc. so that all components should be integrated by single vendor.
  - (f) Participating bidder must have consultancy design experience of facilities of HPC (minimum 02 installations) of 10 Tflops experience in High Performance Computing active facility, Cloud (Minimum 03 installations) in academia/corporate/military environments. Moreover, the winning bidder must have experience with Data Centre of minimum of 20 racks (Minimum 3 references to be given).
  - (g) Participating bidder must have security clearance with Law Enforcement Agencies.
  - (h) Participating bidder must only propose solutions from OEMs having presence in Pakistan since last 10/5 years, share details of OEMs local team along with Names, Contact Nos and official email addresses.
  - (i) Participating bidder must only propose OEMs having support team in major cities of Pakistan (Karachi, Lahore and Islamabad).
  - (j) Participating bidder must have complete spectrum of solution as single source / single OEM, including (computing, GPU, Storage, Networking, Containment, UPS, Cooling Units, Racks, PDUs, DCIM). Different Cooling UPS, Containment and Cooling will be given lesser marking.
  - (k) Participating bidder is to provide following technical data / information regarding experience in Data Centre portfolio:-
    - (i) HPC Cloud Facility projects completed successfully total inland / abroad by the bidder and not the OEM.
    - (ii) HPC Cloud Facility projects consultancy services for technical equipment installation, civil works or both by the bidder not the OEM.
    - (iii) SLA experience for maintenance and operational services for data centres.

(l) Successful bidder will be responsible for hosting of the procured equipment at a reputable tier III certified data centre by choice of procuring agency (preferably at ISLAMBAD/RAWALPINDI) on turnkey centre.

(m) Training for (03 person) that may include hardware/software integration/deployment/management, backup/restores should be part of the Solution. Other specific training such as fault detection, backup/recovery etc, as needed should be included. Training location and number of people as well as trainer information would be required to be shared.

(n) The vendor/solution provide will provide SLA for equipment with parts. They should mention the Hardware/software or any support and the type of support they will ensure for the solution provided. This may include Yearly support type, minimum respond time, faulty hardware replacement time etc. There should be a Three (3) Year Service Level Agreement. The vendor should provide following services/ support with time frame.

- (i) SLA with parts
- (ii) Response time should be same business day
- (iii) Escalation ladder for support in the event for immediate support
- (iv) Support Services should be 24/7
- (v) Local country presence
- (vi) Support network inside country

#### 4. **Preferred Requirements**

(a) Participating bidder preferred to have a reference of at least one such facility having 20 or more racks Data Centre design during last one year.

(b) Participating bidder should have at least two consultancy projects, local or international.

(c) Participating bidder preferred to have successfully executed at least 03 Data Centres for any Govt / Public / Private Sector during last 07 years (Minimum 2 in Pakistan).

(d) Participating bidder preferred to have experience with Ministry of Defence.

(e) Participating bidder should be in similar business for at least last 05 years.

(f) Participating bidder should have qualified supervisors as permanent employees to take up the project.

(g) Participating bidder should have certified technical team for Servers, Storage, Routing, Switching, Security as well as HPC, Cloud and data centre certified resources on their company pay roll as permanent employees. The participating firm must have CCIE or JNCIE or equivalent, CTDC, CDCS / ATS, CDCP/ ATD, PMP, CNCDP, resources (Documentary proof required & to be submitted with the bid). CVs of Technical staff along with certifications to be submitted with the bid.

(h) Participating bidder preferred to have Rated -III Project Reference having EPI Design Validation (at least 1 reference required)

(i) Participating bidder preferred to have experience of at least 1 Certificate of Conformance for Design Documents (ANSI / TIA-942-B RATED 3). Evidence of publishing on TIA Online is mandatory.

- (j) Participating firm preferred to be capable of undertaking design audit compliance vetting as per TIA-942 B Rated-3 requirement.
- (k) Participating firm should comply to all RFP Specs and clauses.
- (l) Vendor will provide detailed implementation schedule with concrete timeline.

### DETAILED CRITERIA / REQUIREMENTS

1. The Project GreenAI NASTP intends to have the **most advantageous bid** in conformance with PPR 2004 with insertions vide Statutory Regulatory Order S.R.O. No. 442(1)/2020 dated May 15, 2020.
2. Only the bidders meeting the above-mentioned **Mandatory Requirements** will be considered for detailed evaluation of technical bids. The detailed evaluation shall be carried out on the basis of the criteria for the different categories and minimum passing marks prescribed hereunder:

S No	Sub-Head	Max. Marks
(a)	Company profile	15%
(b)	Technical Evaluation	55%
(c)	Financial Evaluation	30%
<b>Total</b>		<b>100%</b>

- (a) **Company profile.** The company profile will be further subdivided into following sub groups with their respective score distribution.

Sr. No.	Detail Division Matrix for Company/Consortium out of %	15	Passing Marks	Received Marks	Given Marks
1.	<b>Company/Consortium Profile</b>	<b>15</b>	9		
2.	<b>Firm Experience</b>	<b>105</b>	63		
3.	a) Bidder Experience (Cloud Application)	35			
4.	b) Bidder Experience (HPC)	35			
5.	c) Bidder Experience (Data Lake)	35			
6.	<b>Human Resource Capability</b>	<b>150</b>	90		
7.	a) Quality of Bidder (HR) in Application Cloud	60			
8.	b) Quality of Bidder (HR) in HPC	40			
9.	c) Quality of Bidder (Data Lake)	50			
	<b>Total</b>	<b>270</b>	<b>162</b>		

(b) **Technical Evaluation.** Technical bid of bidders scoring less than sixty percent (60%) overall marks and/ or failing to obtain minimum passing marks against any of the above-mentioned category shall be rejected and their financial proposals will be returned un-opened. Each responsive technical bid shall be attributed a technical score (St).

Sr. No.	Technical Evaluations Sub-Groups (06)	55	Passing Marks	Received marks in %	Given Marks %
1.	Application Zone	10	6		
2.	High Performance Zone	10	6		
3.	Data Zone	10	6		
4.	Network	5	3		
5.	Cloud (Software)	10	6		
6.	Hosting (Data Center)	10	6		
Total		55	33		

3. The evaluation committee shall determine whether the financial proposals are complete and without computational errors. The lowest financial bid (Fm) shall be given a financial score (Sf) of 100 points. The financial scores of the bids shall be computed as follows:

$$S_f = 100 \times \frac{F_m}{F}$$

**F** (F = amount of specific financial bid)

4. Bids, in the quality cum cost based selection (QCBS) shall finally be ranked according to their combined technical (St) and financial (Sf) scores using the weights (**T = 70**; the weight given to the technical bid, **P = 30**; the weight given to the financial bid):

$$S = S_t \times T \% + S_f \times P \%$$

5. Work will be awarded to the firm offering **most advantageous bid** evaluated as the highest ranked bid on the basis of cost and quality.

**Annex “II”  
Form B-1**

**COMPANY PROFILE**

Criteria	Description	Marks	Self-assessment	PMU assessment not to be filled
<b>No. of Years of since establishment of</b>	<b>Max. 08 marks</b>	8		
Establishment of Bidder (Attach Certificate of Incorporation)	02 marks if between 10 to 15 years	-	-	
	01 mark if between 05 to 10 years	-	-	
	No mark will be given if less than 05 years	-	-	
	Max of 06 marks for providing undermentioned mandatory requirements	-	-	
Company introduction and history (Mandatory Requirements)	Mandatory	-	-	
Company introduction and history	Mandatory	-	-	
SECP registration certificate No. (Attach copy of Certificate)	Mandatory	-	-	
PEC Registration with relevant category No. /Attach copy of Certificate	Mandatory	-	-	
Company NTN Registration No. Attach copy of Certificate	Mandatory	-	-	
NTN along with Active Tax Payers List (latest)	Mandatory	-	-	
Registration of Company as Consortium(Attach copy of Certificate)	Mandatory	-	-	
Sales tax Registration No.(Attach copy of Certificate)	Mandatory	-	-	

Audited Financial statements (last 3 years)	Mandatory	-	-	
Afidavit of not being a blacklisted firm	Mandatory	-	-	
Islamabad presence evidence	Mandatory	-	-	
CVs of Key Staff	Mandatory	-	-	
In case of OEM solution, Letter of authorization from OEM.	Mandatory	-	-	
Firm must be Premium / Platinum / Tier-I Partners with OEM.	Mandatory	-	-	
POs/Contract copies of completed/in progress projects.	Mandatory	-	-	
<b>Bidder Presence ( Share details of each office in Pakistan )</b>	<b>Max. 05 Marks</b> 05 marks if the applicant has fully functional design and supervision office in Islamabad. No mark will be awarded, if no permanent office in Islamabad. The Evaluation Committee may visit the Bidders office to assess the firms' presence and technical capabilities before awarding the marks.	5		
<b>Financial Soundness</b> Average Turn over for last three years (Financial Audited Reports for last 3 years )	<b>Max. 02 Marks</b> 02 Marks will be awarded if each financial year's turn over is between PKR 1000 Million to PKR 2000 Million. No Marks will be awarded if turnover is less than PKR 1000 million	2		
	Total	15	0	0

Annex "II"

Form B-2 (a)

**BIDDER'S EXPERIENCE (CLOUD APPLICATION)**

Sr. No.	Criteria	Description	Marks	Self-assessment	Purchaser Assessment
1	<b>Specific / Similar Experience</b> On leading cloud platforms like OpenStack cloud solution (Attach copy of documentary evidence)	<b>Max. 15 Marks</b> 05 marks will be awarded for each completed project of OpenStack deployed cloud solution, involving complete design and execution completed in the last 05 years. Minimum number of 05 projects are mandatory to qualify. Maximum of 15 Marks  05 marks will be awarded to each OpenStack completed project completed in the last 05 years. Minimum of 03 Projects are mandatory to qualify. Maximum of 10 Marks No marks will be awarded if Completed cloud solution is less than 2 solutions.	15		
2	<b>In-Hand Similar Project</b> on leading cloud platforms like OpenStack cloud solution (Attach copy of documentary evidence)	<b>Max. 15 Marks</b> 5 mark will be awarded upto maximum of 10 marks to each in-hand OpenStack Cloud solution of more than 20 Racks. Maximum 03 Projects will fetch 15 Marks  01 mark will be awarded upto maximum of 5 marks to each in-hand OpenStack cloud project of more than 10 Racks.  No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/ departments</b> (Attach copy of documentary evidence)	<b>Max. 5 Marks</b> 05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5		
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>



**Annex “II”  
Form B-2 (b)**

**BIDDER’S EXPERIENCE (HPC SOLUTIONS)**

Sr. No.	Criteria	Description	Marks	Self-assessment	Purchaser Assessment
1	<b>Specific / Similar Experience</b>  <b>On HPC Architectures:</b> Experience in different HPC architectures, including clusters, grids, and cloud-based HPC <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b>  05 marks will be awarded upto maximum of 15 marks to each completed project in the HPC domain (Clusters, Grids or cloud based HPC) minimum of 5 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years. 05 marks will be awarded upto maximum of 10 marks to each completed project in the HPC domain (Clusters, Grids or cloud based HPC) minimum of 3 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years. No marks will be awarded if DC size is less than 10 racks.	15		
2	<b>In-Hand Similar Project</b>  <b>On HPC architectures:</b> Experience in different HPC architectures, including clusters, grids, and cloud-based HPC <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b>  5 mark will be awarded upto maximum of 10 marks to each in-hand project in the HPC domain (Clusters, Grids or cloud based HPC) Cloud solution of more than 20 Tflops. 01 mark will be awarded upto maximum of 5 marks to each in-hand cloud project in the HPC domain (Clusters, Grids or cloud based HPC) Cloud solution of more than 10 Tflops. No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/departments</b> <i>(Attach copy of documentary evidence)</i>	<b>Max. 5 Marks</b>  05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5		
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-2 (C)**

**BIDDER’S EXPERIENCE (DATA LAKE)**

Sr. No	Criteria	Description	Mark s	Self- assess ment	Pur chase r Asse ssm ent
1	<b>Specific / Similar Experience</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform. <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b> 05 marks will be awarded upto maximum of 15 marks to each completed project of minimum of 5 deployed Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete design and execution with installed capacity of 100TB or more completed in the last 05 years. 05 marks will be awarded upto maximum of 10 marks to each completed project deployed Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete design and execution with installed capacity of 50TB or more completed in the last 05 years No marks will be awarded if DC size is less than 10 racks.	15		

2	<b>In-Hand Similar Project</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform. <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b> 5 mark will be awarded upto maximum of 10 marks to each in-hand Data Lake platforms solutions like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete solution with installed capacity of 100TB or more 01 mark will be awarded upto maximum of 5 marks to each in-hand deployed Data Lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform involving complete design and execution with installed capacity of 50TB or more. No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/ apartments</b> <i>(Attach copy of documentary evidence)</i>	<b>Max. 5 Marks</b> 05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5	0	
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(A)**

**QUALITY OF BIDDER’S (HR) EXPERTISE (APPLICATION/CLOUD)**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>Project Manager (cloud, HPC, Storage)</b> Qualification in IT Project Management + certified PMP with minimum 5 years’ experience.	<b>Max. 10 Marks</b> Full marks will be awarded to at least one Project Manager having minimum qualification and experience dedicated to this project.  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
2	<b>Clouds architect</b> (Cloud Certification) Amazon Web Services (AWS) Solutions Architect – Professional Or Microsoft Certified: Azure Solutions Architect Or Professional Cloud Architect (google) Or Any equivalent recognized vendor specific certification	<b>Max. 10 Marks</b> 05 marks for each valid AWS. / Azure / Professional Cloud Architect (certified) individual  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
3	<b>Cloud Engineer (certified)</b> AWS Certified Solutions Architect - Associate: Or Microsoft Azure Solutions Architect associate: Or Google Associate Cloud engineer:	<b>Max. 8 Marks</b> 04 mark for each valid AWS. (associate)/ Azure (associate / Google associate engineer (certified) or equivalent recognized certification  No mark will be awarded, if minimum qualification	8		

	<p>Or</p> <p>Any equivalent recognized vendor specific certification</p>	<p>and experience criteria is not met</p>			
4	<p><b>Cloud Security Professional (Certified)</b></p> <p>Certified Cloud Security Professional (CCSP) by ISC</p> <p>Or</p> <p>CompTIA Cloud+ with focus on Security:</p> <p>Or</p> <p>Cloud Security Alliance: Certificate of Cloud Security Knowledge (CCSK)</p> <p>Or</p> <p>Certified Information Systems Security Professional - Architecture (CISSP)</p> <p>Or</p> <p>Professional cloud security engineer (google)</p>	<p><b>Max. 8 Marks</b></p> <p>04 mark for each valid CCSP/ CompTIA Cloud + / CCSK / CISSP or Professional cloud Security Engineer</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	8		
5	<p><b>OpenStack expert (Certified)</b></p> <p>Certified OpenStack Administrator (COA)</p> <p>Or</p> <p>equivalent OpenStack partner certified e.g</p> <p>Or</p> <p>equivalent OpenStack partner certified e.g. (Red Hat OpenStack Platform Certification, Ubuntu Conical Open stack, etc.)</p>	<p><b>Max. 10 Marks</b></p> <p>If certified resource is COA, then =10 marks</p> <p>Else if resource has OpenStack partner certification, then =7 marks</p> <p>none=0</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	10		

6	<b>Network Architect:</b> CCIE Routing & Switching (CCIE) /CCIE Enterprise Infrastructure or Cisco Certified Network Associate (CCNA) or equivalent certification	<b>Max. 05 Marks</b> If certified resource is CCIE /CCNA or equivalent, then =5 marks No mark will be awarded, if minimum qualification and experience criteria is not met	5		
7	<b>Resident Engineer</b> Qualified Resident Engineers dedicated to project	<b>Max. 05 Marks</b> 05 mark for Resident Engineer having completed a similar project and deployment project premises No mark will be awarded, if minimum qualification and experience criteria is not met	5		
8	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
<b>Total</b>			<b>60</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(B)**

**QUALITY OF BIDDER’S (HR) EXPERTISE IN HPC**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>HPC architect</b> Master Degree with course in HPC field with minimum 10 years’ experience or Bachelor Degree with course in HPC with minimum 12 years (attach documentary evidence) Or AWS Certified Solutions Architect - Professional: Or Microsoft Azure Solutions Architect Expert: Or Google Cloud Professional Cloud Architect: Or Any equivalent recognized vendor specific HPC certification	<b>Max. 10 Marks</b> 5 mark for valid HPC (certified) / HPC experienced Consultant No mark will be awarded, if minimum qualification and experience criteria is not met.	10		
2	<b>HPC engineer</b> With Bachelor’s or Master Degree in relevant field with minimum 10 years’ experience for Master’s and 15 years’ experience for Bachelor’s. (documentary evidence) Or HPE Certified High Performance Computing Administrator Or LPIC-2 Linux Server Administrator:	<b>Max. 8 Marks</b> 04 mark for each valid HPC engineer (certified) / HPC experienced Consultant or equivalent recognized certification No mark will be awarded, if minimum qualification and experience criteria is not met	8		

	<p>Or</p> <p>HPC Certification Forum (HPC-CF)</p> <p>Or</p> <p>Any equivalent recognized vendor (specific) HPC certification</p>				
3	<p><b>Machine Learning/ AI Engineer: (Any certification below)</b></p> <p>Google Professional Cloud Machine Learning Engineer:</p> <p>Or</p> <p>AWS Certified Machine Learning Specialty:</p> <p>Or</p> <p>IBM Applied AI Professional Certificate:</p> <p>Or</p> <p>AWS Certified Machine Learning Specialty:</p>	<p><b>Max. 8 Marks</b></p> <p>04 mark for each valid AI/ML engineer (certified) or AI/ML certified Consultant</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	8		
4	<p><b>Network Architect:</b></p> <p>CCIE Routing &amp; Switching (CCIE)</p> <p>or</p> <p>Cisco Certified Network Associate (CCNA) or equivalent certification</p>	<p><b>Max. 05 Marks</b></p> <p>If certified resource is CCIE /CCNA or equivalent, then =5 marks</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	5		
5	<p><b>Resident Engineer</b></p> <p>Qualified Resident Engineers dedicated to project</p>	<p><b>Max. 05 Marks</b></p> <p>05 mark for each Resident Engineer having completed a similar project.</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	5		



6	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
	<b>Total</b>		<b>40</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(C)**

**QUALITY OF BIDDER’S (HR) EXPERTISE (DATA LAKE)**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Bidder Self-Assessment</b>	<b>Purchaser Assessment</b>
1	<b>Data lake architecture</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, or Google Cloud Storage or equivalent certification	<b>Max. 10 Marks</b> 05 mark for each valid data lake platforms certification like AWS Glue, Azure Data Lake Storage, or Google Cloud Storage consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
2	<b>Data Lake Engineer (Certified)</b> Microsoft Certified: Azure Data Engineer Associate Or Data bricks Certified Data Engineer Associate: Or Any equivalent vendor recognized certification	<b>Max. 10 Marks</b> 05 mark for each valid data lake engineer (Certified) or equivalent/ Data Lake experience consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
3	<b>Data Scientist (Certified)</b>  Microsoft Azure Data Scientist Associate: Or Microsoft Azure Data Scientist Associate Or Google Professional Cloud Machine Learning Engineer:	<b>Max. 8 Marks</b> 8 mark for valid certified data scientist (certified) or equivalent/ Data Scientist consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	8		

	or Equivalent Data Scientist certified				
4	<b>Storage Engineer</b>  CompTIA Storage+: Or SNIA Certified Storage Networking Expert (SCSN-E): Or AWS Certified Storage Solutions Architect - Associate: Or or equivalent Vender specific Storage certification	<b>Max. 8 Marks</b>  04 mark for each valid storage engineer (certified) dedicated to this project	8		
5	<b>Certified Network Cabling Design Professional</b>  With Bachelor's or Master Degree in relevant field with minimum 10 years' experience for Master's and 15 years' experience for Bachelor's.	<b>Max. 05 Marks</b>  05 mark for each valid CNCDP dedicated to this project  No mark will be awarded, if minimum qualification and experience criteria is not met.	5		
6	<b>Resident Engineer</b>  Qualified Resident Engineers dedicated to project	<b>Max. 05 Marks</b>  05 mark for each Resident Engineer having completed a similar project.  No mark will be awarded, if minimum qualification and experience criteria is not met	5		

7	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
		<b>Total</b>	<b>50</b>	<b>0</b>	<b>0</b>

**Annex "II"**  
**Form B-4**

**APPLICATION ZONE (CAT "M" & CAT "C")**

<b>Criteria - (Hardware Requirement Placed in Annex -K</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
Server Cat 'M' CPU (for reference only (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if (100000 / CPU and less than 120% better) = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server Cat 'C' CPU (for reference only ( 2 x AMD EPYC Gen4 Genoa 9554 (64c @ 3.1Ghz)) Passmark.com	if (Pass mark > 140000 and >120% (better or more) = 5 marks , else if (Pass mark > 140000 and less than <120% better) = 4 marks, if Pass mark > 140000 and less than 110% = 3)	5		
<b>QTY -03 Cat "M" - Hardware Specification</b>	if QTY=03 then marks =5, else =0	5		
Dual processor series (32 cores or more per processor (or equivalent)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Preferred minimum 2.6Ghz per core clock (better is preferred)	mandatory	-	-	
2*480GB SSD and 5 x 960GB SSD (with hotspare). Or, 6*960 SSD (with hotspare)	mandatory	-	-	

<b>compliance to Cat 'C' general specification</b>	mandatory	-	-	
RAM = 256 Gb DDR 5 ECC (and upgradable) with Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=300000 =5 marks, else if (IOPS>150000 and IOPS<300000=3, else=0	5		
<b>QTY -06 Cat "C" - Hardware Specification</b>	if QTY=06 then marks =5 , else =0	5		
Dual processor series (60 cores or more per processor (or equivalent) latest generation)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Minimum 2.6 Ghz per core clock (better is preferred)	mandatory	-	-	
Prefer storage capacity 4 TB (usable) with hot spare	mandatory	-	-	
<b>compliance to Cat 'M' general specification</b>	mandatory	-	-	

RAM = 512 GB DDR 5 ECC (and upgradable) with Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS<700000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
<b>Network</b>		-	-	
A-D Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
A-D Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
A-H Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
A-H Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
	<b>Total</b>	<b>90</b>	<b>0</b>	<b>0</b>

Annex "II"  
Form B-5

**HIGH PERFORMANCE COMPUTING ZONE (CAT "G")**

Hardware Requirement	Description	Marks	self-assessment	Purchaser Assessment
Server Cat 'G' CPU (for reference only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks , else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Performance NVIDIA H100 80 GB GPU ( for reference only GPU FP64 (double-precision))	34TFlops/GPU	5		
		-	-	
<b>QTY -04 Cat "G" - Hardware Specification</b>	if QTY=04 then marks =5, else =0	5		
<b>QTY -16 NVIDIA HGX H100 - H100 SXM4 80GB GPU Assembly or equivalent /better</b>	if QTY=16 then marks =5 , else =0	5		
Dual processor series (30 cores or more per processor or better)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Minimum preferred 2.6 Ghz per core clock (better is preferred)	mandatory	-	-	
High speed internal enterprise Storage 4 (or more) * SSD/ NVME (with raid capability) with preferred 8TB (Usable) (or different combination may	mandatory	-	-	



be allowed for Separate OS and High processing storage drive)				
<b>compliance to Cat 'G' general specification</b>	mandatory	-	-	
RAM = 512 Gb DDR 5 ECC (and upgradable) with less Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
Internal storage -Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS< 700000=3, else=0	5		
Internal storage -Individual write IOPS (single drive)	if (IOPS >500000 =5 marks, else if (IOPS>200000 and IOPS< 500000=3, else=0	5		
<b>Network</b>		-	-	
H-D Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
H-D latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms ) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
H-A Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
H-A latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less	5		

	than 50 ms = 3 marks, else none			
HPC H-H Backplane bandwidth 100 Gb/s per link or better	If (H-H Bandwidth >100gbps then marks =5, if conform to 100Gbps =3 else =Disqualify	5		
H-H latency (prefer latency below (less than) < 10 milliseconds)	if (< 10 ms) = 5 marks, if greater than 10 but less than 25 ms = 3 marks, else none	5		
A, HPC & Data Zone overall peak performance in (Tflops) actual benchmark	If (Tflops > 700 =5, else if 700> Gflops<500 =3, else =0	5		
Overall System measured Performance (measured) Energy Efficiency (GFlops/watts)	If (Gflops/watts > 30 =5, else if 30> Gflops<15 =3, else =0	5		
	<b>Total</b>	<b>85</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-6**

**DATA ZONE (CAT “MDS”, CAT “S”, CAT “F”, CAT “U”)**

<b>Criteria (Hardware Requirement)</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
Server (Cat 'MDS') CPU (for reference only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “S”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “F”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “U”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
<b>Generalized requirements for all</b>	-	-	-	

<b>storage related equipment be it Individualized storage server (Cat "MDS", Cat "S", Cat "F", Cat "U") Or Multi-tier (unified) or equivalent/better storage solution)</b>				
Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.	mandatory	-	-	
Redis Compatible	mandatory	-	-	
Processor configuration if required should be similar to Cat M or better Capability for Object, block storage and parallel file system.	mandatory	-	-	
- Storage Scalability (Horizontal and vertical)	mandatory	-	-	
<b>compliance to individual storage specification (Cat "MDS", Cat "S", Cat "F", Cat "U")</b>	mandatory	5		
RAM Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
		-	-	
<b>QTY -02 - Cat "MDS" components or equivalent solution</b>		5		

Internal storage - Individual Read IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=300000 =5 marks, else if (IOPS>150000 and IOPS<300000=3, else=0	5		
<b>QTY -02 - Cat "S" component or equivalent solution</b>	if QTY=02 then marks =5 , else =0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS<700000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
<b>QTY -04 - Cat "F" Component or equivalent solution</b>	if QTY=04 then marks =5, else =0	5		
Internal storage - Individual Read IOPS (single drive)	If iops > 800000 =5, else if 800000>iops<600000 =3 else 0	5		
Internal storage - Individual write IOPS (single drive)	If iops > 800000 =5, else if 800000>iops<600000 =3 else 0	5		
<b>QTY -02 - Cat "U" component or equivalent solution</b>	if QTY=02 then marks =5, else =0	5		
-NL-SAS Individual Read IOPS	If iops > 150 =5, else if 150>iops<100 =3 else 0	5		
-NL-SAS Individual Write IOPS	If iops > 150 =5, else if 150>iops<100 =3 else 0	5		
<b>Network</b>		-	-	
D-A Zone connectivity network performance compliance 25 gbps	If (A-H Bandwidth >25gbps then marks =5 , if confirm 25gbps=3, else =Disqualify	5		

D-A Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
D-H Zone connectivity network performance	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
D-H Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
<b>Total</b>		<b>120</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-7**

**NETWORK - CRITERIA**

<b>Criteria - (Hardware Requirement)</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
<b>Network requirements</b>	-	-	-	
<b>QTY - 02 Cat “Core” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Access” equipment</b>	mandatory	-	-	
<b>QTY - 01 Cat “RoCE” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Distribution” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “firewall” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Router” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Clock” equipment</b>	mandatory	-	-	
Backplane bandwidth 25 Gb/s per link or better	If (Bandwidth >=25gbps then marks =5, else =0	5		
connecting devices support Link aggregation (LAG)	If LAG support =5, else =0	5		
Infiniband or equivalent	mandatory	-		
Open Virtual Network (OVN) or equivalent	mandatory	-		
NIC bonding, unlimited underlay L2 network segregation	Optional	-		
<b>Network Latencies</b>	-	5		
A-A latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else =0	5		

D-D latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else =0	5		
H-H latency (prefer latency below (less than) < 10 milliseconds)	if (< 10 ms) = 5 marks, if greater than 10 but less than 25 ms = 3 marks, else =0	5		
<b>Total</b>		<b>30</b>	<b>0</b>	<b>0</b>



**Annex “II”  
Form B-8**

**CLOUD SOFTWARE REQUIRMENTS**

<b>Criteria - (Hardware Requirement)</b>	<b>Description Exemple</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
Mandatory software requirement that needs to be cater to in cloud setup	-	-		
Modules and software components Functional requirements	-	-		
Managed HA Onprem Cloud Platform	Openstack	-		
Managed HA Kubernetes	Openstack Magnum	-		
Compute nodes with GPU support	Openstack Nova	-		
Managed Postgres Database with HA Active-Active support	Openstack Trove	-		
Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	-		
Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	-		
Load Balancers	OpenStack Octavia	-		
Autoscaling for nodes, clusters, and containers	OpenStack Heat	-		
Container image storage	OpenStack Glance	-		
Network accessible storage with NFSv4 and RWX support (Fault tolerant and PB scalable)	OpenStack Manila	-		
Object storage with HTTP range request support (Fault Tolerant and PB scalable)	Minio, OpenStack Swift	-		

Encryption at rest for storage	OpenStack Cinder + Key encryption	-		
Internal network level encryption	TLS 1.3 Enabled	-		
Private and secure Git managed repository with CI/CD support	GitLab	-		
Dashboard for administration with RBAC support	OpenStack Horizon	-		
Administration APIs for future integration and automation		-		
	Optional	-		
Container image signing and automatic verification	Cosign	-		
FaaS support	Qinling, OpenFaaS (if provided =5, else =0)	5		
Private and secure Git managed repository with CI/CD support	GitLab	-		
Replication and disaster recovery support (backup VMs, storage, container, etc)		-		

-

Non-Functional Requirements				
GPU Pass-through		-		
Infiniband or similar HPC Network Supported		-		
No single point of failure		-		
Nodes/hardware could be added or removed by our Admin team (scalability)		-		
Must be well-integrated and well-tested		-		

Should not rely on internet for usage, configuration, and setup		-		
Documentations	If (relevant cloud documentation =5, else =0	5		
<b>Cloud Software Compatibility</b>				
these services should be demonstrated		-		
redis	if (module demonstrated =5, else =0	5		
Ceph	if (module demonstrated =5, else =0	5		
Cinder	if (module demonstrated =5, else =0	5		
Swift	if (module demonstrated =5, else =0	5		
Elasticsearch	if (module demonstrated =5, else =0	5		
these services should be demonstrated	max =20, 05 marks for each demonstrated optional module shown below	20		
Hadoop		-		
Hbase		-		
Hive		-		

ZooKeeper		-		
Phoenix		-		
Oozie		-		
Hue		-		
Spark		-		
Sqoop		-		
Flume		-		
Kafka		-		
Solr		-		
Flink		-		
Elasticsearch		-		
HetuEngine		-		
Carbon Data		-		
Ranger		-		
Tex		-		
Hudi		-		
Click House		-		
IpTDB		-		
CDL		-		
As requested by purchaser				
	<b>Total</b>	<b>55</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-9**

**HOSTING CRITERIA**

<b>Criteria for Hosting</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
Secure Location	if (premises in Isl/Rwp =5 marks, else if location in major city (close by) =3, else= 0	5		
Physical security:	If (24/7 security with CCTV =5 marks, else if only 24/7 security =3, else= 0	5		
Cybersecurity	If (firewall and intrusion detection/prevention system =5, else= 0	5		
Remote Monitoring and Alerting	If (remote monitoring software provided on premise =5, else =0	5		
Secure Network Connection (Data encryption at rest and in transit)	If (AES-256 or better- =5, else if AES-128 (or better equivalent) =3, else =0	5		
Redundancy (tier2 or tier 3) data center	If (Tier 3 =10 marks, else Tier 2 =5	10		
Network Connectivity bandwidth (BW)	if (BW connectivity > 100Mbps = 5marks, else if 100Mbps > Bw connectivity < 50 Mbps =3, else =0	5		
Network latency to the application	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
Host experience /reputation (No of year in Data Centre Service)	If (host exp >10 years = 5marks, else if (10> host exp <3) =3, else =0	5		

Uptime Guarantee (UG) (Potential Downtime per Year)	if (UG >= 98% =5, else if (98%>UG<97%=3, Else =0	5		
Hosting on Concurrent-Maintainable Infrastructure Site	Mandatory	-		
One year hosting plan (Data Center) included	Mandatory	-		
Leverage On-Site NOC (ease of access to the data centre for maintenance or troubleshooting)	if (access available =5 marks, else=0	5		
	<b>Total</b>	<b>60</b>	<b>5</b>	<b>0</b>

**Annex “II”  
Form B-10**

**PEAK THEORETICAL THROUGHPUT**

to be calculated by the bidder	Value where applicable		
	A- Zone	H-Zone	Total
CPU performance (theoretical) in Tflops (fp64) (management node)			
CPU performance (theoretical) in Tflops (fp64) (Compute node)			
CPU performance (theoretical) in Tflops (fp64) (GPU node)			
GPU performance (theoretical) in Tflops (fp64)			
GPU performance (theoretical) in Tflops (fp32 tensor core) where applicable			
GPU performance (theoretical) in Tflops (fp64 tensor core) where applicable			
Application zone overall peak performance in Tflops (fp64)			
HPC zone (linpack or equivalent) peak performance in Tflops (fp64) actual benchmark			
Overall peak performance for entire setup (A, HPC & Data Zone) in (Tflops) Rmax			
A, HPC & Data Zone overall peak performance in (Tflops) actual benchmark			
Overall System measured Performance (measured) Energy Efficiency (GFlops/watts)			

**Annex “III”**

**BIDDER INFORMATION FORM**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid submission]*

No.: *[insert number of Bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each member: <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration: <i>[insert actual or intended country of registration]</i>
4. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
5. Bidder's Address in country of registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 3.4. <input type="checkbox"/> Establishing that the Bidder is not under the supervision of the Procuring Agency
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.



**Annex “IV”**

**UNDERTAKING (Fill in and Return)**

**To**

**Project Director**

**GreenAI, NASTP**

**Rawalpindi**

**Dear Sir,**

I/We hereby submit our bid to supply to Project GreenAI NASTP **AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)** on turn-key basis and further agree that this bid will remain valid up to\_\_\_\_and will not be withdrawn or altered in terms of rates quoted and the condition stated therein on or before this date.

I/We understood the instructions to proposal (Technical and Financial) and condition of contract as laid down in IT form and thoroughly examine specification / drawing and / or patterns quoted in the Schedule to perposal and am/are fully aware to the nature of the stores required and my/our offer is to supply stores strictly in accordance with the requirements.

**Witness's Signature:**

**Name:**

**N.I.C No.**

**Address:**

**Date:**

**Date:**

**Tel: Telex/Fax**

**Signature of Bidder:**

**Name:**

**N.I.C No.**

**Capacity in which Signing:**

**Address:**

**Annex “V”**

**[ON RUPEES 200 STAMP PAPER]**

**CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT**

This Confidentiality and Non-Disclosure Agreement (herein referred to as this “**Agreement**”) is entered into on this \_\_\_\_ day of xxx, 2023

**BETWEEN**

**Project GreenAI, NASTP**, incorporated under the laws of Pakistan, having its registered office at Alpha Three, Old AirPort, Chaklala, Rawalpindi, Pakistan, herein referred to as “**PROJECT GREENAI**”, which expression shall, wherever the context so permits, mean and include its affiliates, subsidiaries, successors in interest and assigns of the **FIRST PART**.

**AND**

**M/s** \_\_\_\_\_, incorporated under the laws of Pakistan having its CUIN No \_\_\_\_\_, registered office at \_\_\_\_\_, having Incorporation number \_\_\_\_\_ herein referred to as “**Company**”, which expression shall, wherever the context so permits, mean and include its affiliates, subsidiaries, successors in interest and permitted assigns of the **SECOND PART**.

(PROJECT GREENAI and Company herein referred to individually as the “**Party**” and collectively as the “**Parties**”)

**WITNESSTH:**

**WHEREAS**, PD GreenAI is incorporated to, *inter alia*, develop a GreenAI NASTP (herein referred to as the “**Project**”) including the establishment of a National Aerospace Science and Technology Park (**NASTP**) therein.

**WHEREAS**, Company has intent to [\_\_\_\_\_].

**WHEREAS**, in order to protect its business interests, PROJECT GREENAI desires Company to assume and undertake certain obligations, including the preservation and protection of its Confidential Information (as defined below in Article 1.1(b)).

**WHEREAS**, Company is agreeable to protecting PD GreenAI’ Confidential Information.

**NOW THEREFORE**, the parties agree as follows:

## DEFINITIONS

The parties agree that the following definitions shall apply to this Agreement:

- (a) **“Business”** shall mean any and all aspects of the business being conducted, planned to be conducted or contemplated to be conducted by PROJECT GREEN AI, including but not limited to the development of the Project and the establishment of NASTP.
- (b) **“Confidential Information”** shall mean and include all information, knowledge and data, whether in a tangible or intangible form, or whether transmitted orally, electronically or in written form, concerning (i) business, financial or technical information, (ii) the business plans, strategic plans, operations, practices, concepts, ideas, research, techniques, methods, and procedures of PROJECT GREENAI, (iii) the know-how developed, used, and contemplated for use in connection with the Business, and (iv) such other information, in any form whatsoever, containing or otherwise reflecting information about PROJECT GREENAI, which PROJECT GREENAI treats as proprietary and confidential.
- (c) **“Authenticity”** The shared information must be treated as “confidential information” and falls in ambit of this agreement. It is strictly prohibited that shared data will be disclosed before third party without permission of PROJECT GREENAI
- (d) **“Representatives”** shall include a party’s shareholders, directors, officers, employees, agents, advisors and Company’s including legal counsel, accountants and financial advisors.
- (e) **“Transaction”** shall include a possible business relationship, contract, or transaction which may at some future date be entered into by the parties.

## NON-DISCLOSURE AND USE OF CONFIDENTIAL INFORMATION

- 1.1. Company acknowledges that the Confidential Information belongs to PROJECT GREENAI and has been obtained by PROJECT GREENAI at great cost and is of great value to PROJECT GREENAI. Company further acknowledges that it has or will become privy to the Confidential Information by virtue of this Agreement with PROJECT GREENAI.
- 1.2. For as long as Company is in possession of any Confidential Information, Company shall hold and maintain it in strict confidence, and shall not directly or indirectly use, divulge, furnish or make accessible to any person or entity not expressly authorized by PROJECT GREENAI to receive such information.
- 1.3. In the event Company or anyone on Company’s behalf are served with or subject to a legal demand, legal obligation, court order or request for disclosure of any Confidential Information, Company shall provide PROJECT GREENAI with notice as soon as practicable and use its best efforts to oppose and/or adjourn any such disclosure and to afford PROJECT GREENAI the opportunity to oppose such disclosure lawfully.
- 1.4. Company agrees that the terms of this Agreement are confidential and may not be disclosed to any third party other than its legal and financial advisors who shall in turn agree not to disclose the terms to any third party.

1.5. The fact that Confidential Information has been disclosed to a limited number of outsiders by PROJECT GREENAI shall not deprive the information, knowledge or data of its proprietary or confidential status.

1.6. Information exchanged by the parties prior to the commencement date shall be deemed to be Confidential Information and protected by this Agreement.

1.7. Company acknowledges that all the Confidential Information obtained by it or submitted or transmitted to it by PROJECT GREENAI in any form shall be held in trust by Company and utilized only for the purpose it is intended.

1.8. It is clearly understood and expressly agreed by Company that it will not copy or retain any Confidential Information and shall forthwith return the same to PROJECT GREENAI upon the expiry or termination of any business relationship between the parties. Company shall, however, continue to be bound by the non-disclosure obligations until the termination of this Agreement in accordance with its terms.

## **2. EXCEPTIONS**

2.1. The obligations with respect to handling and using Confidential Information as set forth in this Agreement are not applicable to information which is:

- (a) In the public domain or becomes common knowledge within the industry (other than through a violation or breach of this Agreement or violation or breach of any other obligation of confidentiality by any person or entity); or
- (b) Known to Company prior to disclosure by PROJECT GREENAI, as evidenced by competent written proof; or
- (c) Independently developed by Company without breach of this Agreement by Company; or
- (d) Obtained by Company from third parties who obtained such information (other than through a violation or breach of any agreement or other obligation of confidentiality); or
- (e) Disclosed as required by governmental decree, law or statute or judicial decree or order subject to the terms of this Agreement.

2.2. If Company intends to use, publish or otherwise disclose any Confidential Information in reliance upon paragraph 3.1(e) above, it shall:

- (a) Give prompt notice of such request to PROJECT GREENAI so that it may seek an appropriate protective order or other appropriate remedy; and
- (b) Cooperate with PROJECT GREENAI to obtain such protective order or other appropriate remedy.

## **3. PRIVACY AND DATA PROTECTION**

3.1. Both Parties shall comply fully with all applicable Pakistani laws and regulations regarding privacy and data protection, and without limiting the generality of the forgoing, each Party shall:

- (a) Obtain all necessary and required consents with respect to the collection, use and disclosure of personal information to be used by the other as contemplated hereunder.
- (b) Ensure that the transfers of personal information by one Party to the other arising from or pursuant to this Agreement will comply in all material respects with any applicable privacy and data protection legislation in Pakistan.
- (c) Identify a member of its management who shall be responsible for ensuring compliance with all data protection obligations under this Agreement.
- (d) Refer any third party who request access to Personal Information to the other Party, if applicable, and both Parties shall provide all reasonable assistance to the other to facilitate such requests.
- (e) Use appropriate security measures to protect the Personal Information in its custody.
- (f) In the event of a dispute between either Party and an individual or a relevant privacy commissioner concerning the collection, use or disclosure of Personal Information, which dispute is not amicably resolved, both parties agree to defend and advocate the lawfulness of the transfer of Personal Information to Company pursuant to this Agreement through available means of dispute resolution as provided for by applicable privacy legislation.

#### **4. NO OBLIGATION**

4.1. Neither party shall be required, by reason of the provision of the Confidential Information hereunder or otherwise by this Agreement:

- (a) To purchase or use any service or item supplied by the other party; or
- (b) To enter into any Transaction, contract or agreement with the other party; or
- (c) To deal exclusively with the other party in any manner.

#### **5. ENFORCEMENT AND REMEDIES**

5.1. Company acknowledges that any breach or violation (or threatened breach or violation) of this Agreement by Company or its Representatives would result in immediate and irreparable injury to Project GreenAI for which Project GreenAI will not have any adequate remedy at law. Project GreenAI shall be entitled, in addition to all other remedies, to a temporary and permanent injunction and/or decree for specific performance of the terms of this Agreement, without the necessity of showing any actual damages, posting a bond or furnishing other security.

5.2. Company agrees to take such reasonable actions as Project GreenAI considers necessary or desirable against any of Company Representatives in the event such Representatives breach (or threaten to breach) the provisions of this Agreement.

5.3. The right to take reasonable action is in addition to all other rights or recourses available to Project GreenAI by contract or at law, as a result of any breach or violation of this Agreement by Company or any of its Representatives.

5.4. In any action in which Project GreenAI obtains a preliminary or permanent injunction or any other relief, Project GreenAI shall be entitled to a judgment or award for reimbursement of its legal costs, including but not limited to reasonable attorneys' fees.

5.5. Company agrees to indemnify and hold Project GreenAI and its Representatives harmless from any damages, costs, expenses, loss or liability (including reasonable legal fees and the cost of enforcing this indemnity) arising out of or resulting from any unauthorized use or disclosure of the Confidential Information, or any other breach or violation of this Agreement by Company or its Representatives.

5.6. No failure or delay by either party in exercising any right, option, power, or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any other right, option, power or privilege.

## **6. ENTIRE AGREEMENT**

6.1. This Agreement represents the entire agreement between the parties respecting the subject matter hereof, and supersedes all prior agreements, understandings, discussions, negotiations, representations and correspondence made by or between them.

6.2. This Agreement may be amended, modified, waived or terminated only by way of a supplemental agreement signed by the parties.

6.3. All of the WHEREAS recitals set forth at the beginning of this Agreement are integral parts of this Agreement and are incorporated into this Agreement by reference.

6.4. The titles and headings of this Agreement and all sections of this Agreement are for purposes of convenience only, form no part of this Agreement, and shall not be used in interpreting this Agreement.

## **7. SEVERABILITY**

7.1. If any clause or provision of this Agreement, or portion thereof, shall be held by any court or other tribunal of competent jurisdiction to be illegal, invalid or unenforceable, the remainder of such clause or provision shall not be affected thereby and shall be given full effect, without regard to the invalid portion. It is the intention of the parties that, if any court or other tribunal of competent jurisdiction construes any clause or provision of this Agreement, or any portion thereof, to be illegal, invalid or unenforceable, such court or tribunal shall, only to the extent necessary to ensure the legality, validity, or enforceability thereof, either strike or delete such clause or provision or portion thereof or reduce the duration, area, or other aspect of such provision, and, in its reduced form, such provision shall then be enforceable and shall be enforced.

## **8. NOTICES**

8.1. Notices required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been properly given (i) on the day indicated on the corresponding acknowledgement of receipt if dispatched by registered mail, (ii) on the day indicated on the transmission record if transmitted by facsimile, (iii) on the date of actual delivery if delivered by hand, or (iv) on the day indicated on the corresponding acknowledgement of receipt if

dispatched by courier, if such notice is addressed to the party to whom it was sent at the address, or facsimile number, of such party set forth below or at such other address or facsimile number as the party shall subsequently designate to the other party by notice given in accordance with this provision:

**In respect of PD GreenAI:**

Name **Air Commodore Dr Tauseef Ur Rehman**

Designation: PD GreenAI

Address: Alpha-3, NASTP, Old Airport Road, Rawalpindi

Email: pd.tech@acp-nastp.gov.pk

Tel Number: +92-51-9529532

**In respect of Company :**

**M/s Name & Address of the company**

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Address:

Email:

Facsimile Number:

**9. GOVERNING LAW & JURISDICTION**

9.1. This Agreement shall be governed by the laws of the Islamic Republic of Pakistan and Courts of Rawalpindi have exclusive jurisdiction to adjudicate the matter.

**IN WITNESS WHEREOF** the parties have caused this Agreement to be executed by their respective representatives duly authorized in that behalf, as of the dates written below.

FOR PROJECT GREENAI	FOR COMPANY
	Name: Designation:
Sign:	Sign:

Witness 1	Witness 2
Name: Designation: CNIC:	Name: Designation: CNIC:
Sign:	Sign:



**Annex “VI”**

**CERTIFICATE FOR CORRECTNESS OF DATA/ DOCUMENTS/  
INFORMATION (Date:-----)**

It is certified that the data/ documents/ information submitted in our Proposal is absolutely correct to best of our knowledge and we accept full responsibility for its accuracy.

We understand that any false or incorrect data/ documents/ information may result in disqualification of our bid at any stage of procurement process.

Signature of Authorized Representative: \_\_\_\_\_

Name/Designation of Authorized Representative: \_\_\_\_\_

Designation of Authorized Representative: \_\_\_\_\_

**Annex "VII"**

**FORM OF BANK GUARANTEE FOR MOBILIZATION ADVANCE PAYMENT  
ON JUDICIAL STAMP PAPER OF Rs.100/- OR AS SUITABLE TO THE  
AMOUNT OF BG**

Guarantee No. \_\_\_\_\_  
Executed on \_\_\_\_\_  
Expiry date \_\_\_\_\_

WHEREAS the \_\_\_\_\_ (hereinafter  
called the Employer) has entered into a Contract for  
\_\_\_\_\_ (Particulars of Contract), with  
\_\_\_\_\_ (hereinafter called the Contractor).

AND WHEREAS the Employer has agreed to advance to the Contractor, at the Contractor's  
request, an amount of Rupees \_\_\_\_\_ (Rs.  
\_\_\_\_\_) which amount shall be advanced to the Contractor as per  
provisions of the Contract.

AND WHEREAS the Employer has asked the Contractor to furnish a Guarantee to secure  
advance payment for performance of his obligations under the said Contract.

AND WHEREAS \_\_\_\_\_ (Bank) (hereinafter  
called the Guarantor) at the request of the Contractor and in consideration of the Employer  
agreeing to make the above advance to the Contractor, has agreed to furnish the said  
Guarantee.

NOW THEREFORE the Guarantor hereby guarantees that the Contractor shall use the  
advance for the purpose of abovementioned Contract and if he fails, and commits default in  
fulfilment of any of his obligations for which the advance payment is made, the Guarantor  
shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, as  
aforesaid, on the part of the Contractor, shall be given by the Employer to the Guarantor,  
and on such first written demand payment shall be made by the Guarantor of all sums then  
due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall come into force as soon as the advance payment has been credited to  
the account of the Contractor.

This guarantee shall expire not later than \_\_\_\_\_  
by which date we must have received any claims by registered letter, telegram, telex or  
telefax. It is understood that you will return this Guarantee to us on expiry or after settlement  
of the total amount to be claimed hereunder.

\_\_\_\_\_  
Guarantor (Bank)

Witness:

\_\_\_\_\_  
\_\_\_\_\_  
Corporate Secretary (Seal)  
Title \_\_\_\_\_

Signature \_\_\_\_\_  
Name \_\_\_\_\_

Name, Title & Address

\_\_\_\_\_  
Corporate Guarantor (Seal)

**Annex "VIII"**

**PERFORMANCE GUARANTEE (ON JUDICIAL STAMP PAPER OF Rs.100/-  
OR AS SUITABLE TO THE AMOUNT OF BG)**

CONTRACT NO. \_\_\_\_\_ DATE \_\_\_\_\_  
 NAME OF FIRM/CONTRACTOR: \_\_\_\_\_  
 ADDRESS OF FIRM: \_\_\_\_\_  
 NAME OF GUARANTOR: \_\_\_\_\_  
 ADDRESS OF GUARANTOR: \_\_\_\_\_  
 AMOUNT OF GUARANTY in Rs. \_\_\_\_\_ (In Words) \_\_\_\_\_  
 DATE OF EXPIRY OF GUARANTY \_\_\_\_\_

To: Project Director GreenAI

Sir,

1. Whereas your good self have entered into Contract No. \_\_\_\_\_ dated \_\_\_\_\_ with Messer's \_\_\_\_\_ (FULL NAME AND ADDRESS) Hereinafter referred to as our customer and that one of the conditions of the contract is the submission of unconditional Bank Guaranty by our customer to your good-self for a sum of Rs. \_\_\_\_\_ Rupees \_\_\_\_\_

2. In compliance with this stipulation of the contract, we hereby agree and undertake as under:

(a) To pay to you unconditionally on demand and/or without any reference to our Customer an amount not exceeding the sum of Rs. \_\_\_\_\_ Rupees \_\_\_\_\_ as would be mentioned in your written Demand Notice.

(b) To keep this Guaranty in force till \_\_\_\_\_

(c) That the validity of this Bank Guaranty shall be kept Two clear Months ahead of the original / extended delivery period or the warrantee of the Agri verse Cloud which so ever is later in duration on receipt of information from our Customer i.e. M/s \_\_\_\_\_ or from your office. Our liability under this Bank Guaranty shall cease on the closing of banking hours on the last date of validity of this Bank Guaranty. Claim received thereafter shall not be entertained by us whether you suffer a

loss or not. On receipt of payment under this guaranty, this document i.e. Bank Guaranty must be clearly cancelled, discharged and returned to us.

(d) That we shall inform your office regarding termination of the validity of this Bank Guaranty one clear month before the actual expiry date of this Guaranty.

(e) That with the consent of our customer you may amend/alter any term/clause of the contract or add/delete any term/clause to/from this contract without making any reference to us. We do not reserve any right to receive any such amendment/alternation or addition/deletion provided such like actions do not increase our monetary liability under this Bank Guaranty which shall be limited only to

Rs\_\_\_\_\_ (Rupees\_\_\_\_\_)

(f) That the Bank Guaranty herein before given shall not be affected by any change in the constitution of the Bank or Customer/Supplier or Vendor.

(g) That this is an unconditional Bank Guaranty, which shall be encashed on sight on presentation without any reference to our Customer/Supplier or Vendor.

**GUARANTOR:**

**Dated:** \_\_\_\_\_

**BANK SEAL & SIGNATURE:**

**Annex "IX"**

**FINANCIAL PROPOSAL FORM**

1. Contract No \_\_\_\_\_
2. Time and date of Opening: Date \_\_\_\_\_ At \_\_\_\_\_ Hrs

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Item No	Item S No	Part No	Noun	Specs	UI	Qty	Unit Price	Total Price	GST % on Total Price (As applicable)	Total Price (incl GST) <u>9+10</u>

Inclusive Excluded: Excise Duty @ \_\_\_\_\_ %

Sales Tax @ \_\_\_\_\_ %

Surcharge @ \_\_\_\_\_ %

Any other Tax@: \_\_\_\_\_ %

Total Price: \_\_\_\_\_ (Rs in words) \_\_\_\_\_

No.	Itemized Financial Matrix	Reference
1a	Technical User Requirement - Application Zone	Appedix"A" to Annex "XIV"
1b	Technical User Requirement - High Performance Zone	Appedix"A" to Annex "XIV"
1c	Technical User Requirement - Data Zone	Appedix"A" to Annex "XIV"
1d	Technical User Requirement - Network	Appedix"A" to Annex "XIV"
2	Cloud orchestration Software	Appedix"B" to Annex "XIV"
3	Data Center Hosting	Form B-9 to Annex "II"

The above-mentioned Forms in Para no.2 should be filled for all the above-mentioned components separately

**Bid is valid upto** \_\_\_\_\_.

**Dated:-**

**(Signature of Bidder & Stamp)**

**Special Instructions**

1. Technical Specification mentioned at **Annex "XIV"** are reflected at appendix-I to this schedule must be studied carefully prior to filling in proposal.
2. Date by which stores are required (In case it is not possible for you to give delivery by given date please indicate date by which store can be delivered by the firm).

3. The price quoted must be net per accounting unit as shown in the schedule to proposal inclusive of sales Tax /Excise Duty/Surcharge (fix/variable taxes or any other relevant tax).
4. Prices will be mentioned for each item separately.
5. Only one rate quoted for entire qty will lead to rejection of offer.
6. Original quotations from the manufacturer /supplier must be attached in support of quoted price. A certificate from the principal will be endorsed on the original quotation to the effect that the prices do include %age of agent commission discount and do not include any such commission. And apart from this, there is no other element of agent's commission / discount included in the quotation. Only one rate will be quoted for entire qty item-wise.
7. In case of OEM products are offered, OEM part No and its interchangeability with demanded part No should be indicated and provided with the help of relevant catalogue/extract.
8. The prices will be indicated in US\$/EURO/UK£ (in case quoted prices are in different currencies then for the sake of comparison, these will be converted into Pak Currency at rate prevailing on opening day of commercial offers).
9. The bid sum as submitted and read out during financial bid opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity except that if the Bid is substantially responsive, the procuring agency shall handle only the undermentioned errors on the following basis:
  - (a) Bidders shall be notified of any correctable error detected in their bid during the notification of award.
  - (b) Any arithmetic errors in the submitted bid arising from a miscalculation of unit price, quantity, subtotal and total bid price shall be rectified on the following basis:
  - (c) If there is a discrepancy between words and figures, the lowest amount, either in words or figures, shall be considered.
  - (d) If there is discrepancy between the unit price and the total price which is obtained by multiplying the unit price and quantity, or between sub- total and the total price, the unit or sub-total price shall prevail, and the total price shall be corrected.
  - (e) In case of discrepancy between sub-total price obtained by adding various prices in the schedule and the sub-total price indicated for that particular schedule, the sub-total obtained by addition of various arithmetically corrected prices would be considered for evaluation.
  - (f) In case of any discrepancy in the applicable rates or calculation of applicable taxes discussed, agreed and added to the contract amount in separate lines, as needed, corrections in item and subtotal prices may be allowed as per applicable Govt. rates / rules.
10. The procuring agency shall be entitled to award the contract to the most advantageous bidder after applying permissible arithmetic / tax corrections in the bid proposal sheets. If the bidder does not accept the correction of the errors as above, his bid will be rejected.

**Special Note:** You may say Agreed to / not Agreed to conditions / clauses mentioned in these documents. In case of disagreement you may suggest option / alternative course for consideration by Procurement agency but it will not be binding on Project Director GREENAI to accept the same.

**Annex “X-A”**

**BIDDER’S JV MEMBERS INFORMATION FORM**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture]].*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page\_\_\_\_\_of\_\_\_\_\_pages

1. Bidder’s Name: <i>[insert Bidder’s legal name]</i>
2. Bidder’s JV Member’s name: <i>[insert JV’s Member legal name]</i>
3. Bidder’s JV Member’s country of registration: <i>[insert JV’s Member country of registration]</i>
4. Bidder’s JV Member’s year of registration: <i>[insert JV’s Member year of registration]</i>
5. Bidder’s JV Member’s legal address in country of registration: <i>[insert JV’s Member legal address in country of registration]</i>
6. Bidder’s JV Member’s authorized representative information Name: <i>[insert name of JV’s Member authorized representative]</i> Address: <i>[insert address of JV’s Member authorized representative]</i>  Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV’s Member authorized representative]</i>  Email Address: <i>[insert email address of JV’s Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i>  <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Annex “X-B”**

**POWER OF ATTORNEY**

**Power of Attorney to be provided by the Bidder / Lead Member in favour for its representative as evidence of authorized representative’s authority.**

Know all men by these presents, I \_\_\_\_\_ (name and address of the registered office of the Bidder or Lead Member of the consortium, as applicable) do hereby constitute, appoint and authorize Mr. / Ms. \_\_\_\_\_ (name and residential address) who is presently employed with us and holding the position of \_\_\_\_\_ as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid in response to the RFP dated \_\_\_\_\_ bearing reference no. \_\_\_\_\_ issued by Project GreenAI NASTP, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which Project GreenAI NASTP may require us to submit. The aforesaid attorney is further authorized for making representations to and providing information/ responses to Project GreenAI NASTP, representing us in all matters and generally dealing with GreenAI NASTP in all matters in connection with our Bid till the completion of the Bid process as per the terms of the RFP.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

**Signed by the within named \_\_\_\_\_ [Insert the name of the executant company] through the hand of Mr. \_\_\_\_\_ duly authorized by the Board to issue such Power of Attorney. Dated this \_\_\_\_\_ day of \_\_\_\_\_ Accepted**

\_\_\_\_\_  
Signature of Attorney (Name, Designation and Address of the Attorney)

**Attested**

**WITNESS:**

\_\_\_\_\_  
(Signature)

Name \_\_\_\_\_

Designation \_\_\_\_\_

\_\_\_\_\_  
(Signature)

Name \_\_\_\_\_

Designation \_\_\_\_\_



**Annex “XI”****SPECIAL INSTRUCTIONS**

Under mentioned information must be provided along with quotation else your quotation will be rejected: -

<b>S No</b>	<b>Description / Requirement</b>	<b>Remarks / Attached</b>
1.	Delivery Period	
2.	Quotation Validity Period	
3.	Country of Origin	
4.	Port of Shipment	
5.	Terms of Payment (As per Para 18 of IT)	
6.	Warranty / Guarantee period offered by Firm	
7.	Beneficiary Details (Completed address along with contact No)	
8.	Complete Bank address and Account Details For Payment / Letter of Credit	
9.	Previous Experience (Nature of Business and No of Years in Business)	
11.	Signing Authority (Name, Designation, Contact Details)	
12.	Address of local firm along with contact No, email etc	
13.	Manufacturer and Brand Name (If applicable)	

**Annex “XII”**

**FORMAT OF AFFIDAVIT / UNDERTAKING**

**Bidder must submit following undertaking (on stamp paper of Rs.100), failing which the bid shall be rejected:**

(a) I, Mr. .... S/o..... holding CNIC # ..... from M/s ..... Having Its business office at ....., do hereby solemnly affirm and declare as under;

(b) That M/s ..... is not engaged, under investigation or offences or no proceedings are pending before FBR, Customs, NAB, any Judicial form, FIA or any other Govt. authority with respect to fraud, terror financing, money laundering etc.

(c) We also confirm that our firm has not been black listed by any National/International organization or forum and is entitled to carry out its business activities to the standard business ethics.

(d) That the Partner(s) / Officers of M/s..... have not been subject to financial crime. Nor they every compounded with their creditors in any capacity.

(e) The above statement is true to the best of my knowledge and belief and nothing has been concealed or is false.

**Note:** In case any bidder is found in the list of “Blacklisted Firms-Pakistan” or related links at <https://www.ppra.org.pk/> then its bid shall be rejected

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Stamp: \_\_\_\_\_



**MINISTRY OF DEFENCE THROUGH THE PROJECT DIRECTOR OF ITS GREENAI  
PROJECT MANAGEMENT UNIT ("PROCURING AGENCY")**

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**REQUEST FOR PROPOSAL**

**NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP01/2024**

**FOR**

**ESTABLISHMENT OF "AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD  
FACILITY (PILOT PHASE)"**

**AS A COMPONENT OF PSDP APPROVED PROJECT TITLED "DEVELOPMENT OF ICT  
AND ARTIFICIAL INTELLIGENCE (AI) BASED PRECISION AGRICULTURE  
SYSTEMS UTILIZING DUAL-USE AEROSPACE TECHNOLOGIES - GREENAI"**

Issue Date: MARCH, 2024

1. Project GreenAI, National Aerospace Science & Technology Park, Rawalpindi invites sealed bids from authorized distributors/suppliers/ Data Centre Design & Development Firms, registered with Income Tax and Sales Tax Department, for **AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)** during financial year 2023-24 on "Turnkey Basis".
2. Bids prepared in accordance with instructions in the bidding document must reach at following address on or before **27 March, 2024 upto 11:00 AM**. Bids will be opened on same day **27 March, 2024 at 11:30 AM** in presence of bidders or their authorized representatives. The advertisement along with bidding document is also available on PPRA web address [www.ppra.org.pk](http://www.ppra.org.pk)

**Project Director**

GreenAI NASTP, Rawalpindi

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com)

[diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Date:- 12 March, 2024

## **ESTABLISHMENT OF AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”**

1. Participating bidders are required to submit bids according to instructions mentioned in bidding documents. These bids should meet the requirements / criteria illustrated in bidding documents along with fulfilment of other terms and conditions of contracts.
2. According to rule 31 of Public Procurement Rules, 2004 (“PPR 2004”) no bidder is allowed to alter or modify his bids after the bids have been opened. Moreover, as per rule 36 (b)(vi) of **PPR** 2004 states that no amendment in the technical proposal is permitted during technical evaluation. Therefore, in the light of prevailing Govt. procedures, requests for amendments in quotations and clarifications leading to change of substance of bid after opening of bids cannot be accepted and bids not conforming to contract requirements are liable to be rejected.
3. Participating bidders are therefore requested to read the bidding documents thoroughly and submit their proposals accordingly without any condition in conformance to all contract requirements including Advance Payment, Bid validity, provisioning of original proposals from foreign principal, Bank Guarantee confirmation etc., for consideration of bid. Bid found nonconforming to the requirements is liable to be rejected on opening date.
4. **Pre-bid Meeting.** To clarify any ambiguity / lack of understanding before submission of final bids, a meeting is planned for convenience of bidders on i.e. **21 March, 2024 at 11:00 AM** at NASTP address. Participating firms are requested to provide particulars of their reps on Ph. No. 051-9529532 / 03009884624 at least one (01) day prior to the opening date.



**Project Director**

GreenAI NASTP, Rawalpindi

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com)

[diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Date:- **12 March, 2024**

## **DISCLAIMER**

1. All information provided/ clarified in this Request for Proposal (RFP) is in the best interest and faith of the parties involved. This RFP is neither an agreement nor an offer/ invitation of agreement by the procuring agency to the prospective bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their proposals pursuant to this RFP. The information published in this document is not intended to be exhaustive. Though adequate care has been taken in the presentation of this RFP document, the assumptions, assessments, statements, and information contained in this RFP, may not be complete, accurate, adequate, or correct. Interested bidders shall, therefore, are required to make their own investigations and assumptions wherever required and satisfy themselves that the RFP document is complete in all respects. Intimation of discrepancy, if any, should be given to the specified office immediately. If no intimation is received by the office till the date mentioned in the document, it shall be deemed that the RFP document is complete in all respects and parties submitting their proposals are satisfied with respect to RFP document.

2. Information provided in this document or imparted to any respondent as part of RFP process is confidential to the procuring agency and shall not be used by the bidders for any other purpose(s), distributed to, or shared with any other person or organization.

## PLEASE READ CAREFULLY

1. Participating bidders are required to submit bids according to instructions mentioned in bidding documents. These bids should meet the requirements / criteria illustrated in bidding documents along with fulfilment of other terms and conditions of contract.
2. According to rule 31 of Public Procurement Rules, 2004 ("PPR 2004") no bidder is allowed to alter or modify his bids after the bids have been opened. Moreover, as per rule 36 (b)(vi) of PPR 2004 states that no amendment in the technical proposal is permitted during technical evaluation. Therefore, in the light of prevailing Govt. procedures, requests for amendments in quotations and clarifications leading to change of substance of bid after opening of bids cannot be accepted and bids not conforming to contract requirements are liable to be rejected.
3. Participating bidders are therefore requested to read the bidding documents thoroughly and submit their quotes accordingly without any condition in conformance to all contract requirements including Down Payment, Bid validity, provisioning of original quotation from foreign principal, Bank Guarantee confirmation etc., for consideration of bid. Bid found non-conforming to the requirements is liable to be rejected on the opening date.
4. **Participating firms are requested to provide particulars of their reps on Ph No 051-9529532 / 03009884624 at least 02 day prior to bid opening date.**

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### LIST OF PARTICULARS AND ANNEXURES

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1.	Name of Procuring Agency
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4.	Commencement date for delivery of Goods
5.	Financial year for the operations of the procuring agency
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7.	Last Date & Time for Submission of Bid
8.	Bid Opening Date & Time
9.	Bid Opening Address
10-11	Condition Governing Contracts
12.	Execution of Contract
13.	Procurement Procedure
14.	Pre-Bid Meeting
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24 -25	Quoting of Prices (DDP Price in PKR)
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## ANNEXURES

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Annex "II"	Evaluation Criteria (Form B)
Annex "III"	Bidder Information Form
Annex "IV"	Undertaking
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Annex "VI"	Certificate for correctness of data/ documents/ Information
Annex "VII"	Bank Guaranty for Mobilization Advance
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Annex "IX"	Financial Proposal Form
Annex "X-A":	Bidder's JV Members Information Form
Annex "X-B"	Power of Attorney to be provided by Lead Member
Annex "XI"	Special Instructions
Annex "XII"	Format of Affidavit / Undertaking
Annex "XIII"	Draft Contract Agreement
Annex "XIV"	User Requirement Document (URD)

# INVITATION TO CONTRACT AND GENERAL INSTRUCTIONS TO BIDDERS (SINGLE STAGE TWO ENVELOPE BASIS) (DDP IN PAK RUPEES)

1. **Name of Procuring Agency:** Ministry of Defence through the Project Director of its GreenAI Project Management Unit.
2. **Bid Reference No.** NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP01/2024
3. **Delivery period.** Stores are required of within minimum possible delivery period but not later than **03 Months** after signing of the Letter of Acceptance by the supplier unless otherwise specified for any particular item(s). Offers with minimum delivery period are likely to be preferred. However, delivery period is to be factual as no extension will be subsequently granted except under unavoidable circumstances beyond control of BIDDER or under Force Majeure for which intimation with full justification / evidences is to be dispatched well in advance for consideration.
4. **Commencement Date for delivery of Goods.** signing of the Letter of Acceptance by the supplier
5. **Financial year for the operations of the procuring agency.** 2024-25
6. **Invitation of Bid** Project GreenAI NASTP, Alpha 03, Old Airport Road, Rawalpindi invites sealed bids from reputed firms for establishment of **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** on **“Turnkey Basis”** as per RFP.
7. **Last Date & Time for Submission of Bid.** **27 March, 2024 upto 11:00 AM**
8. **Bid Opening Date & Time.** **27 March, 2024 at 11:30 AM**
9. **Bid Opening Address.** Project GreenAI NASTP, Alpha 03, Old Airport Road, Rawalpindi Tel: +92-51-9529532 Email: **diritcgreenai@outlook.com, diragriverse@outlook.com.**
10. **Condition Governing Contracts.** The procuring agency may, at any time whether on its own initiative or in response to a clarification requested by a prospective bidder, amend the RFP. Any amendment in the RFP shall be issued in writing through addendum/corrigendum.
11. The “Contract” made as a result of this Inquiry shall mean the agreement entered into between the parties i.e. the “Purchaser” (Project GreenAI) and the “Bidder” (M/s -----) in accordance with the law of Contract Act, 1872 and those contained in purchase procedures and other special conditions that may be added to give contract for the supply of stores specified therein.
12. **Execution of Contract.** The successful bidder shall enter into a formal contract, as per the draft placed as **Annex “XIII”** with procuring agency on judicial stamp paper of value as prescribed by the relevant laws. The stamp duty cost etc. would be borne by the successful bidder.
13. **Procurement Procedure.** The bid shall comprise of five sealed separate envelopes. Each envelope shall contain separately the Technical Proposal (one (1) original and two (2) copies), Financial proposal (01 Envelop in original) and the Bid Security (01 Envelop). The envelopes should be clearly marked with “Technical Proposal”, “Financial Proposal” and “Bid

Security". In the first instance, only technical proposal will be opened and scrutinized. The financial proposal and bid security of only technically qualifying firms will be opened. The financial proposals and bid security of firms not meeting the required specifications/ criteria will be returned unopened.

(a) **Technical Proposal:** - It shall contain all relevant specifications along with essential literature / brochure in **duplicate** in a separate envelope and clearly marked "**Technical Proposal without prices**", contract number and date of opening. **Bid Security** shall be sealed in an envelope **separate** from technical and financial proposals clearly marked **Bid Security** and contract Number and will be received with technical proposal.

(b) **Financial Proposal:** It shall indicate prices quoted in figures as well as in words and clearly marked on face of a separate envelope "**Financial Proposal with prices**", along with the contract number (**Annex "IX"**).

(c) Both the "**Envelopes**" of Technical and Financial proposals should be enclosed in one cover, properly sealed and bear the address of **GreenAI NASTP** with contract number and opening date.

(d) The procuring agency reserves the right to verify the letters, documents or information provided by any bidder from issuing parties and may (together with its advisers) visit and hold meetings with them which shall be facilitated by the bidder. Furthermore, failure to provide the Financial Proposal in the form required under this RFP document may also result in disqualification of the Bid.

(e) **Forms** duly filled-in are to be returned with the offer duly signed by the authorized signatory person of bidding firm (**Annex "XI"**).

(f) **Single/Multiple Offers:** Only one proposal can be made in relevant currency (PKR) for same item. Multiple rates, if quoted, will be rejected. Multiple bids against the proposal will also be rejected.

14. **Pre-Bid Meeting.** A pre-bid meeting may be held before 7 days of final date of opening contract.

15. **Language.** The English text of the Contract shall be treated as the authentic text for all purposes including interpretation.

16. **Bid Security.** The amount of the bid security shall be in Pak Rupees. The bidders are required to deposit **Bid Security (refundable) equal to 2% of the total bid value including taxes** in the shape of **pay order, call deposit, bankers' cheque or demand draft** in favour of "**Project Director GreenAI**".

(a) Bid security shall be sealed in an envelope separate from Technical and Financial Proposals.

(b) Bids not accompanied by bid security of the required amount will not be entertained.

(c) Bid security of successful bidders will be released upon submission of **Performance Guarantee** at the time of signing of contract. In event of the successful bidder failing to execute the contract and to submit the performance bond/Guarantee in the period specified, the procuring agency shall be entitled to forfeit the bid bond of the abandoning bidder and may approach the bidder second in line for signing of the contract.

17. **Rights Reserved:** The procuring agency Project GreenAI NASTP reserves the right to accept or reject any proposal and to annul the procurement process and reject all bids or proposals at any time prior to acceptance of a bid or proposal as per rule 33 of PPR 2004 without thereby incurring any liability to the affected Bidder.

18. **Addition and Deletion of Scope of Work.** The procuring agency may increase or decrease the scope of work in accordance with the PPR 2004. Such information will be passed on to the supplier / bidder through the fastest means e.g. telegram or fax etc.

19. **Bid Validity Period.** The validity period of bids must be indicated and should invariably be **90 days** from the date of opening of bids. Within the original validity of the bids, the procuring agency may request the bidders to extend their bid validity for another period not exceeding the original bid validity (**Annex “IV”**). The bidder who chooses not to extend their bid validity as may be required by procuring agency; their bids will be deemed withdrawn and their bid bonds/Guarantee shall be returned.

20. **Technical Literature, Specifications and Interchangeability.** The bidders are required to submit (in triplicate) brochures and technical literature in original. Bids must conform to **User Requirement Document (URD) (Annex “XIV”)**. For any query regarding technical issues, firms may contact Tel: +92-51-9529532 Email: dritcgreenai@outlook.com, diragriverse@outlook.com.

21. **Deviation from Specifications.** In the event that AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) is found not conforming to the TSR will be rejected (**Annex “VI”**). Moreover, the successful bidder is responsible to replace the rejected items at its own cost as per delivery schedule laid down in the contract and the replacement will be provided without any additional cost.

22. **Restriction of Export / Import License.** Bids subject to restriction of Import/Export License will not be entertained.

23. **Application of Official Secrets Act, 1923.** All matters connected with this RFP and subsequent actions arising thereafter fall within the scope of the Pakistan Official Secrets Act, 1923 which forbids providing contractual information to un-authorized / un-concerned person / organization. It is therefore, requested to ensure complete secrecy regarding documents and stores concerned with the inquiry to limit the number of employees having accesses to this information (**Annex “V”**).

24. **Quoting of Prices: ‘DDP price in PKR inclusive of all taxes’** for Goods Manufactured Outside the Purchaser’s Country, to be Imported. Delivered Duty Paid (DDP) prices means that bidder assumes all of the responsibility, risk and costs associated with transporting goods until the purchaser receives the goods at specified locations. Prices are to be quoted on the format attached as.

- (a) **‘DDP price in PKR inclusive of all taxes’** for Goods Manufactured Outside Pakistan, already Imported and Goods Manufactured in Pakistan.
- (b) **‘DDP price in PKR inclusive of all taxes’** for related Services.
- (c) **‘DDP’ price of the stores (Line Item Wise) in Pak Rupees Only inclusive of all applicable taxes, duties, levies and charges.**
- (d) The prices must be stated for each item separately both in figures and words. Additional information if any must be linked with entries on the Schedule to proposal (Annex-IX)
- (e) The price shall be fixed.

- (f) All items constituting AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) (Line Item Wise) **inclusive of all applicable taxes, duties, levies and charges** mentioned separately.
  - (g) The prices must be stated for each item separately both in figures and words. Additional information if any must be linked with entries on the Schedule to proposal.
25. Principal is to endorse following certificate on the original quotation: -
- (a) Certified that AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) offered are factory new and from latest production and prices quoted are not more than the international market prices and also not more than those being charged from other buyers”.
  - (b) Shelf / installation life of each item (if applicable) is to be mentioned separately.
  - (c) Certificate as per attached Annex “III” duly signed by the principal and agent must be attached with financial proposal.
26. **Transportation.** Equipment and supplies will be delivered up to the place of installation / final destination by the bidder at their cost including mode of transportation, loading / unloading.
27. **Custom Clearance.** Equipment and supplies will be cleared (from airport/seaport) customs department by the successful bidder and charges/duty/taxes if any will be paid by the successful bidder.
28. **Rejection of Bid.** Bids are liable to be rejected if:-
- (a) There is a material deviation from any instruction described in this RFP.
  - (b) Proposals are found conditional or incomplete in any respect.
  - (c) Multiple bids against the proposal.
  - (d) Multiple rates are quoted against one item.
  - (e) Manufacturer relevant brochure is not attached (in case of equipment or major assemblies of equipment).
  - (f) Form-A-12 (Letter of Proposal) GreenAI NASTP duly filled in, printed on bidder’s letter head and signed by the Bidders are not received with the bid.
  - (g) All Annexures are duly filled – in and signed by the Bidders are not received with the offer.
  - (h) Bids received later than appointed date and time.
  - (i) Bid is not conforming to the URD.
  - (j) Bids subject to restriction of Export License.
  - (k) Over writing / erasing in prices without initial.
  - (l) Change in prices by the supplier after opening of financial offers.
  - (m) Validity of bid is not quoted as required in IT or made subject to confirmation later.
  - (n) Bid Security is not provided.
  - (o) Bid is without certification of OEM.

- (p) If OEM and principal name, contact details (Ph No, Fax No, Email etc) and complete address is not mentioned.
- (q) Bid is with prior sale condition.
- (r) Partial quotation, received on non-turnkey basis.
- (s) The store will be supplied on supplier's warranty / guarantee with regard to quality and quantity and if found not confirming to specifications, the store will be liable to rejection.
- (t) Documentary Proof of brand to be supplied by the supplier.
- (u) The warranty period should be as per TSR.
- (v) Only OEM or OEM's authorized dealers are to quote. The dealer must provide manufacturer authorization letter (MAL).
- (w) The firm must have repair / maintenance support office at least at Islamabad / Rawalpindi, Lahore, Karachi & Peshawar.
- (x) In case of hard disk warranty, company will not claim Unserviceable hard disk, only Cage of Unserviceable hard disk may be returned on demand and media will be retained by PAF.
- (y) Documentation, media kit (USB/SSD/HDD) of software and drivers etc is to be provided as delivered by OEM.
- (z) The manufacturing date of hardware should not be beyond one year from date of delivery at the depot.
- (aa) Compliance sheet as per TSR must be submitted by the vendor.

29. **Bidder's Eligibility.** Bidders must fulfil all the requirements as per the eligibility criteria provided in these bidding documents. Otherwise, the bidders will be disqualified and their bids will not be considered for further evaluation.

30. **Date & Time for Receipt of Bid.** The bid must reach Project GreenAI by the date and time specified in **Para-7** above. Bids received after the prescribed date and time will, NOT be entertained. The appointed time will, however fall on next working day in case of closed/forced holiday. Telegraphed / Faxed / Telexed bids will be rejected unless specifically asked for. offer can also be sent through mail courier. However, to avoid misplacement of the quotations, all firms are required to intimate this office **via email [diragriverse@outlook.com](mailto:diragriverse@outlook.com)** regarding dispatch of their quotation through courier giving details of the courier through email, so that courier service may be tracked to ensure your participation in the competition. In case bid is dispatched by courier then same should reach Project GreenAI at least 01 day prior to bid opening date. Bidder or the representative may also attend the proceeding (Name / Designation of attendees" along with copy of CNIC will be required 01 working day prior to bid opening date for arranging their entry).

31. **Bid Opening.** Technical offer i.e. without prices will be opened on the date and time mentioned of RFP in the presence of bidders" representatives who choose to attend. The bidders" representatives who are present shall sign a bid opening register / form evidencing their attendance. However, time and date for opening of Commercial offers of all those firms whose technical offers are accepted will be intimated later. Commercial offers of firms, which are not technically accepted will be returned to the firms un-opened. No unauthorized person will be allowed to attend the financial bid opening other than technically qualified bidders.

32. **Rights Reserved.** Procuring agency reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to contract award as per rule 33 of PPRA 2004 without thereby incurring any liability to the affected Bidder. Moreover, past performance of the firms may also be considered.

33. **Payment Schedule.** The Payment Schedule is mentioned in Draft Contract as per following details: -

S. No	Milestone	Payment (As %age)
(a)	Mobilization Advance	Up to 20% of Total Contract amount after receipt of Bank Guarantee/CDR of the same amount of mobilization advance from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(b)	Detailed Specification and Design Documents	10% of total amount will be paid after completion, submission and acceptance of detailed specification and design documents against (CDR of 10%) of contract amount from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(c)	Delivery, Installation, Integration, Testing of Hardware, provisioning of licences and trainings	50% of Total contractual amount will be paid after Delivery, Installation, Integration, Testing of Hardware and operationalization & provisioning of licences and trainings. (80% of the total amount can be released)
(d)	Final Inspection & Completion	20% of Total amount will be paid after 02 months of operationalization and issuance of FINAL ACCEPTANCE CERTIFICATE from End User. (100% percent of the total amount to be released).

For payment of goods / services supplied / rendered following procedure will be adopted:-

- (a) Submission / Payment of Bills
- (b) No advance payments will be made
- (c) Payment for the supply of goods of the itemized amounts thereof, after deduction of the applicable taxes and duties, shall be made within thirty (30) days **with 15 days of grace period** by M/s Solid State Electronics (SSE), upon receipt of error free invoice from supplier. The invoice, in favour of “M/s Solid State Electronics, Rawalpindi” shall be submitted to the purchaser.
- (d) Firm is to present a Sales Tax invoice (where applicable) / numbered bill for the amount agreed upon for the goods / services provided.
- (e) Income Tax on the amount of bill will be deducted at source.

34. **Sequence of Quotation.** Quotation must be prepared in sequence according to the Proposal. (Annex “IX”)

35. **Warranty / Guarantee of Store.** Warranty / guarantee for a period of **one year** be applicable for stores commencing from acceptance of store at consignee.

36. **Country of Origin and Mode of Shipment.** Following details must be provided in offer / quotation and Performa invoice: -

(f) Country of origin, place of manufacture of store and beneficiary should be mentioned.

(g) Name of port where from the store will be shipped. Mode of shipment is to be by Air Sea and road. However, preference will be given to **by air shipment**.

37. **Bid Supporting Documents.** Following documents are required to be submitted with bid.

(a) Audited Bank Statements of last 3 years.

(b) Authenticated Certificate of Tier-1 Partnership from OEM.

(c) Photo copies of National Tax number (NTN) and Sales Tax registration certificate. Foreign firms are required to provide copy of the company's valid Tax Compliance certificate issued by Revenue Authority of the domiciled country, valid as at the bid closing date. Proof of appearance on Active tax payer list of FBR.

(d) Company Profile including proof of existence in particular business.

(e) Proof of Income Tax status in ATL is "Active" and GST status "Operative" issued by Tax Authorities.

(f) Any other document if required during procurement proceedings according to Rule 17 of PPRA rules 2004.

(g) Firm/Supplier name, complete address, contact numbers, and email addresses.

(h) An affidavit on judicial stamp paper that the Firm / Company has never been in litigation/blacklisted by any Ministry / Division / Department of the Government / Semi government / Autonomous body of Federal Government of Pakistan or by any procuring agency in the past (**Annex XII**).

(i) List of major clients and references (complete with names of contact persons, address and telephone numbers) of which the company has supplied similar items in the last 05 years. Number of years in the business or dealing in similar items shall also be mentioned.

(j) In case of foreign supplier photocopy of resident card, passport or equivalent identification card of person signing the bid is to be provided along with 02 passport size photographs.

38. **Performance Guarantee.** The successful bidder shall provide a Performance Guarantee in the prescribed Form annexed to this document at the time of signing of contract or within fourteen (14) days after the receipt of Letter of Acceptance in favour of "PD GreenAI, NASTP (Private) Limited" whichever is earlier. The Performance Guarantee shall be of an amount equal to **ten percent (10%)** of the Contract Price in the currency of the Contract, in the form of unconditional and irrevocable Bank Guarantee (**Annex "VIII"**) from any Scheduled Bank in Pakistan. The validity of Performance Guarantee shall be kept Two clear Months ahead of the original / extended delivery period or the warranty of the Agriverse Cloud which so ever is later in duration.

39. **End User Certificate (EUC):** EUC if required at any stage may be mentioned in the quotation.



40. **Withdrawal of Offer:** If the firm withdraws its offer or backs out from providing items won by the firm within validity period at any stage of contract finalization, Project GreenAI NASTP may place such bidder under embargo for a period of six months, which may extend upto one year along with forfeiture of the Bid Security.
41. **Maximum Time of Completion of Project.** The maximum time to complete the work is 12 months from signing of contract.
42. **Authority to Sign Documents.** Bid must be accompanied by Letter of Authorization to sign the bid on behalf of the Bidder. Bidder must prove that the person who signs this bid is fully authorized to bind his establishment / company. Such proof shall be in the form of clear official documents fully legalized by designated authorities in respective countries.
43. **Prior Intimation Regarding Submission of Bid.** To avoid misplacement of the bids, all bidders are required to intimate this office regarding dispatch of their quotation through courier giving details of the courier through telephone / fax/email, so that courier service may be tracked to ensure your participation in the competition.
44. **Grievances Redressal Committee (GRC).**
- (a) After submission of bid and prior to award of the contract, any bidder feeling aggrieved by any act of GreenAI NASTP may lodge a written complaint concerning his/her grievances to GRC constituted under Rule 48 of PPR 2004 within 07 days of announcement of the technical evaluation report and 05 days after issuance of final evaluation report.
  - (b) GRC will immediately initiate the investigative action and decide the complaint within ten days of its receipt. The decision of GRC shall be intimated to the complainant / aggrieved bidder. The decision of the GRC shall be binding upon all the parties.
45. **Litigation.** In case of any dispute only Court of Jurisdiction at Islamabad Pakistan will have the Jurisdiction to decide the matter.
46. **Bid of Joint Venture/Consortium:** The Bid submitted by a partnership/ joint venture/ consortium comprising of two or more organizations/ companies/ entities shall comply with the requirements given below:
- (a) The Bidder's legal status, in case of partnership, joint venture or consortium, shall remain locked-in during the entire procurement/operationalization process including successfully achieving AGRIVERSE: PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE), in case declared successful.
  - (b) The partnership, joint venture or consortium shall nominate one (01) of the members as lead member and this authorization shall be evidenced by submitting a power of attorney signed by each member itself or its legally authorized signatory(ies). The power of attorney shall be certified by Notary Public and shall be in the format specified in Annex "X-A" to be issued by the lead member and in the format specified in Annex "X-B" to be issued by other members.
  - (c) The lead member shall be authorized to incur liabilities (if any) and receive instructions for and on behalf of any and all members of the partnership, joint venture or consortium during the procurement process.
  - (d) All members of the partnership, joint venture or consortium shall be liable jointly and severally for performance of the Contract and fulfilling the obligations stipulated therein.

(e) The successful Bidder shall at the time of execution of the Contract furnish an executed copy of joint venture agreement to PD GreenAI, NASTP.

(f) Joint Venture /Consortium shall be registered in accordance with applicable rules/regulations.

47. **Force Majeure.** “Force Majeure” means an exceptional event or circumstance, which is beyond a Party’s control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.

(a) The Supplier shall, within fifteen (15) days of its commencement, notify the Purchaser of any such event, act or circumstance which is relied upon by the Supplier for its inability to comply with its obligation. The Purchaser shall have the right to conduct investigations to satisfy itself about the genuineness of the “Force Majeure” event, act or circumstance. Non-availability of raw material for the manufacture of the Goods or export permit for the export of the Goods from the country of its origin shall not constitute “Force Majeure.”

(b) If by reason of “Force Majeure” the Goods are not delivered by the due date, then the Delivery Period may be extended appropriately for the purpose, provided the said Goods shall be ready to be delivered within one (1) month of the stipulated delivery date. If the said Goods are not ready to be delivered after the lapse of one (1) month as aforementioned, then the Purchaser shall have the right to cancel the Contract by informing the Supplier of the cancellation in writing. This, however, will not apply to consignments of Goods already accepted and delivered according to the terms of the Contract. The Supplier shall not be entitled to any compensation whatsoever as a result of this cancellation.

48. **Arbitration.** All matters of dispute or difference, except regarding rejection of stores / Services by the inspector and or cancellation of the contract by the Purchaser arising out of this contract between the parties hereto, shall be settled by mutual agreement, failing which they shall refer for Arbitration to a final settlement by an Arbitration Tribunal, in Pakistan.

(a) The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party, who before entering upon the reference shall appoint an umpire by mutual agreement, and if they do not agree a judge of the Superior Court of Pakistan will be requested to appoint the umpire. The arbitration proceedings shall be held in Pakistan and under Pakistan Law & Arbitration Act, 1940. Arbitration award will be firmed and final and un- challengeable in any court of law.

49. **Risk Purchase.** In the event of failure on the part of the Bidder to comply with the contractual obligations, the contract is liable to be cancelled at his risk and expense in accordance with General Condition Governing Contracts.

50. **Termination of Contract.** If at any time during the currency of the Contract, the Purchaser decides to terminate the Contract for any reason whatsoever (other than for reason of failure to Deliver the Goods), it shall have the right to do so by giving the Supplier a notice to that effect. In that event, the Purchaser will accept delivery, at the itemized price and terms, of such of the Goods then in the actual possession of the Purchaser.

(a) In the case of remainder of the undelivered Goods, the Purchaser may select either:

(i) To have any part thereof completed and take the delivery thereof at the itemized prices, or

(ii) To cancel the residue and pay to the Supplier for the Goods or components thereof in the actual possession of Supplier at the prices to be determined by the Purchaser in which case Goods in the possession of Supplier shall be delivered by the Supplier.

(b) No payment shall, however, be made for any Goods not yet in the actual possession of Supplier on the date notice of termination is received.

(c) GreenAI may by written notice sent to Contractor and Offshore Supplier terminate the Agreement in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for GreenAI, NASTP convenience, the extent to which performance of Work under the Agreement is terminated, and the date upon which such termination becomes effective.

51. **Late Delivery.** The Supplier shall deliver the Goods to the Purchaser within the time frame specified in the Contract. If failure to deliver the Goods within the specified time frame, shall not have arisen because of "Force Majeure", the Purchaser shall be entitled at its option:

(a) To cancel the Contract and forfeit the Performance Guarantee; or

(b) To withhold any payment due to the Supplier until all the Goods have been Delivered and directly deduct or recover, where considered necessary, as liquidated damages the sum up to 2% but not less than 1% of the itemized prices of the un-Delivered Goods for each and every month, or part thereof thereafter, beyond the specified dates of Delivery during which these may not be delivered, subject to a maximum of 10% of the total Contract Price of the Goods; or

(c) To repurchase from elsewhere, at the risk and expense of the Supplier, other goods of the same or similar description as it thinks fit to make good this default to the extent necessary, by cancelling the Contract, either wholly or for the un-Delivered balance and with or without intimation to the Supplier who shall be liable for any loss which the Purchaser may sustain due to repurchase but shall not be entitled to any gain on repurchase.

(d) The Goods shall be deemed to have been delivered when repurchased Goods are delivered to the Purchaser.

(e) In the event of the contractor refusing to carry out the work, or leaving incomplete, at any time or after the commencement of work, the contractor shall pay as compensation an amount equal to, ten percent or such smaller amount as PD GreenAI NASTP(whose decision in writing shall be final) may decide, on the amount of the estimated cost of the whole work as shown in the BOQ, by notice in writing, rescind the contract in which case the whole of the security deposit of the supplier (whether paid in one sum or deducted by instalments) shall stand forfeited and be

absolutely at disposal of Project GreenAI and the same consequences shall ensure as if the contract has been rescinded under clause 37 hereof.

52. **Bid Discount.** There will be no Bid Discount

53. **Bidding Clarifications to Proposal.** In Case any clarification is required regarding proposal, firm may contact on following address however, queries in regards to the proposal shall only be entertained till one week prior to the deadline for submission of bids.

Technical Clarification : 0333-4231634

Bidding / Contracting Procedure : 0321-9400527

54. **Correction of Arithmetical Errors.** Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

55. Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction, shall result in the rejection of the Bid.

Yours sincerely,



**Project Director**  
GreenAI NASTP, Rawalpindi  
Email: diritcgreenai@outlook.com,  
diragriverse@outlook.com

Date:- 12 March, 2024

**Annex “XIV”  
(URD-01)**

**TECHNICAL USER REQUIREMENTS FOR PROVISIONING OF  
“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY  
(PILOT PHASE)”**

**Introduction**

1. The objective of this User Requirements Document URD is to clearly specify the overall architectural concept and related technical requirements pertaining to key components of **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** and its delivery to the procuring agency on TURNKEY basis. It is expected that bidders will utilize the given information to come up with a comprehensive design of said cloud facility based on their respective supply chains along with a well thought plan to operationalize it (including deployment within a 3<sup>rd</sup> party datacentre facility for one year).
2. TURNKEY in the context of this RFP means fully integrated and operational Agriverse: National Precision Agriculture Cloud Facility consisting of following three components: -
  - (a) **Cloud Hardware Solution.** The core of the requirements is centred around design and provisioning of complete cloud hardware.
  - (b) **Cloud Orchestration Software.** Another critical requirement is the deployment of various software elements that enable core cloud orchestration layer for multiple users as well as 3rd party cloud-native applications to be run on the Agriverse Cloud. OpenStack and its related ecosystem of open source modules / software is the preferred choice for cost effective and functional demonstration of cloud.
  - (c) **Data Center Hosting:** The entire solution is to be deployed in a Tier-3 (Ready/Certified) data centre facility, minimizing setup and management complexities. One year hosting plan to be included as part of financial proposal. (Purchasing agency reserves the right to select an alternate data center hosting facility).
3. This document describes the technical requirements of the NATIONAL PRECISION AGRICULTURE CLOUD FACILITY. The document is structured such that the bidder is aware of the complete set of requirements which include allied services, equipment, systems, integration, configuration, processes, post installation work and subsequent operating support. This documentation will be carried over to the implementation agreements as well. No deviation in specification given in this document will be accepted.
4. **Documentation.** The cloud solution provider should furnish comprehensive documentation, organized in the following sections:-
  - (a) **Proposal Document:** This should outline the bidder's understanding of our requirements, proposed solution, implementation approach, timeline, and cost breakdown. It should also include details on the team's expertise and relevant experience.
  - (b) **Statement of Work (SOW):** A detailed document specifying the scope of work, deliverables, milestones, acceptance criteria, and any assumptions or constraints. It provides a clear understanding of what will be delivered and when.
  - (c) **Executive Summary:** A concise overview highlighting the solution's key features, benefits, and outcomes.

- (d) **Technical Architecture Design\*:** This document should describe the proposed architecture (Architecture Diagram, Network Diagram, Data Flow Diagram, etc) for the cloud equipment and cloud software deployment, including.
  - (i) **Hardware Specifications:** Description of hardware components, including types, capacities, and performance guarantees.
  - (ii) **Storage Documentation:** Details on storage types, configuration performance characteristics, capacity, and scalability.
  - (iii) Power, Energy efficiency and peak throughput (theoretical) Worksheets
- (e) **Cloud Orchestration Documentation:** Details on cloud solution layer, including components, services, and functional and non-functional capabilities specified as per Appendix "B".
- (f) **Installation and Configuration Plan (deployment Guide):** A step-by-step plan detailing how the bidder intends to install and configure the cloud equipment and cloud software, including any customizations, additions or integrations required.
- (g) **Testing and Validation Plan\*:** Documentation outlining the bidder's approach to testing the OpenStack or equivalent deployment to ensure it meets requirements (See Appendix "A") and performs as expected. This may include functional testing, performance testing, and security testing.
- (h) **Support and Maintenance Plan\*:** The bidder provides documented support offerings, including response times, escalation procedures, updates and patches workflow, and ongoing maintenance services. Documentation relevant to the level of support (SLA) is included and any additional costs associated with ongoing maintenance.
- (i) **Training Materials\*:** Upon completion of the installation and configuration the bidder is to provide training materials and training relevant to Cloud equipment and also training against Cloud software that will be provided to a team of 2 to 3 people (Local/international should be mentioned). This should include user manuals, administration guides, and any custom documentation specific to the proposed solution.

## Introduction

### AGRIVERSE: A National Precision Agriculture Cloud Platform (Pilot Phase)

1. We're developing Agriverse, a national cloud platform specifically designed for precision agriculture. Initially launching as a pilot project, Agriverse aims to create a comprehensive ecosystem of computational services. (Note: the Agriverse application is being developed internally and is not a part of this RFP). This ecosystem will encompass several key components:

- (a) **Geographic Information System (GIS) Framework:** A user-friendly platform for visualizing and analyzing agricultural data overlaid on geographical maps.
- (b) **High-Performance Computing (HPC) Services:** Powerful computing resources dedicated to accelerating AI and machine learning workloads related to agriculture.
- (c) **Data Lake:** A vast repository for storing and managing a diverse range of agricultural data, primarily collected from imaging sensors.

2. The Agriverse cloud infrastructure will act as the foundation for these services. It will not only support Agriverse's own software applications but also provide open interfaces and APIs (Application Programming Interfaces) for external developers and collaborators. This openness will foster innovation and collaboration within the agricultural technology space. See (Fig T-01) below for a conceptual overview of the Agriverse Ecosystem.

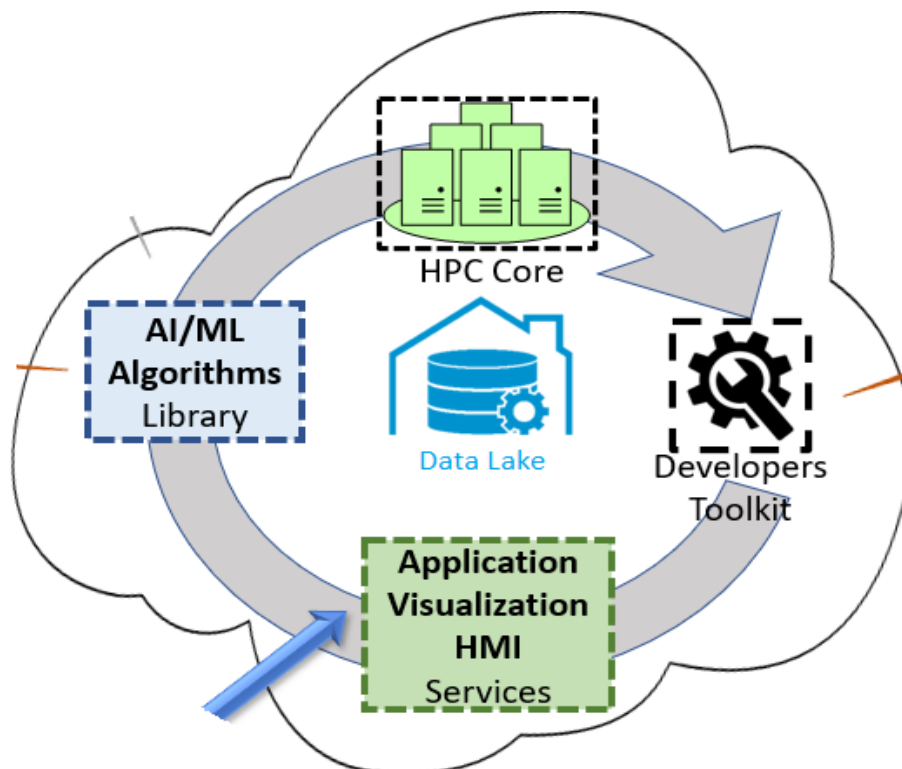


Fig T-01

3. The Agriverse Cloud hardware is conceptually segmented into three zones as shown in Fig T-02. Each zone is to be designed with a specific set of tasks, to be executed within it and as envisioned in the Agriverse ecosystem architecture, further elaborated below:-

- (a) Application (A) Zone

- (b) High Performance Computing (H) Zone
- (c) Data (D) Zone

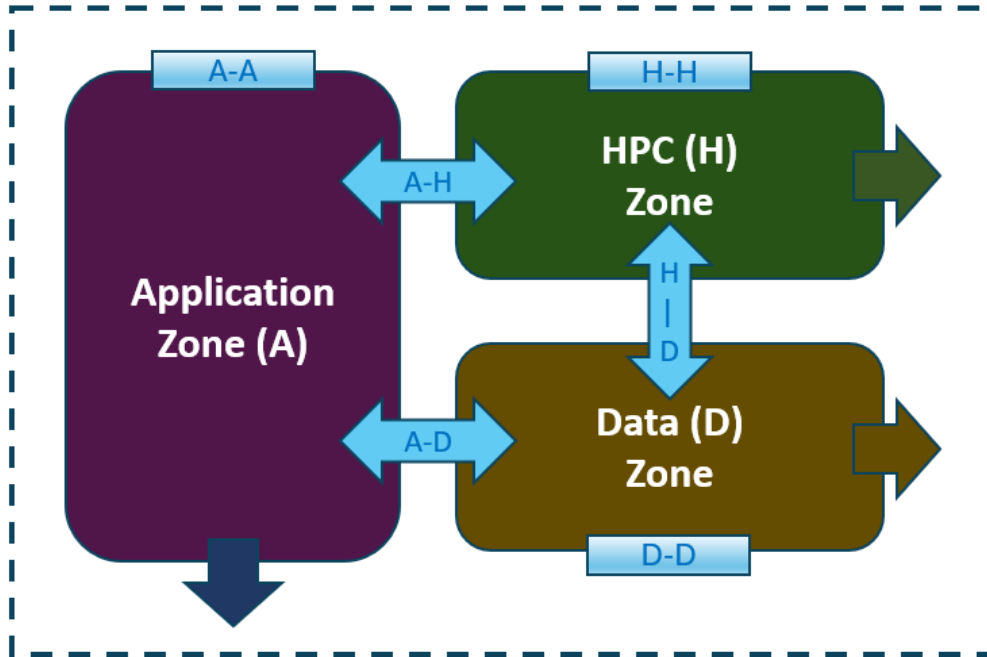


Fig T-02

4. In order to give the bidders clarity with regards to the functional components and their scale within each zone in terms of high level design requirements as shown in the following figure (Figure T-03).

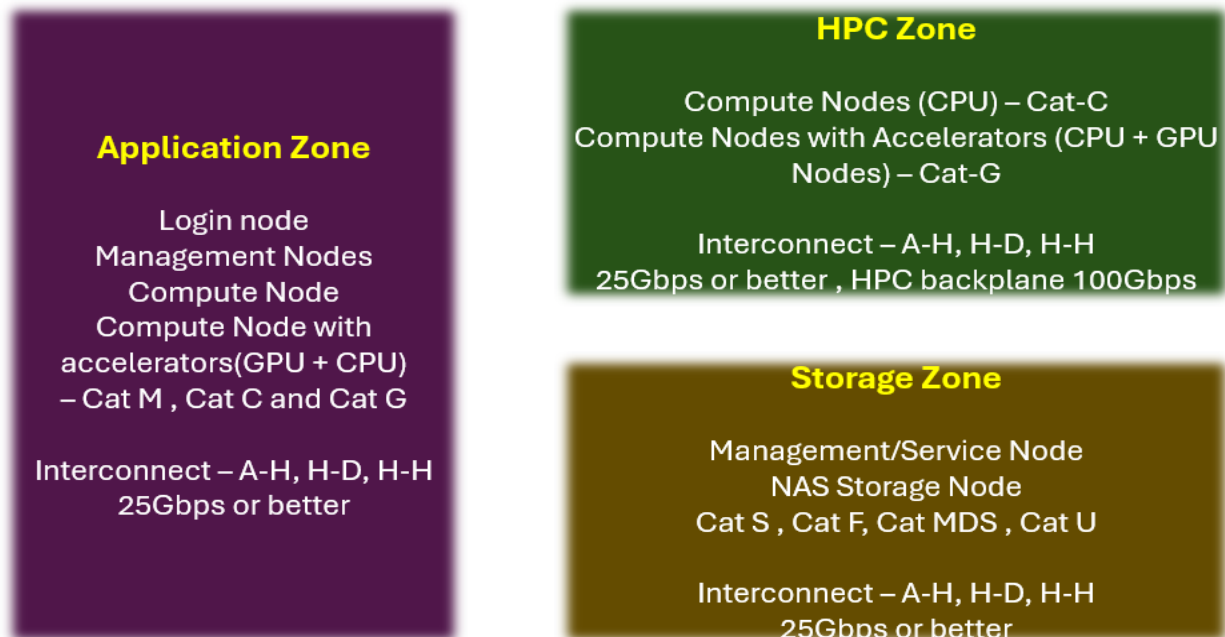


Fig T-03

5. While this RFP focuses on deploying the system at a single site (marked in red on Figure T-04), the winning solution should be designed with scalability in mind. This



scalability applies to both individual growth within each of the three zones (Data Lake, HPC, GIS) and future replication across multiple sites nationwide.

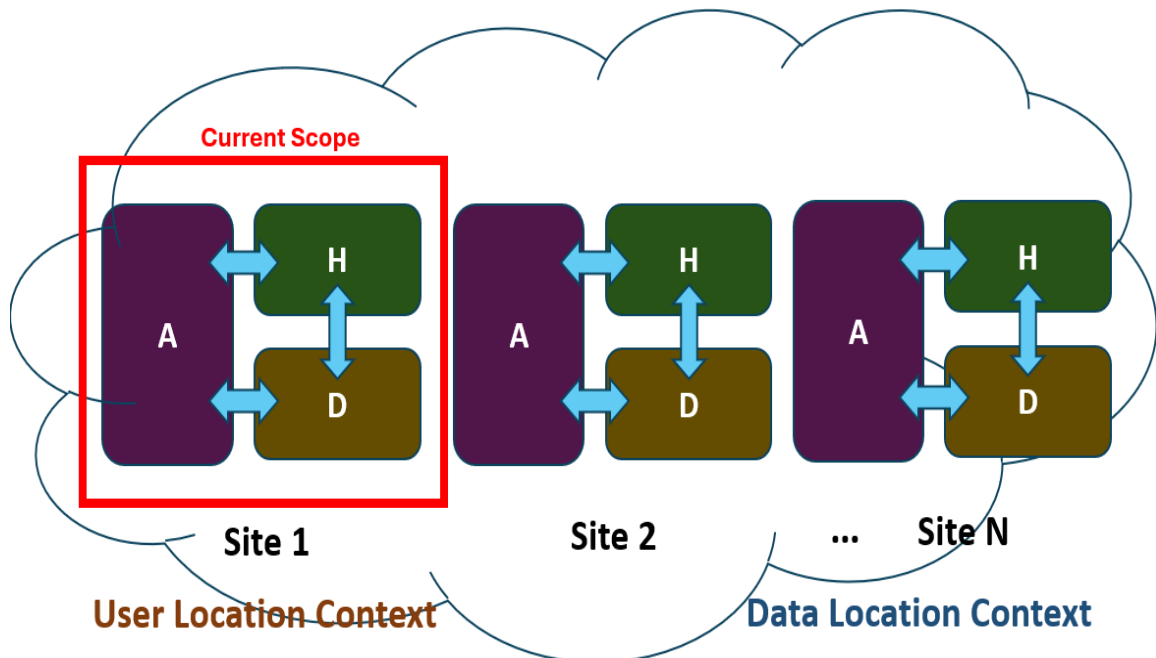


Fig T-04

6. There are several reasons for considering a multi-site deployment, such as disaster recovery (DR) and addressing user and data localization performance limitations (as shown in the following figure). Therefore, bidders are encouraged to propose architectures that can scale efficiently to accommodate these future needs.

## Technical Requirements

1. The Procuring Agency aims to obtain a comprehensive proposal for the setup of the “AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)” on turnkey basis from the bidding teams in the form of a detailed designs of all the three sub-zones identified above, namely Application, HPC and Data Zones. In order to clarify the scope of each zone, this document provides key information to help you prepare your bid for the proposal. The requirements have been further divided into Sizing Information, Network & Interconnects, Cloud Orchestration Software and Performance Benchmarks for the solution.

- (a) **Sizing Information:** This document outlines the scale of computational resources needed, including various node configurations for your reference.
- (b) **Network Design:** The document specifies network design requirements within and between zones under the "Network" section for each zone.
- (c) **Performance Benchmarks:** Benchmarks are provided to indicate the expected performance of each zone.
- (d) **Cloud Orchestration:** This section below details the cloud orchestration layer to be included in the turnkey solution.

2. To meet our requirements.

- (a) We encourage the bidder to leverage resources and components offered by your Original Equipment Manufacturers (OEMs).

(b) This document's specifications form the basis for the technical evaluation criteria in Appendix "A". It will be used to compare technical proposals and designs.

(c) The bidders may request any further clarifications before the Pre-bid Meeting.

3. **Application (A) Zone Requirements.** The application zone is the core zone of the cloud facility focused on serving as the point-of-entry for all end users accessing services of Agriverse. The zone, in addition to providing user access control and login functionalities, would be hosting the graphical user interface (GUI) application with dashboards for all Agriverse services. Fundamentally, the zone is to provide a GIS framework for display and manipulation of agriculture data in the form of 2D & 3D map overlays. The zone is to also include some computational capacity for regular map manipulation and some data pre-processing functions. These requirements are further elaborated below: -

(a) **Sizing Information.** The following information is being provided to serve as a reference for bidders to assess the capacity and capability of the Application Zone in terms of compute, memory and storage aspects (For details on various category nodes mentioned below refer to **Appendix "A"**):-

(i) Qty 03 x Management Nodes (**Category "M"**)

- For High-Availability (HA) OpenStack, Kubernetes or equivalent cloud software deployment.
- Is used to manage entire cloud.

(ii) Qty 06 x Compute Nodes (**Category "C"**)

- Will host application services.
- Focus on geographically annotated multispectral image processing.
- Focus on memory intensive applications.

(b) **Network & Interconnect Requirements** (A-D, A-H, A-A) Gbps:

(i) 25, 25, 25 or "better" (A-D, A-H, A-A)

(ii) "Better" is considered to be next best performance level i.e.  $\geq 40$  Gbps

(c) **Benchmarks:** Geek benchmark (Single/multicore), linpack/SpecHPC, iperf3, iozone/ IO benchmark

4. **High Performance Computing (H) Zone Requirements.** The purpose of H-zone is to provide large scale computational services as an HPC sub-cloud within the Agriverse framework, primarily focused on AI/ML models development. This zone will contain all the necessary services and third-party libraries relevant to implementing an ML Ops pipeline. Through a job scheduler the H-zone shall allocate computational resources for the development and training of AI/ML Models through processing of large amounts of data and any other large scale image processing algorithms. The H-zone needs to be supplemented with Graphic Processing Units (GPUs) to support high performance demands of AI/ML and image processing compute loads. In general, it is special consideration needs to be given to per watt performance being delivered from proposed configuration i.e. maximum

(a) **Sizing Information:** The following information is being provided to serve as a reference for bidders to assess the capacity and capability of the High Performance Computing Zone in terms of compute along with GPU-based acceleration, memory and

storage aspects (For details on various category nodes mentioned below refer to **Appendix “A”**):-

- (i) Qty-04 x Compute Nodes with Accelerator **Category ‘G’** (CPU + GPU)
  - Focus on AI/ML model training GPU workload
  - Focus on multicore image processing
  - Focus on memory intensive applications.
  - Tensor Ops for AI/ML Model based inference and training applications. (Single & Double Precision and Tensors Ops throughput (measured in Teraflops))
  - For hardware *specification please See Cat “G”*
- (b) **Network & Interconnect Requirements (A-H, H-D, H-H) Gbps:**
  - (i) 25, 100, 100 or better (A-H, H-D, H-H)
  - (ii) InfiniBand or “Better” (Better is considered to be next best performance level i.e.  $\geq 40$  Gbps for 25 Gbps interconnect or similar  $\geq 200$  Gbps for 100 Gbps interconnect).
- (c) Benchmarks. Linpack /SpecHPC, STREAM (Tensorflow), iperf3, iotzone/ IO benchmark

5. **Data (D) Zone Requirements.** The D-Zone aims to implement a highly scalable cloud-based Datalake service of Agriverse Cloud ecosystem for all structured and un-structured agriculture data. The Scalable data repository’s intended purpose is to archive, store, retrieve and disseminate time-series agriculture related data for Agriverse users. D-zone is required to be designed with high data throughput requirements of both GIS & Mapping requirements of A-zone and training data requirements of H-zone. This may be catered in the design using and appropriate mode of data storage i.e Unified, block, object, archival etc. Further details to serve as reference for design of this zone are given below.

- (a) **Sizing Information** (For details on various category nodes mentioned below refer to **Appendix “A”**):
  - (i) Qty-02 x Management (Data) **Category “MDS”**
    - For processing and storage of metadata
  - (ii) Qty-02 x Storage node, (SSD storage ...) **Category “S”**
    - Store for Object / block data for further processing
  - (iii) Qty-04 x Fast Storage, **Category “F”**
    - Focus on large files with fast random access to parts of it
  - (iv) Qty-02 x Storage (Unified/object storage. etc) **Category “U”**
    - The archival data store component that may store and/or further provide data on different tier as required for processing
- (b) **General Guidelines:** for all storage types,
  - (i) Capability for object, block storage and parallel file system
    - Support NFS v4.1+
    - Support Object storage with HTTP GET and Range request support

(c) **Network Requirements (D-A, D-H, BP) Gbps:**

(ii) 25, 100 , 25 or better (D-A, D-H, BP)

(iii) The current design of the Agriverse (Precision Agriculture) HPC cloud features 25 Gbps connectivity between the previously identified zones. This connectivity can be **scaled upwards to the next best standard, such as 40 Gbps**

(d) **Benchmarks:** Bonnie++, iozone/ IO benchmark ,iperf3

6. **Cloud Orchestration Software Requirements.** The system should leverage OpenStack or similar cloud stack software. The infrastructure should be built using a software-defined architecture (SDA), enabling its deployment as Infrastructure as a Service (IaaS). Additionally, container orchestration (like Kubernetes with Docker) will be implemented on top of the core cloud infrastructure, along with their necessary configuration. The cloud solution shall use free and open-source Linux based OS (e.g. Ubuntu). The cloud solution must support high performance bare metal containers for running AI/ML training and inference workload on H-Zone compute resources. The cloud network layer must support high performance low latency network. This integration could be built around as individual server consisting of Cat “MDS”, “S”, “F”, “U” or it could be built with combination of unified and block storage catering to the storage needs specified vide in the Appendix “A”. For detailed functional and non-functional requirement see Appendix “B”.

7. **Perpetual and Permanent License Requirement**

See Clause 38 of Draft Contract (Annex “XIII”)

**Appendix “A”**  
**To Annex “XIV” of URD-01**

**REFERENCE CATEGORY HARDWARE SPECIFICATIONS**

Hardware Category	Purpose	Specification	Qty
<b>Application Zone Nodes</b>			
<b>Cat 'M'</b>	Management	<ul style="list-style-type: none"> <li>-Dual processor series (32 cores or more per processor (or equivalent) Latest generation processors)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>Preferred minimum 2.6Ghz per core clock (better is preferred)</li> <li>RAM = 256 Gb DDR 5 ECC (and upgradable)</li> <li>-2*480GB SSD and 5 x 960GB SSD (with Hotspare). Or, 6*960 SSD (with hotspare) (Enterprise level Storage)</li> <li>-RAID Controller (12 Gb/s SAS, 6Gb/s SAS/ SATA, PCIe 3, RAID Levels 0,1,5,6,10,50,60)</li> <li>-Drives are hot swappable</li> <li>-At least two(2) 25Gbps ports and two(2) (10Gbps or 25Gbps as design demand) ports network Connectivity</li> <li>-devices support Link aggregation (LAG)</li> <li>-NVIDIA GPU supported</li> <li>-PCIe SSD Supported</li> <li>-External storage connectivity to proposed storage (provide connectivity to Storage to be used as external storage)</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency power supply (N+N)</li> </ul>	3
<b>Cat 'C'</b>	Compute Node (CPU) Parallel Processing	<ul style="list-style-type: none"> <li>-Dual processor series (60 cores or more per processor (or equivalent) latest generation)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>-Minimum 2.6 Ghz per core clock (better is preferred)</li> <li>-RAM = 512 GB DDR 5 ECC (and upgradable)</li> <li>-High speed internal enterprise Storage SSD/ NVME (with raid capability Levels 0,1,5,6,10,50,60)</li> <li>-prefer storage capacity 4 TB (usable) with hot spare</li> <li>-Enterprise level Storage</li> <li>-Drives are hot swappable.</li> <li>-At least two(2) 25Gbps ports and two(2) 25Gbps (or better) ports network Connectivity</li> <li>-Devices support Link aggregation (LAG)</li> <li>-CUDA supported.</li> <li>-PCIe SSD Supported</li> <li>-infiniband or equivalent</li> <li>- External connectivity to proposed storage (provide connectivity to Storage to be used as external storage)</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency power supply (N+N)</li> </ul>	6

HPC Zone Components / Nodes			
Cat 'G'	Parallel Processing with accelerator (CPU + GPU)	<p>CUDA supported (either option 1 and option 2)</p> <ul style="list-style-type: none"> <li>-NVIDIA HGX H100 - H100 SXM4 80GB GPU Assembly or equivalent /better</li> <li>-Option 1) 4 server with four GPU per server</li> <li>-Option 2) 8 server with two GPU per server (option 2)</li> <li>-Dual processor series (30 cores or more per processor or better)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>-Minimum preferred 2.6 Ghz per core clock (better is preferred)</li> <li>-RAM = Minimum 256 Gb DDR 5 ECC (and upgradable)</li> <li>-High speed internal enterprise Storage qty 4 (or more)* SSD/ NVME (with raid capability) with preferred 8TB (Usable) ( or different combination may be allowed for Separate OS and High processing storage drive )</li> <li>-Drives are hot swappable.</li> <li>-At least two(2) 25Gbps ports and ideally 100Gbps (backplane) or equivalent ports network Connectivity</li> <li>-devices support Link aggregation (LAG)</li> <li>-External Storage Connectivity to proposed storage</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency Power Supply (N+N)</li> <li>-Internal storage scalable</li> <li>-infiniband or equivalent</li> </ul>	4 or 8
Data Zone Components / Nodes			
Storage (High Performance Computing Storage ) (Cat "MDS" , Cat "S" , Cat "F" , Cat "U" )	Generalize requirements for all Storage related servers	<p><b>Generalized requirements for all storage related equipment be it Individualized storage server (Cat "MDS", Cat "S", Cat "F", Cat "U") Or Multi-tier (unified) or equivalent/better storage solution)</b></p> <p><b>Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.</b></p> <p>Redis Compatible</p> <ul style="list-style-type: none"> <li>-Processor configuration if required should be similar to Cat M or better. Capability for Object, block storage and parallel file system.</li> <li>-in case RAM Latency: 40ns or less</li> <li>High throughput Raid Controllers and hotspare drive capability.</li> <li>Cloud ready / compatible</li> <li>Data ware house/lake ready</li> <li>-Modules such as "redis", "swift", "Cinder","Ceph" and "elastic search" integration capability</li> <li>-Hosts that provide Block Storage volumes must have Logical Volume Manager (LVM) support</li> <li>-Redundant High Efficiency Power Supply (N+N).</li> <li>-Storage Connectivity minimum 25GBPS (depend on Vendor Solution along with -Storage (25Gbps or better)</li> <li>-Preferable features (Thin provision supported, -Replication storage deduplication and compression capability</li> <li>-Drives are hot swappable.</li> <li>-Switches / connecting devices support Link aggregation (LAG) where applicable</li> </ul>	
Cat "MDS"	Management of Storages	<ul style="list-style-type: none"> <li>-Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.</li> <li>-NVME SSD mixed use ideally 30 TB or more (with hotspare)</li> </ul>	2

<b>Cat “S”</b>	HDD Storage	-SAS SSD 12 TB (Usable) (or more) SAS SSD (Usable) high-speed enterprise (or SSD/NVME) -SAS SSD capability to add more drives (for approximately 10 TB to be added later)	2
<b>Cat “F”</b>	Fast Storage	-NVME 50 TB (Usable) or more (with hotspare) NVME capability to add more drives (for approximately 10 TB to be added later)	4
<b>Cat “U”</b>	Storage	Expansion bay/housing provided for future expansion upto 1 PB (500 TB preloaded +500TB expansion) or more storage. 500 TB archival (NLSAS) or higher Option for SAS SSD based storage i.e HPCS Data Deduplication	2
<b>Network Components</b>			
<b>Network Cat 'Core' , Cat 'RoCE' , Cat 'Access', Cat 'Distribution' , Firewall, Router</b>	Networking	The internal networking Router/switch for connectivity between A, H & D Zones. (25Gbps or better)  Cabling for mention equipment connectivity  Switches / connecting devices support Link aggregation (LAG) and use the same protocol	
<b>Cat 'Core'</b>	Core Switch	48 port 25 Gbps per node (all interface) (core Switch) Qty 2 or equivalent	2
<b>Cat 'Access'</b>	Network interconnect for management, application, storage, HPC	48 port 25 Gbps per node (all interface) Qty 4 or more dependent on solution	4
<b>Cat 'RoCE'</b>	High Speed Backplane	100 Gbps switch for HPC backplane preferably Infiniband or RoCE or equivalent (more if required by designed)	1
<b>Cat 'Distribution'</b>	management	management switch 48 port 10 Gbps per node (all interface) qty2	2
<b>Firewall</b>	Firewall	Fortigate 1101 series or equivalent with support	2
<b>Router</b>	Router	Cisco ISR 8300 or equivalent with support	2
<b>clock</b>	Rack mounted clock	Meinberg LANTIME NTP Server or equivalent	1

**Appendix “B”**  
**To Annex “XIV” of URD-01**

<b>CLOUD ORCHESTRATION -FUNCTIONAL REQUIREMENT</b>			
	Examples	Mandator y	Remarks
Managed HA Onprem Cloud Platform	OpenStack	Yes	
Managed HA Kubernetes	OpenStack Magnum	Yes	
Compute nodes with GPU support	OpenStack Nova	Yes	
Managed Postgres Database with HA Active-Active support	OpenStack Trove	Yes	Must be HA Active-Active configured
Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	Yes	Must be HA Active-Active configured
Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	Yes	Must be HA Active-Active configured
Load Balancers	OpenStack Octavia	Yes	
Autoscaling for nodes, clusters, and containers	OpenStack Heat	Yes	
Container image storage	OpenStack Glance	Yes	
Container image signing and automatic verification	Cosign	Yes	
FaaS support	Qinling, OpenFaaS	No	
Network accessible storage with NFSv4 and RWX support	OpenStack Manila	Yes	Must be fault tolerant and PB scalable



Object storage with HTTP range request support	Minio, OpenStack Swift	Yes	Must be fault tolerant and PB scalable
Encryption at rest for storage	OpenStack Cinder + Key encryption	Yes	
Internal network level encryption	TLS 1.3 Enabled	Yes	
Private and secure Git managed repository with CI/CD support	GitLab	Yes	
Dashboard for administration with RBAC support	OpenStack Horizon	Yes	
Administration APIs for future integration and automation			
Replication and disaster recovery support		No	backup VMs, storage, container, etc
<b>Non Functional Requirements</b>			
GPU Passthrough			
Infiniband or similar HPC Network Supported			
No single point of failure			
Nodes/hardware could be added or removed by our Admin team (scalability)			
Must be well-integrated and well-tested			
Should not rely on internet for usage, configuration, and setup			

**Annex “I”**

**RFP FORMS**

<b>Form A-1</b>	Bidder's General Data Information Form
<b>Form A-2</b>	Financial Soundness
<b>Form A-3</b>	Summary of similar nature projects completed in last 5 years
<b>Form A-4</b>	Details of similar nature projects completed in last 5 years
<b>Form A-5</b>	Summary of similar nature projects in hand
<b>Form A-6</b>	Details of similar nature projects in hand
<b>Form A-7</b>	Summary of Data Centre Consultancy & resident supervision projects in last 5 years
<b>Form A-8</b>	Personnel capabilities in various specialties
<b>Form A-9</b>	Candidate Summary
<b>Form A-10</b>	Format of Curriculum Vitae (CV) For Proposed Key
<b>Form A-11</b>	Litigation History
<b>Form A-12</b>	Letter of Proposal

**Annex “I”  
Form “A-1”**

**BIDDERS’ GENERAL DATA**

[Name of Department/Entity]

**Assignment:**

**Project: Date:**

**INFORMATION FORM**

1. Name of bidder
  - (a) Address
  - (b) Telephone
  - (c) Fax Number
  - (d) E-mail address
  - (e) Registration No. with PEC
  - (f) Registration No. with SECP
  - (g) Description of bidder firm (ownership/organization)
  - (h) Experience (Number of Years)
  - (i) Local / National
  - (j) International
  - (k) Regional (within the country-details)
  - (l) Experience of the Bidders (on appended forms) during the past 10 years:
    - (m) Specific
    - (n) General
2. **Organization chart showing Bidder’s structure.**
  - (a) Capital of Bidder (Financial Statements for the last three (03) years).
  - (b) Subsidiaries and associates.
  - (c) Annual fees in the last five years in current index.
  - (d) Financial reference [ name/address of bank(s)]
3. **Professional staff available for the assignment on the appended format.**
  - (a) Additional information.

Yours truly,  
Name of Authorized Representative  
Position:  
Date:

**Annex “I”  
Form “A-2”**

**FINANCIAL SOUNDNESS**

Name of Bidder: \_\_\_\_\_

Applicant participating for bid is required to provide financial information to demonstrate that they meet the requirements of Evaluation Criteria. Use separate sheets to provide complete information. A copy of the audited financial statements of the past three (3) financial years must be attached.

Year	Turnover (in Actual Currency)	Rupees in Million
2019 — 2020		
2020 — 2021		
2021 — 2022		
2022 __ 2023		
Average of above		

**Annex "I"**  
**Form "A-3"**

**SUMMARY OF SIMILAR NATURE PROJECT COMPLETED  
IN LAST FIVE (05) YEARS**

Name of Bidder: \_\_\_\_\_

Applicant applying for prequalification is required to complete the information in this form.

<b>Project Name</b>	<b>Year of Completion</b>	<b>Location</b>	<b>Value in PKR (Million)</b>

Note: "Each project provided in this form requires a corresponding Form A-4 and adequate documentary evidence in order to be eligible for consideration.

**Annex “I”  
Form “A-4”**

**DETAILS OF SIMILAR NATURE PROJECTS COMPLETED  
IN LAST FIVE (05) YEARS**

Name of Bidder: \_\_\_\_\_

A separate form with adequate documentary evidence (Completion Certificate / Contract Agreement indicating Consultancy Cost) shall be provided for each project in Form B-4.

1.	Name of Contract	
	Location	
2.	Name of Employer	
3.	Employer Address	
4.	Nature of Works and special features of the consultancy Assignment	
5.	Contract Role (Tick One)	
	Sole Bidder	
	Sub- Bidder	
6.	Total Project Cost	PKR _____
7.	Value of the total Consultancy contract	PKR..... USD.....
8.	Date of Award	
9.	Date of Completion	

**Annex “I”  
Form “A-5”**

**SUMMARY OF SIMILAR NATURE PROJECT IN HAND**

Name of Bidder
----------------

Applicant applying for prequalification is required to complete information in this form.

Project Name	Date of Award	Expected Date of completion	Location	Value in PKR (Million)

Note: Each project provided in this form requires a corresponding **Form A-6** and adequate documentary evidence in order to be eligible for consideration.

**Annex “I”  
Form “A-6”**

**DETAILS OF SIMILAR NATURE PROJECTS IN HAND**

Name of Bidder:

A separate form with adequate documentary evidence (Letter of Award / Agreement indicating Consultancy Cost) shall be provided for each project in Form A-6.

1.	Name of Contract
	Location
2.	Name of Employer
3.	Employer Address
4.	Nature of Works and special features of the consultancy Assignment
5.	Contractor Role (Tick One) (a) Sole Bidder      (b) Sub- Bidder      (c) Member in a
6.	Total Project Cost PKR _____
7.	Value of the total contract PKR.....
8.	Date of Award
9.	Planned Date of Completion



**Annex “I”  
Form “A-7”**

## SUMMARY OF CLOUD DATA HPC HOISTING CONSULTANCY & RESIDENT SUPERVISION PROJECTS IN LAST 5 YEARS

Name of Bidder:

A separate form with adequate documentary evidence (Letter of Award / Agreement indicating Consultancy Cost) shall be provided for each project in Form B-6.

1.	Name of Contract
	Location
2.	Name of Employer
3.	Employer Address
4.	Nature of Works and special features of the consultancy Assignment
5.	Contractor Role (Tick One) (a) Sole Bidder      (b) Sub- Bidder                  (c) Member in a
6.	Total Project Cost                                  PKR _____
7.	Value of the total contract                                  PKR.....
8.	Date of Award
9.	Planned Date of Completion

**Annex “I”  
Form “A-8”**

**PERSONNEL CAPABILITIES IN VARIOUS SPECIALTIES**

Name of Bidder: \_\_\_\_\_

1	Title of Position	
	Name of Candidate	
2	Title of Position	
	Name of Candidate	
3	Title of Position	
	Name of Candidate	
4	Title of Position	
	Name of Candidate	
5	Title of Position	
	Name of Candidate	

Note: A corresponding **Form A-10** and **Form A-11** be filled in for each person in order to be eligible for consideration.

From	To	Company	Project	Position	Relevant Technical & Management Experience

**Annex “I”  
Form “A-9”**

**CANDIDATE SUMMARY**

Name of Bidder: \_\_\_\_\_

Position	Candidate		
Candidate Information	Name of Candidate		Date of Birth
	Professional Qualification:		
PEC / EPI Registration No.	Attach copy of PEC / EPI certificate		
Present Employer	Name of Employer:		
	Address of Employer		
	Telephone:		Fax:
	Job Title of Candidate		Years with Present Employer

Summarize professional experience in reverse chronological order.

**Annex “I”  
Form “A-10”**

**FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED KEY STAFF**

Proposed Position: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Name of Staff: \_\_\_\_\_

Profession: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Years with Firm: \_\_\_\_\_

Nationality: \_\_\_\_\_

Membership in Professional Societies: \_\_\_\_\_ (Membership of PEC is Mandatory)

Detailed Tasks Assigned on the Project: \_\_\_\_\_

Key Qualifications: [Give an outline of staff member’s experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use up to one page].

Education: [Summarize college/university and other specialized education of staff member, giving names of institutions, dates attended and degrees obtained.]

Employment Record: [Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, title of positions held and location of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate.

Languages: [Indicate proficiency in speaking, reading and writing of each language: excellent, good, fair, or poor].

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these bio-data correctly describe myself, my qualifications and my experience.

\_\_\_\_\_  
Signature of Staff Member

Date: \_\_\_\_\_

Day/Month/Year

\_\_\_\_\_  
Authorized official from the firm

**Annex “I”  
Form “A-11”**

**LITIGATION HISTORY**

Name of Applicant

Applicants, shall provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution. Details must be provided related to (a) year and matter in dispute, (b) value of award if awarded against the applicant and (c) award as a percentage of net worth of applicant.

<b>Year</b>	<b>Award FOR or AGAINST Applicant</b>	<b>Name of client, cause of litigation, and matter in dispute</b>	<b>Disputed amount (current value Pak Rs. or equivalent)</b>	<b>As percentage of net worth</b>

**Annex “I”  
Form “A-12”**

**LETTER OF PROPOSAL**

*[Letterhead paper of the Applicant including full postal address, telephone no., fax no., e-mail address etc.]*

Date:

To:

Project Director GreenAI

NASTP, Rawalpindi

Tel: +92-051-9529541

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com), [diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Sir,

1. Reference is made to the GreenAI NASTP contract Enquiry No. \_\_\_\_\_.
2. Being duly authorized to represent and act on behalf of ..... (hereinafter “the Bidder”), and having reviewed and fully understood all the bidding information provided, the undersigned hereby apply as a bidder for the ... ..... and below under the "AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)", for PSDP funded PROJECT GREENAI OF NATIONAL AEROSPACE SCIENCE AND TECHNOLOGY PARK (NASTP)"
3. Attached to this letter are copies of original documents defining:
  - (a) The Bidder’s legal status;
  - (b) The principal place of business;
  - (c) The place of incorporation;
  - (d) Copy of valid registration certificate with PEC and SECP; and
  - (e) Duly filled-in Proposal Forms along with required supporting documents.
4. Your agency and its authorized representatives are hereby authorized to conduct security clearance of the Bidder, its directors, shareholders, affiliates sub-contractors and personnel, raise any inquiries or investigations to verify the statements, documents, and information submitted in connection with this Proposal, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Letter of Proposal will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves or the authorized representative to verify statements and information provided in this Proposal, or with regard to the resources, experience, and competence of the Applicant.
5. Your Agency and its authorized representatives may contact the following persons for further information, if needed.

General and Managerial Inquiries	
Contact 1	Tel:

Contact 2	Tel:
-----------	------

Technical Inquiries	
Contact 1	Tel:
Contact 2	Tel:

Financial Inquiries	
Contact 1	Tel:
Contact 2	Tel:

6. This Proposal is made with the full understanding that:
- (a) Bids will be subject to verification of all information submitted for Request for Proposal at the time of bidding;
  - (b) Your Agency reserves the right to:
    - (i) amend the scope and value of any Contract under this project; and
    - (ii) reject or accept all Proposal, cancel the procurement process, and reject all bids.
  - (c) Your Agency shall not be liable for any such actions and shall be under no obligation to inform the bidders of the grounds for actions at 5(b) hereinabove.
  - (d) Your Agency shall not be liable for consequence of, and shall be under no obligation to inform the bidder of the grounds for, actions taken under para 5(b) hereinabove.
7. We agree to abide by this Bid for a period of 90 days after the date fixed for technical proposal opening, or as extended, as per instructions given in RFP and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
8. The undersigned declare that the statements made and the information provided in the duly completed Proposal are complete, true, and correct in every detail.

Signed  
Name  
For and on behalf of Bidder

**Annex “II”**

**EVALUATION CRITERIA FORM B**

<b>Form B</b>	Evaluation Criteria
<b>Form B-1</b>	Company Profile
<b>Form B-2 (a)</b>	Bidder’s Experience (Cloud Application)
<b>Form B-2 (b)</b>	Bidder’s Experience (HPC)
<b>Form B-2 (c)</b>	Bidder’s Experience (Data Lake)
<b>Form B-3 (a)</b>	Quality of Bidder’s (HR) expertise (Application/Cloud)
<b>Form B-3 (b)</b>	Quality of Bidder’s (HR) expertise (HPC)
<b>Form B-3 (c)</b>	Quality of Bidder’s Expertise Data Lake (HR)
<b>Form B-4</b>	Application Zone (Cat "M" & Cat "C)
<b>Form B-5</b>	High Performance Computing Zone (Cat "G")
<b>Form B-6</b>	Data zone (Cat “MDS” , Cat “S” , Cat “F” , Cat “U”)-
<b>Form B-7</b>	Network – criteria
<b>Form B-8</b>	Cloud software requirements
<b>Form B-9</b>	Hosting criteria
<b>Form B-10</b>	Work Sheet



**Annex “II”  
Form B**

**EVALUATION CRITERIA**

1. The evaluation committee appointed by the GreenAI NASTP shall carry out its evaluation, applying the evaluation criteria and point system specified hereunder:
2. Provide documentary evidences to conform the following
3. **Mandatory Requirements**
  - (a) Registration with Pakistan Engineering Council (PEC);
  - (b) SECP Incorporation Certificate;
  - (c) Active Tax Payer’s List with FBR and Sales Tax Department
  - (d) Non-Blacklisting with any Government department/ agencies/ authorities. An affidavit of “Non-blacklisting” of authorized signatory on judicial stamp paper to the effect that the firm has never been black-listed.
  - (e) Participating bidder must have expertise in Computing, HPC, Cloud, Enterprise Storage Solutions, Data Centres, Networking, Switching, Security etc. so that all components should be integrated by single vendor.
  - (f) Participating bidder must have consultancy design experience of facilities of HPC (minimum 02 installations) of 10 Tflops experience in High Performance Computing active facility, Cloud (Minimum 03 installations) in academia/corporate/military environments. Moreover, the winning bidder must have experience with Data Centre of minimum of 20 racks (Minimum 3 references to be given).
  - (g) Participating bidder must have security clearance with Law Enforcement Agencies.
  - (h) Participating bidder must only propose solutions from OEMs having presence in Pakistan since last 10/5 years, share details of OEMs local team along with Names, Contact Nos and official email addresses.
  - (i) Participating bidder must only propose OEMs having support team in major cities of Pakistan (Karachi, Lahore and Islamabad).
  - (j) Participating bidder must have complete spectrum of solution as single source / single OEM, including (computing, GPU, Storage, Networking, Containment, UPS, Cooling Units, Racks, PDUs, DCIM). Different Cooling UPS, Containment and Cooling will be given lesser marking.
  - (k) Participating bidder is to provide following technical data / information regarding experience in Data Centre portfolio:-
    - (i) HPC Cloud Facility projects completed successfully total inland / abroad by the bidder and not the OEM.
    - (ii) HPC Cloud Facility projects consultancy services for technical equipment installation, civil works or both by the bidder not the OEM.
    - (iii) SLA experience for maintenance and operational services for data centres.

(l) Successful bidder will be responsible for hosting of the procured equipment at a reputable tier III certified data centre by choice of procuring agency (preferably at ISLAMBAD/RAWALPINDI) on turnkey centre.

(m) Training for (03 person) that may include hardware/software integration/deployment/management, backup/restores should be part of the Solution. Other specific training such as fault detection, backup/recovery etc, as needed should be included. Training location and number of people as well as trainer information would be required to be shared.

(n) The vendor/solution provide will provide SLA for equipment with parts. They should mention the Hardware/software or any support and the type of support they will ensure for the solution provided. This may include Yearly support type, minimum respond time, faulty hardware replacement time etc. There should be a Three (3) Year Service Level Agreement. The vendor should provide following services/ support with time frame.

- (i) SLA with parts
- (ii) Response time should be same business day
- (iii) Escalation ladder for support in the event for immediate support
- (iv) Support Services should be 24/7
- (v) Local country presence
- (vi) Support network inside country

#### 4. **Preferred Requirements**

(a) Participating bidder preferred to have a reference of at least one such facility having 20 or more racks Data Centre design during last one year.

(b) Participating bidder should have at least two consultancy projects, local or international.

(c) Participating bidder preferred to have successfully executed at least 03 Data Centres for any Govt / Public / Private Sector during last 07 years (Minimum 2 in Pakistan).

(d) Participating bidder preferred to have experience with Ministry of Defence.

(e) Participating bidder should be in similar business for at least last 05 years.

(f) Participating bidder should have qualified supervisors as permanent employees to take up the project.

(g) Participating bidder should have certified technical team for Servers, Storage, Routing, Switching, Security as well as HPC, Cloud and data centre certified resources on their company pay roll as permanent employees. The participating firm must have CCIE or JNCIE or equivalent, CTDC, CDCS / ATS, CDCP/ ATD, PMP, CNCDP, resources (Documentary proof required & to be submitted with the bid). CVs of Technical staff along with certifications to be submitted with the bid.

(h) Participating bidder preferred to have Rated -III Project Reference having EPI Design Validation (at least 1 reference required)

(i) Participating bidder preferred to have experience of at least 1 Certificate of Conformance for Design Documents (ANSI / TIA-942-B RATED 3). Evidence of publishing on TIA Online is mandatory.

- (j) Participating firm preferred to be capable of undertaking design audit compliance vetting as per TIA-942 B Rated-3 requirement.
- (k) Participating firm should comply to all RFP Specs and clauses.
- (l) Vendor will provide detailed implementation schedule with concrete timeline.

### DETAILED CRITERIA / REQUIREMENTS

1. The Project GreenAI NASTP intends to have the **most advantageous bid** in conformance with PPR 2004 with insertions vide Statutory Regulatory Order S.R.O. No. 442(1)/2020 dated May 15, 2020.

2. Only the bidders meeting the above-mentioned **Mandatory Requirements** will be considered for detailed evaluation of technical bids. The detailed evaluation shall be carried out on the basis of the criteria for the different categories and minimum passing marks prescribed hereunder:

S No	Sub-Head	Max. Marks
(a)	Company profile	15%
(b)	Technical Evaluation	55%
(c)	Financial Evaluation	30%
<b>Total</b>		<b>100%</b>

(a) **Company profile.** The company profile will be further subdivided into following sub groups with their respective score distribution.

Sr. No.	Detail Division Matrix for Company/Consortium out of %	15	Passing Marks	Received Marks	Given Marks
1.	<b>Company/Consortium Profile</b>	<b>15</b>	9		
2.	<b>Firm Experience</b>	<b>105</b>	63		
3.	a) Bidder Experience (Cloud Application)	35			
4.	b) Bidder Experience (HPC)	35			
5.	c) Bidder Experience (Data Lake)	35			
6.	<b>Human Resource Capability</b>	<b>150</b>	90		
7.	a) Quality of Bidder (HR) in Application Cloud	60			
8.	b) Quality of Bidder (HR) in HPC	40			
9.	c) Quality of Bidder (Data Lake)	50			
	<b>Total</b>	<b>270</b>	<b>162</b>		

(b) **Technical Evaluation.** Technical bid of bidders scoring less than sixty percent (60%) overall marks and/ or failing to obtain minimum passing marks against any of the above-mentioned category shall be rejected and their financial proposals will be returned un-opened. Each responsive technical bid shall be attributed a technical score (St).

Sr. No.	Technical Evaluations Sub-Groups (06)	55	Passing Marks	Received marks in %	Given Marks %
1.	Application Zone	10	6		
2.	High Performance Zone	10	6		
3.	Data Zone	10	6		
4.	Network	5	3		
5.	Cloud (Software)	10	6		
6.	Hosting (Data Center)	10	6		
Total		55	33		

3. The evaluation committee shall determine whether the financial proposals are complete and without computational errors. The lowest financial bid (Fm) shall be given a financial score (Sf) of 100 points. The financial scores of the bids shall be computed as follows:

$$S_f = 100 \times \frac{F_m}{F}$$

**F** (F = amount of specific financial bid)

4. Bids, in the quality cum cost based selection (QCBS) shall finally be ranked according to their combined technical (St) and financial (Sf) scores using the weights (**T = 70**; the weight given to the technical bid, **P = 30**; the weight given to the financial bid):

$$S = S_t \times T \% + S_f \times P \%$$

5. Work will be awarded to the firm offering **most advantageous bid** evaluated as the highest ranked bid on the basis of cost and quality.

**Annex “II”  
Form B-1**
**COMPANY PROFILE**

Criteria	Description	Marks	Self-assessment	PMU assessment not to be filled
<b>No. of Years of since establishment of</b>	<b>Max. 08 marks</b>	8		
Establishment of Bidder (Attach Certificate of Incorporation)	02 marks if between 10 to 15 years	-	-	
	01 mark if between 05 to 10 years	-	-	
	No mark will be given if less than 05 years	-	-	
	Max of 06 marks for providing undermentioned mandatory requirements	-	-	
Company introduction and history (Mandatory Requirements)	Mandatory	-	-	
Company introduction and history	Mandatory	-	-	
SECP registration certificate No. (Attach copy of Certificate)	Mandatory	-	-	
PEC Registration with relevant category No. /Attach copy of Certificate	Mandatory	-	-	
Company NTN Registration No. Attach copy of Certificate	Mandatory	-	-	
NTN along with Active Tax Payers List (latest)	Mandatory	-	-	
Registration of Company as Consortium(Attach copy of Certificate)	Mandatory	-	-	
Sales tax Registration No.(Attach copy of Certificate)	Mandatory	-	-	

Audited Financial statements (last 3 years)	Mandatory	-	-	
Afidavit of not being a blacklisted firm	Mandatory	-	-	
Islamabad presence evidence	Mandatory	-	-	
CVs of Key Staff	Mandatory	-	-	
In case of OEM solution, Letter of authorization from OEM.	Mandatory	-	-	
Firm must be Premium / Platinum / Tier-I Partners with OEM.	Mandatory	-	-	
POs/Contract copies of completed/in progress projects.	Mandatory	-	-	
<b>Bidder Presence ( Share details of each office in Pakistan )</b>	<b>Max. 05 Marks</b> 05 marks if the applicant has fully functional design and supervision office in Islamabad. No mark will be awarded, if no permanent office in Islamabad. The Evaluation Committee may visit the Bidders office to assess the firms' presence and technical capabilities before awarding the marks.	5		
<b>Financial Soundness</b> Average Turn over for last three years (Financial Audited Reports for last 3 years )	<b>Max. 02 Marks</b> 02 Marks will be awarded if each financial year's turn over is between PKR 1000 Million to PKR 2000 Million. No Marks will be awarded if turnover is less than PKR 1000 million	2		
	Total	15	0	0

**Annex “II”**  
**Form B-2 (a)**

**BIDDER’S EXPERIENCE (CLOUD APPLICATION)**

Sr. No.	Criteria	Description	Marks	Self-assessment	Purchaser Assessment
1	<b>Specific / Similar Experience</b> On leading cloud platforms like OpenStack cloud solution (Attach copy of documentary evidence)	<b>Max. 15 Marks</b> 05 marks will be awarded for each completed project of OpenStack deployed cloud solution, involving complete design and execution completed in the last 05 years. Minimum number of 05 projects are mandatory to qualify. Maximum of 15 Marks  05 marks will be awarded to each OpenStack completed project completed in the last 05 years. Minimum of 03 Projects are mandatory to qualify. Maximum of 10 Marks No marks will be awarded if Completed cloud solution is less than 2 solutions.	15		
2	<b>In-Hand Similar Project</b> on leading cloud platforms like OpenStack cloud solution (Attach copy of documentary evidence)	<b>Max. 15 Marks</b> 5 mark will be awarded upto maximum of 10 marks to each in-hand OpenStack Cloud solution of more than 20 Racks. Maximum 03 Projects will fetch 15 Marks  01 mark will be awarded upto maximum of 5 marks to each in-hand OpenStack cloud project of more than 10 Racks.  No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/ departments</b> (Attach copy of documentary evidence)	<b>Max. 5 Marks</b> 05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5		
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-2 (b)**

**BIDDER’S EXPERIENCE (HPC SOLUTIONS)**

Sr. No.	Criteria	Description	Marks	Self-assessment	Purchaser Assessment
1	<b>Specific / Similar Experience</b>  <b>On HPC Architectures:</b> Experience in different HPC architectures, including clusters, grids, and cloud-based HPC <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b>  05 marks will be awarded upto maximum of 15 marks to each completed project in the HPC domain (Clusters, Grids or cloud based HPC) minimum of 5 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years. 05 marks will be awarded upto maximum of 10 marks to each completed project in the HPC domain (Clusters, Grids or cloud based HPC) minimum of 3 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years. No marks will be awarded if DC size is less than 10 racks.	15		
2	<b>In-Hand Similar Project</b>  <b>On HPC architectures:</b> Experience in different HPC architectures, including clusters, grids, and cloud-based HPC <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b>  5 mark will be awarded upto maximum of 10 marks to each in-hand project in the HPC domain (Clusters, Grids or cloud based HPC) Cloud solution of more than 20 Tflops. 01 mark will be awarded upto maximum of 5 marks to each in-hand cloud project in the HPC domain (Clusters, Grids or cloud based HPC) Cloud solution of more than 10 Tflops. No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/departments</b> <i>(Attach copy of documentary evidence)</i>	<b>Max. 5 Marks</b>  05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5		
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>



**Annex “II”**  
**Form B-2 (C)**

**BIDDER’S EXPERIENCE (DATA LAKE)**

<b>Sr. No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>Specific / Similar Experience</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform. <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b> 05 marks will be awarded upto maximum of 15 marks to each completed project of minimum of 5 deployed Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete design and execution with installed capacity of 100TB or more completed in the last 05 years. 05 marks will be awarded upto maximum of 10 marks to each completed project deployed Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete design and execution with installed capacity of 50TB or more completed in the last 05 years No marks will be awarded if DC size is less than 10 racks.	15		

2	<b>In-Hand Similar Project</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform. <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b> 5 mark will be awarded upto maximum of 10 marks to each in-hand Data Lake platforms solutions like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete solution with installed capacity of 100TB or more 01 mark will be awarded upto maximum of 5 marks to each in-hand deployed Data Lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform involving complete design and execution with installed capacity of 50TB or more. No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/ apartments</b> <i>(Attach copy of documentary evidence)</i>	<b>Max. 5 Marks</b> 05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5	0	
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(A)**

**QUALITY OF BIDDER’S (HR) EXPERTISE (APPLICATION/CLOUD)**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>Project Manager (cloud, HPC, Storage)</b> Qualification in IT Project Management + certified PMP with minimum 5 years’ experience.	<b>Max. 10 Marks</b> Full marks will be awarded to at least one Project Manager having minimum qualification and experience dedicated to this project.  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
2	<b>Clouds architect</b> (Cloud Certification) Amazon Web Services (AWS) Solutions Architect – Professional Or Microsoft Certified: Azure Solutions Architect Or Professional Cloud Architect (google) Or Any equivalent recognized vendor specific certification	<b>Max. 10 Marks</b> 05 marks for each valid AWS. / Azure / Professional Cloud Architect (certified) individual  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
3	<b>Cloud Engineer (certified)</b> AWS Certified Solutions Architect - Associate: Or Microsoft Azure Solutions Architect associate: Or Google Associate Cloud engineer:	<b>Max. 8 Marks</b> 04 mark for each valid AWS. (associate)/ Azure (associate / Google associate engineer (certified) or equivalent recognized certification  No mark will be awarded, if minimum qualification	8		

	<p>Or</p> <p>Any equivalent recognized vendor specific certification</p>	<p>and experience criteria is not met</p>			
4	<p><b>Cloud Security Professional (Certified)</b></p> <p>Certified Cloud Security Professional (CCSP) by ISC</p> <p>Or</p> <p>CompTIA Cloud+ with focus on Security:</p> <p>Or</p> <p>Cloud Security Alliance: Certificate of Cloud Security Knowledge (CCSK)</p> <p>Or</p> <p>Certified Information Systems Security Professional - Architecture (CISSP)</p> <p>Or</p> <p>Professional cloud security engineer (google)</p>	<p><b>Max. 8 Marks</b></p> <p>04 mark for each valid CCSP/ CompTIA Cloud + / CCSK / CISSP or Professional cloud Security Engineer</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	8		
5	<p><b>OpenStack expert (Certified)</b></p> <p>Certified OpenStack Administrator (COA)</p> <p>Or</p> <p>equivalent OpenStack partner certified e.g</p> <p>Or</p> <p>equivalent OpenStack partner certified e.g. (Red Hat OpenStack Platform Certification, Ubuntu Conical Open stack, etc.)</p>	<p><b>Max. 10 Marks</b></p> <p>If certified resource is COA, then =10 marks</p> <p>Else if resource has OpenStack partner certification, then =7 marks</p> <p>none=0</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	10		

6	<b>Network Architect:</b> CCIE Routing & Switching (CCIE) /CCIE Enterprise Infrastructure or Cisco Certified Network Associate (CCNA) or equivalent certification	<b>Max. 05 Marks</b> If certified resource is CCIE /CCNA or equivalent, then =5 marks No mark will be awarded, if minimum qualification and experience criteria is not met	5		
7	<b>Resident Engineer</b> Qualified Resident Engineers dedicated to project	<b>Max. 05 Marks</b> 05 mark for Resident Engineer having completed a similar project and deployment project premises No mark will be awarded, if minimum qualification and experience criteria is not met	5		
8	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
<b>Total</b>			<b>60</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(B)**

**QUALITY OF BIDDER’S (HR) EXPERTISE IN HPC**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>HPC architect</b> Master Degree with course in HPC field with minimum 10 years’ experience or Bachelor Degree with course in HPC with minimum 12 years (attach documentary evidence) Or AWS Certified Solutions Architect - Professional: Or Microsoft Azure Solutions Architect Expert: Or Google Cloud Professional Cloud Architect: Or Any equivalent recognized vendor specific HPC certification	<b>Max. 10 Marks</b> 5 mark for valid HPC (certified) / HPC experienced Consultant No mark will be awarded, if minimum qualification and experience criteria is not met.	10		
2	<b>HPC engineer</b> With Bachelor’s or Master Degree in relevant field with minimum 10 years’ experience for Master’s and 15 years’ experience for Bachelor’s. (documentary evidence) Or HPE Certified High Performance Computing Administrator Or LPIC-2 Linux Server Administrator:	<b>Max. 8 Marks</b> 04 mark for each valid HPC engineer (certified) / HPC experienced Consultant or equivalent recognized certification No mark will be awarded, if minimum qualification and experience criteria is not met	8		

	<p>Or</p> <p>HPC Certification Forum (HPC-CF)</p> <p>Or</p> <p>Any equivalent recognized vendor (specific) HPC certification</p>				
3	<p><b>Machine Learning/ AI Engineer: (Any certification below)</b></p> <p>Google Professional Cloud Machine Learning Engineer:</p> <p>Or</p> <p>AWS Certified Machine Learning Specialty:</p> <p>Or</p> <p>IBM Applied AI Professional Certificate:</p> <p>Or</p> <p>AWS Certified Machine Learning Specialty:</p>	<p><b>Max. 8 Marks</b></p> <p>04 mark for each valid AI/ML engineer (certified) or AI/ML certified Consultant</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	8		
4	<p><b>Network Architect:</b></p> <p>CCIE Routing &amp; Switching (CCIE)</p> <p>or</p> <p>Cisco Certified Network Associate (CCNA) or equivalent certification</p>	<p><b>Max. 05 Marks</b></p> <p>If certified resource is CCIE /CCNA or equivalent, then =5 marks</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	5		
5	<p><b>Resident Engineer</b></p> <p>Qualified Resident Engineers dedicated to project</p>	<p><b>Max. 05 Marks</b></p> <p>05 mark for each Resident Engineer having completed a similar project.</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	5		

6	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
	<b>Total</b>		<b>40</b>	<b>0</b>	<b>0</b>



**Annex “II”  
Form B-3(C)**

**QUALITY OF BIDDER’S (HR) EXPERTISE (DATA LAKE)**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Bidder Self-Assessment</b>	<b>Purchaser Assessment</b>
1	<b>Data lake architecture</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, or Google Cloud Storage or equivalent certification	<b>Max. 10 Marks</b> 05 mark for each valid data lake platforms certification like AWS Glue, Azure Data Lake Storage, or Google Cloud Storage consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
2	<b>Data Lake Engineer (Certified)</b> Microsoft Certified: Azure Data Engineer Associate Or Data bricks Certified Data Engineer Associate: Or Any equivalent vendor recognized certification	<b>Max. 10 Marks</b> 05 mark for each valid data lake engineer (Certified) or equivalent/ Data Lake experience consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
3	<b>Data Scientist (Certified)</b>  Microsoft Azure Data Scientist Associate: Or Microsoft Azure Data Scientist Associate Or Google Professional Cloud Machine Learning Engineer:	<b>Max. 8 Marks</b> 8 mark for valid certified data scientist (certified) or equivalent/ Data Scientist consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	8		

	or Equivalent Data Scientist certified				
4	<b>Storage Engineer</b>  CompTIA Storage+: Or SNIA Certified Storage Networking Expert (SCSN-E): Or AWS Certified Storage Solutions Architect - Associate: Or or equivalent Vender specific Storage certification	<b>Max. 8 Marks</b>  04 mark for each valid storage engineer (certified) dedicated to this project	8		
5	<b>Certified Network Cabling Design Professional</b>  With Bachelor's or Master Degree in relevant field with minimum 10 years' experience for Master's and 15 years' experience for Bachelor's.	<b>Max. 05 Marks</b>  05 mark for each valid CNCDP dedicated to this project  No mark will be awarded, if minimum qualification and experience criteria is not met.	5		
6	<b>Resident Engineer</b>  Qualified Resident Engineers dedicated to project	<b>Max. 05 Marks</b>  05 mark for each Resident Engineer having completed a similar project.  No mark will be awarded, if minimum qualification and experience criteria is not met	5		

7	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
		<b>Total</b>	<b>50</b>	<b>0</b>	<b>0</b>

Annex "II"  
Form B-4

**APPLICATION ZONE (CAT "M" & CAT "C")**

Criteria - (Hardware Requirement Placed in Annex -K)	Description	Marks	Self-assessment	Purchaser Assessment
Server Cat 'M' CPU (for reference only (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if (100000 / CPU and less than 120% better) = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server Cat 'C' CPU (for reference only ( 2 x AMD EPYC Gen4 Genoa 9554 (64c @ 3.1Ghz)) Passmark.com	if (Pass mark > 140000 and >120% (better or more) = 5 marks , else if (Pass mark > 140000 and less than <120% better) = 4 marks, if Pass mark > 140000 and less than 110% = 3)	5		
<b>QTY -03 Cat "M" - Hardware Specification</b>	if QTY=03 then marks =5, else =0	5		
Dual processor series (32 cores or more per processor (or equivalent)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Preferred minimum 2.6Ghz per core clock (better is preferred)	mandatory	-	-	
2*480GB SSD and 5 x 960GB SSD (with hotspare). Or, 6*960 SSD (with hotspare)	mandatory	-	-	

<b>compliance to Cat 'C' general specification</b>	mandatory	-	-	
RAM = 256 Gb DDR 5 ECC (and upgradable) with Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=300000 =5 marks, else if (IOPS>150000 and IOPS<300000=3, else=0	5		
<b>QTY -06 Cat "C" - Hardware Specification</b>	if QTY=06 then marks =5 , else =0	5		
Dual processor series (60 cores or more per processor (or equivalent) latest generation)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Minimum 2.6 Ghz per core clock (better is preferred)	mandatory	-	-	
Prefer storage capacity 4 TB (usable) with hot spare	mandatory	-	-	
<b>compliance to Cat 'M' general specification</b>	mandatory	-	-	

RAM = 512 GB DDR 5 ECC (and upgradable) with Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS< 700000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS< 500000=3, else=0	5		
<b>Network</b>		-	-	
A-D Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
A-D Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
A-H Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
A-H Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
	<b>Total</b>	<b>90</b>	<b>0</b>	<b>0</b>

Annex "II"  
Form B-5

### HIGH PERFORMANCE COMPUTING ZONE (CAT "G")

Hardware Requirement	Description	Marks	self-assessment	Purchaser Assessment
Server Cat 'G' CPU (for reference only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks , else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Performance NVIDIA H100 80 GB GPU ( for reference only GPU FP64 (double-precision))	34TFlops/GPU	5		
		-	-	
<b>QTY -04 Cat "G" - Hardware Specification</b>	if QTY=04 then marks =5, else =0	5		
<b>QTY -16 NVIDIA HGX H100 - H100 SXM4 80GB GPU Assembly or equivalent /better</b>	if QTY=16 then marks =5 , else =0	5		
Dual processor series (30 cores or more per processor or better)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Minimum preferred 2.6 Ghz per core clock (better is preferred)	mandatory	-	-	
High speed internal enterprise Storage 4 (or more) * SSD/ NVME (with raid capability) with preferred 8TB (Usable) (or different combination may	mandatory	-	-	

be allowed for Separate OS and High processing storage drive)				
<b>compliance to Cat 'G' general specification</b>	mandatory	-	-	
RAM = 512 Gb DDR 5 ECC (and upgradable) with less Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
Internal storage -Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS< 700000=3, else=0	5		
Internal storage -Individual write IOPS (single drive)	if (IOPS >500000 =5 marks, else if (IOPS>200000 and IOPS< 500000=3, else=0	5		
<b>Network</b>		-	-	
H-D Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
H-D latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms ) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
H-A Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
H-A latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less	5		



	than 50 ms = 3 marks, else none			
HPC H-H Backplane bandwidth 100 Gb/s per link or better	If (H-H Bandwidth >100gbps then marks =5, if conform to 100Gbps =3 else =Disqualify	5		
H-H latency (prefer latency below (less than) < 10 milliseconds)	if (< 10 ms) = 5 marks, if greater than 10 but less than 25 ms = 3 marks, else none	5		
A, HPC & Data Zone overall peak performance in (Tflops) actual benchmark	If (Tflops > 700 =5, else if 700> Gflops<500 =3, else =0	5		
Overall System measured Performance (measured) Energy Efficiency (GFlops/watts)	If (Gflops/watts > 30 =5, else if 30> Gflops<15 =3, else =0	5		
	<b>Total</b>	<b>85</b>	<b>0</b>	<b>0</b>

Annex “II”  
Form B-6

**DATA ZONE (CAT “MDS”, CAT “S”, CAT “F”, CAT “U”)**

Criteria (Hardware Requirement)	Description	Marks	self-assessment	Purchaser Assessment
Server (Cat 'MDS') CPU (for reference only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “S”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “F”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “U”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
<b>Generalized requirements for all</b>	-	-	-	

<b>storage related equipment be it Individualized storage server (Cat "MDS", Cat "S", Cat "F", Cat "U") Or Multi-tier (unified) or equivalent/better storage solution)</b>				
Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.	mandatory	-	-	
Redis Compatible	mandatory	-	-	
Processor configuration if required should be similar to Cat M or better Capability for Object, block storage and parallel file system.	mandatory	-	-	
- Storage Scalability (Horizontal and vertical)	mandatory	-	-	
<b>compliance to individual storage specification (Cat "MDS", Cat "S", Cat "F", Cat "U")</b>	mandatory	5		
RAM Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
		-	-	
<b>QTY -02 - Cat "MDS" components or equivalent solution</b>		5		

Internal storage - Individual Read IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=300000 =5 marks, else if (IOPS>150000 and IOPS<300000=3, else=0	5		
<b>QTY -02 - Cat "S" component or equivalent solution</b>	if QTY=02 then marks =5 , else =0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS<700000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
<b>QTY -04 - Cat "F" Component or equivalent solution</b>	if QTY=04 then marks =5, else =0	5		
Internal storage - Individual Read IOPS (single drive)	If iops > 800000 =5, else if 800000>iops<600000 =3 else 0	5		
Internal storage - Individual write IOPS (single drive)	If iops > 800000 =5, else if 800000>iops<600000 =3 else 0	5		
<b>QTY -02 - Cat "U" component or equivalent solution</b>	if QTY=02 then marks =5, else =0	5		
-NL-SAS Individual Read IOPS	If iops > 150 =5, else if 150>iops<100 =3 else 0	5		
-NL-SAS Individual Write IOPS	If iops > 150 =5, else if 150>iops<100 =3 else 0	5		
<b>Network</b>		-	-	
D-A Zone connectivity network performance compliance 25 gbps	If (A-H Bandwidth >25gbps then marks =5 , if confirm 25gbps=3, else =Disqualify	5		

D-A Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
D-H Zone connectivity network performance	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
D-H Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
<b>Total</b>		<b>120</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-7**

**NETWORK - CRITERIA**

<b>Criteria - (Hardware Requirement)</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
<b>Network requirements</b>	-	-	-	
<b>QTY - 02 Cat “Core” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Access” equipment</b>	mandatory	-	-	
<b>QTY - 01 Cat “RoCE” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Distribution” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “firewall” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Router” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Clock” equipment</b>	mandatory	-	-	
Backplane bandwidth 25 Gb/s per link or better	If (Bandwidth >=25gbps then marks =5, else =0	5		
connecting devices support Link aggregation (LAG)	If LAG support =5, else =0	5		
Infiniband or equivalent	mandatory	-		
Open Virtual Network (OVN) or equivalent	mandatory	-		
NIC bonding, unlimited underlay L2 network segregation	Optional	-		
<b>Network Latencies</b>	-	5		
A-A latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else =0	5		

D-D latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else =0	5		
H-H latency (prefer latency below (less than) < 10 milliseconds)	if (< 10 ms) = 5 marks, if greater than 10 but less than 25 ms = 3 marks, else =0	5		
<b>Total</b>		<b>30</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-8**

**CLOUD SOFTWARE REQUIRMENTS**

<b>Criteria - (Hardware Requirement)</b>	<b>Description Exemple</b>	<b>Marks</b>	<b>self- assessment</b>	<b>Purchaser Assessment</b>
Mandatory software requirement that needs to be cater to in cloud setup	-	-		
Modules and software components Functional requirements	-	-		
Managed HA Onprem Cloud Platform	Openstack	-		
Managed HA Kubernetes	Openstack Magnum	-		
Compute nodes with GPU support	Openstack Nova	-		
Managed Postgres Database with HA Active-Active support	Openstack Trove	-		
Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	-		
Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	-		
Load Balancers	OpenStack Octavia	-		
Autoscaling for nodes, clusters, and containers	OpenStack Heat	-		
Container image storage	OpenStack Glance	-		
Network accessible storage with NFSv4 and RWX support (Fault tolerant and PB scalable)	OpenStack Manila	-		
Object storage with HTTP range request support (Fault Tolerant and PB scalable)	Minio, OpenStack Swift	-		



Encryption at rest for storage	OpenStack Cinder + Key encryption	-		
Internal network level encryption	TLS Enabled 1.3	-		
Private and secure Git managed repository with CI/CD support	GitLab	-		
Dashboard for administration with RBAC support	OpenStack Horizon	-		
Administration APIs for future integration and automation		-		
	Optional	-		
Container image signing and automatic verification	Cosign	-		
FaaS support	Qinling, OpenFaaS (if provided =5, else =0)	5		
Private and secure Git managed repository with CI/CD support	GitLab	-		
Replication and disaster recovery support (backup VMs, storage, container, etc)		-		

-

Non-Functional Requirements				
GPU Pass-through		-		
Infiniband or similar HPC Network Supported		-		
No single point of failure		-		
Nodes/hardware could be added or removed by our Admin team (scalability)		-		
Must be well-integrated and well-tested		-		

Should not rely on internet for usage, configuration, and setup		-		
Documentations	If (relevant cloud documentation =5, else =0	5		
<b>Cloud Software Compatibility</b>				
these services should be demonstrated		-		
redis	if (module demonstrated =5, else =0	5		
Ceph	if (module demonstrated =5, else =0	5		
Cinder	if (module demonstrated =5, else =0	5		
Swift	if (module demonstrated =5, else =0	5		
Elasticsearch	if (module demonstrated =5, else =0	5		
these services should be demonstrated	max =20, 05 marks for each demonstrated optional module shown below	20		
Hadoop		-		
Hbase		-		
Hive		-		

ZooKeeper		-		
Phoenix		-		
Oozie		-		
Hue		-		
Spark		-		
Sqoop		-		
Flume		-		
Kafka		-		
Solr		-		
Flink		-		
Elasticsearch		-		
HetuEngine		-		
Carbon Data		-		
Ranger		-		
Tex		-		
Hudi		-		
Click House		-		
IpTDB		-		
CDL		-		
As requested by purchaser				
	<b>Total</b>	<b>55</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-9**

**HOSTING CRITERIA**

<b>Criteria for Hosting</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
Secure Location	if (premises in Isl/Rwp =5 marks, else if location in major city (close by) =3, else= 0	5		
Physical security:	If (24/7 security with CCTV =5 marks, else if only 24/7 security =3, else= 0	5		
Cybersecurity	If (firewall and intrusion detection/prevention system =5, else= 0	5		
Remote Monitoring and Alerting	If (remote monitoring software provided on premise =5, else =0	5		
Secure Network Connection (Data encryption at rest and in transit)	If (AES-256 or better- =5, else if AES-128 (or better equivalent) =3, else =0	5		
Redundancy (tier2 or tier 3) data center	If (Tier 3 =10 marks, else Tier 2 =5	10		
Network Connectivity bandwidth (BW)	if (BW connectivity > 100Mbps = 5marks, else if 100Mbps > Bw connectivity < 50 Mbps =3, else =0	5		
Network latency to the application	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
Host experience /reputation (No of year in Data Centre Service)	If (host exp >10 years = 5marks, else if (10> host exp <3) =3, else =0	5		

Uptime Guarantee (UG) (Potential Downtime per Year)	if (UG >= 98% =5, else if (98%>UG<97%=3, Else =0	5		
Hosting on Concurrent-Site Maintainable Infrastructure	Mandatory	-		
One year hosting plan (Data Center) included	Mandatory	-		
Leverage On-Site NOC (ease of access to the data centre for maintenance or troubleshooting)	if (access available =5 marks, else=0	5		
	<b>Total</b>	<b>60</b>	<b>5</b>	<b>0</b>

**Annex “II”  
Form B-10**

**PEAK THEORETICAL THROUGHPUT**

to be calculated by the bidder	Value where applicable		
	A- Zone	H-Zone	Total
CPU performance (theoretical) in Tflops (fp64) (management node)			
CPU performance (theoretical) in Tflops (fp64) (Compute node)			
CPU performance (theoretical) in Tflops (fp64) (GPU node)			
GPU performance (theoretical) in Tflops (fp64)			
GPU performance (theoretical) in Tflops (fp32 tensor core) where applicable			
GPU performance (theoretical) in Tflops (fp64 tensor core) where applicable			
Application zone overall peak performance in Tflops (fp64)			
HPC zone (linpack or equivalent) peak performance in Tflops (fp64) actual benchmark			
Overall peak performance for entire setup (A, HPC & Data Zone) in (Tflops) Rmax			
A, HPC & Data Zone overall peak performance in (Tflops) actual benchmark			
Overall System measured Performance (measured) Energy Efficiency (GFlops/watts)			

**Annex “III”**

**BIDDER INFORMATION FORM**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid submission]*

No.: *[insert number of Bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each member: <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration: <i>[insert actual or intended country of registration]</i>
4. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
5. Bidder's Address in country of registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 3.4. <input type="checkbox"/> Establishing that the Bidder is not under the supervision of the Procuring Agency
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Annex “IV”**

**UNDERTAKING (Fill in and Return)**

**To**

**Project Director**

**GreenAI, NASTP**

**Rawalpindi**

**Dear Sir,**

I/We hereby submit our bid to supply to Project GreenAI NASTP **AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)** on turn-key basis and further agree that this bid will remain valid up to\_\_\_\_and will not be withdrawn or altered in terms of rates quoted and the condition stated therein on or before this date.

I/We understood the instructions to proposal (Technical and Financial) and condition of contract as laid down in IT form and thoroughly examine specification / drawing and / or patterns quoted in the Schedule to perposal and am/are fully aware to the nature of the stores required and my/our offer is to supply stores strictly in accordance with the requirements.

**Witness's Signature:**

**Name:**

**N.I.C No.**

**Address:**

**Date:**

**Date:**

**Tel: Telex/Fax**

**Signature of Bidder:**

**Name:**

**N.I.C No.**

**Capacity in which Signing:**

**Address:**



**Annex “V”**

**[ON RUPEES 200 STAMP PAPER]**

**CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT**

This Confidentiality and Non-Disclosure Agreement (herein referred to as this “**Agreement**”) is entered into on this \_\_\_\_ day of xxx, 2023

**BETWEEN**

**Project GreenAI, NASTP**, incorporated under the laws of Pakistan, having its registered office at Alpha Three, Old AirPort, Chaklala, Rawalpindi, Pakistan, herein referred to as “**PROJECT GREENAI**”, which expression shall, wherever the context so permits, mean and include its affiliates, subsidiaries, successors in interest and assigns of the **FIRST PART**.

**AND**

**M/s** \_\_\_\_\_, incorporated under the laws of Pakistan having its CUIN No \_\_\_\_\_, registered office at \_\_\_\_\_, having Incorporation number \_\_\_\_\_ herein referred to as “**Company**”, which expression shall, wherever the context so permits, mean and include its affiliates, subsidiaries, successors in interest and permitted assigns of the **SECOND PART**.

(PROJECT GREENAI and Company herein referred to individually as the “**Party**” and collectively as the “**Parties**”)

**WITNESSTH:**

**WHEREAS**, PD GreenAI is incorporated to, *inter alia*, develop a GreenAI NASTP (herein referred to as the “**Project**”) including the establishment of a National Aerospace Science and Technology Park (**NASTP**) therein.

**WHEREAS**, Company has intent to [\_\_\_\_\_].

**WHEREAS**, in order to protect its business interests, PROJECT GREENAI desires Company to assume and undertake certain obligations, including the preservation and protection of its Confidential Information (as defined below in Article 1.1(b)).

**WHEREAS**, Company is agreeable to protecting PD GreenAI’ Confidential Information.

**NOW THEREFORE**, the parties agree as follows:

## DEFINITIONS

The parties agree that the following definitions shall apply to this Agreement:

- (a) **“Business”** shall mean any and all aspects of the business being conducted, planned to be conducted or contemplated to be conducted by PROJECT GREEN AI, including but not limited to the development of the Project and the establishment of NASTP.
- (b) **“Confidential Information”** shall mean and include all information, knowledge and data, whether in a tangible or intangible form, or whether transmitted orally, electronically or in written form, concerning (i) business, financial or technical information, (ii) the business plans, strategic plans, operations, practices, concepts, ideas, research, techniques, methods, and procedures of PROJECT GREENAI, (iii) the know-how developed, used, and contemplated for use in connection with the Business, and (iv) such other information, in any form whatsoever, containing or otherwise reflecting information about PROJECT GREENAI, which PROJECT GREENAI treats as proprietary and confidential.
- (c) **“Authenticity”** The shared information must be treated as “confidential information” and falls in ambit of this agreement. It is strictly prohibited that shared data will be disclosed before third party without permission of PROJECT GREENAI
- (d) **“Representatives”** shall include a party’s shareholders, directors, officers, employees, agents, advisors and Company’s including legal counsel, accountants and financial advisors.
- (e) **“Transaction”** shall include a possible business relationship, contract, or transaction which may at some future date be entered into by the parties.

## NON-DISCLOSURE AND USE OF CONFIDENTIAL INFORMATION

1.1. Company acknowledges that the Confidential Information belongs to PROJECT GREENAI and has been obtained by PROJECT GREENAI at great cost and is of great value to PROJECT GREENAI. Company further acknowledges that it has or will become privy to the Confidential Information by virtue of this Agreement with PROJECT GREENAI.

1.2. For as long as Company is in possession of any Confidential Information, Company shall hold and maintain it in strict confidence, and shall not directly or indirectly use, divulge, furnish or make accessible to any person or entity not expressly authorized by PROJECT GREENAI to receive such information.

1.3. In the event Company or anyone on Company’s behalf are served with or subject to a legal demand, legal obligation, court order or request for disclosure of any Confidential Information, Company shall provide PROJECT GREENAI with notice as soon as practicable and use its best efforts to oppose and/or adjourn any such disclosure and to afford PROJECT GREENAI the opportunity to oppose such disclosure lawfully.

1.4. Company agrees that the terms of this Agreement are confidential and may not be disclosed to any third party other than its legal and financial advisors who shall in turn agree not to disclose the terms to any third party.

1.5. The fact that Confidential Information has been disclosed to a limited number of outsiders by PROJECT GREENAI shall not deprive the information, knowledge or data of its proprietary or confidential status.

1.6. Information exchanged by the parties prior to the commencement date shall be deemed to be Confidential Information and protected by this Agreement.

1.7. Company acknowledges that all the Confidential Information obtained by it or submitted or transmitted to it by PROJECT GREENAI in any form shall be held in trust by Company and utilized only for the purpose it is intended.

1.8. It is clearly understood and expressly agreed by Company that it will not copy or retain any Confidential Information and shall forthwith return the same to PROJECT GREENAI upon the expiry or termination of any business relationship between the parties. Company shall, however, continue to be bound by the non-disclosure obligations until the termination of this Agreement in accordance with its terms.

## **2. EXCEPTIONS**

2.1. The obligations with respect to handling and using Confidential Information as set forth in this Agreement are not applicable to information which is:

- (a) In the public domain or becomes common knowledge within the industry (other than through a violation or breach of this Agreement or violation or breach of any other obligation of confidentiality by any person or entity); or
- (b) Known to Company prior to disclosure by PROJECT GREENAI, as evidenced by competent written proof; or
- (c) Independently developed by Company without breach of this Agreement by Company; or
- (d) Obtained by Company from third parties who obtained such information (other than through a violation or breach of any agreement or other obligation of confidentiality); or
- (e) Disclosed as required by governmental decree, law or statute or judicial decree or order subject to the terms of this Agreement.

2.2. If Company intends to use, publish or otherwise disclose any Confidential Information in reliance upon paragraph 3.1(e) above, it shall:

- (a) Give prompt notice of such request to PROJECT GREENAI so that it may seek an appropriate protective order or other appropriate remedy; and
- (b) Cooperate with PROJECT GREENAI to obtain such protective order or other appropriate remedy.

## **3. PRIVACY AND DATA PROTECTION**

3.1. Both Parties shall comply fully with all applicable Pakistani laws and regulations regarding privacy and data protection, and without limiting the generality of the forgoing, each Party shall:

- (a) Obtain all necessary and required consents with respect to the collection, use and disclosure of personal information to be used by the other as contemplated hereunder.
- (b) Ensure that the transfers of personal information by one Party to the other arising from or pursuant to this Agreement will comply in all material respects with any applicable privacy and data protection legislation in Pakistan.
- (c) Identify a member of its management who shall be responsible for ensuring compliance with all data protection obligations under this Agreement.
- (d) Refer any third party who request access to Personal Information to the other Party, if applicable, and both Parties shall provide all reasonable assistance to the other to facilitate such requests.
- (e) Use appropriate security measures to protect the Personal Information in its custody.
- (f) In the event of a dispute between either Party and an individual or a relevant privacy commissioner concerning the collection, use or disclosure of Personal Information, which dispute is not amicably resolved, both parties agree to defend and advocate the lawfulness of the transfer of Personal Information to Company pursuant to this Agreement through available means of dispute resolution as provided for by applicable privacy legislation.

#### **4. NO OBLIGATION**

4.1. Neither party shall be required, by reason of the provision of the Confidential Information hereunder or otherwise by this Agreement:

- (a) To purchase or use any service or item supplied by the other party; or
- (b) To enter into any Transaction, contract or agreement with the other party; or
- (c) To deal exclusively with the other party in any manner.

#### **5. ENFORCEMENT AND REMEDIES**

5.1. Company acknowledges that any breach or violation (or threatened breach or violation) of this Agreement by Company or its Representatives would result in immediate and irreparable injury to Project GreenAI for which Project GreenAI will not have any adequate remedy at law. Project GreenAI shall be entitled, in addition to all other remedies, to a temporary and permanent injunction and/or decree for specific performance of the terms of this Agreement, without the necessity of showing any actual damages, posting a bond or furnishing other security.

5.2. Company agrees to take such reasonable actions as Project GreenAI considers necessary or desirable against any of Company Representatives in the event such Representatives breach (or threaten to breach) the provisions of this Agreement.

5.3. The right to take reasonable action is in addition to all other rights or recourses available to Project GreenAI by contract or at law, as a result of any breach or violation of this Agreement by Company or any of its Representatives.

5.4. In any action in which Project GreenAI obtains a preliminary or permanent injunction or any other relief, Project GreenAI shall be entitled to a judgment or award for reimbursement of its legal costs, including but not limited to reasonable attorneys' fees.

5.5. Company agrees to indemnify and hold Project GreenAI and its Representatives harmless from any damages, costs, expenses, loss or liability (including reasonable legal fees and the cost of enforcing this indemnity) arising out of or resulting from any unauthorized use or disclosure of the Confidential Information, or any other breach or violation of this Agreement by Company or its Representatives.

5.6. No failure or delay by either party in exercising any right, option, power, or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any other right, option, power or privilege.

## **6. ENTIRE AGREEMENT**

6.1. This Agreement represents the entire agreement between the parties respecting the subject matter hereof, and supersedes all prior agreements, understandings, discussions, negotiations, representations and correspondence made by or between them.

6.2. This Agreement may be amended, modified, waived or terminated only by way of a supplemental agreement signed by the parties.

6.3. All of the WHEREAS recitals set forth at the beginning of this Agreement are integral parts of this Agreement and are incorporated into this Agreement by reference.

6.4. The titles and headings of this Agreement and all sections of this Agreement are for purposes of convenience only, form no part of this Agreement, and shall not be used in interpreting this Agreement.

## **7. SEVERABILITY**

7.1. If any clause or provision of this Agreement, or portion thereof, shall be held by any court or other tribunal of competent jurisdiction to be illegal, invalid or unenforceable, the remainder of such clause or provision shall not be affected thereby and shall be given full effect, without regard to the invalid portion. It is the intention of the parties that, if any court or other tribunal of competent jurisdiction construes any clause or provision of this Agreement, or any portion thereof, to be illegal, invalid or unenforceable, such court or tribunal shall, only to the extent necessary to ensure the legality, validity, or enforceability thereof, either strike or delete such clause or provision or portion thereof or reduce the duration, area, or other aspect of such provision, and, in its reduced form, such provision shall then be enforceable and shall be enforced.

## **8. NOTICES**

8.1. Notices required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been properly given (i) on the day indicated on the corresponding acknowledgement of receipt if dispatched by registered mail, (ii) on the day indicated on the transmission record if transmitted by facsimile, (iii) on the date of actual delivery if delivered by hand, or (iv) on the day indicated on the corresponding acknowledgement of receipt if

dispatched by courier, if such notice is addressed to the party to whom it was sent at the address, or facsimile number, of such party set forth below or at such other address or facsimile number as the party shall subsequently designate to the other party by notice given in accordance with this provision:

**In respect of PD GreenAI:**

Name **Air Commodore Dr Tauseef Ur Rehman**

Designation: PD GreenAI

Address: Alpha-3, NASTP, Old Airport Road, Rawalpindi

Email: pd.tech@acp-nastp.gov.pk

Tel Number: +92-51-9529532

**In respect of Company :**

**M/s Name & Address of the company**

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Address:

Email:

Facsimile Number:

**9. GOVERNING LAW & JURISDICTION**

9.1. This Agreement shall be governed by the laws of the Islamic Republic of Pakistan and Courts of Rawalpindi have exclusive jurisdiction to adjudicate the matter.

**IN WITNESS WHEREOF** the parties have caused this Agreement to be executed by their respective representatives duly authorized in that behalf, as of the dates written below.

FOR PROJECT GREENAI	FOR COMPANY
	Name: Designation:
Sign:	Sign:

Witness 1	Witness 2
Name: Designation: CNIC:	Name: Designation: CNIC:
Sign:	Sign:

**Annex “VI”**

**CERTIFICATE FOR CORRECTNESS OF DATA/ DOCUMENTS/  
INFORMATION (Date:-----)**

It is certified that the data/ documents/ information submitted in our Proposal is absolutely correct to best of our knowledge and we accept full responsibility for its accuracy.

We understand that any false or incorrect data/ documents/ information may result in disqualification of our bid at any stage of procurement process.

Signature of Authorized Representative: \_\_\_\_\_

Name/Designation of Authorized Representative: \_\_\_\_\_

Designation of Authorized Representative: \_\_\_\_\_



**Annex "VII"**

**FORM OF BANK GUARANTEE FOR MOBILIZATION ADVANCE PAYMENT  
ON JUDICIAL STAMP PAPER OF Rs.100/- OR AS SUITABLE TO THE  
AMOUNT OF BG**

Guarantee No. \_\_\_\_\_  
Executed on \_\_\_\_\_  
Expiry date \_\_\_\_\_

WHEREAS the \_\_\_\_\_ (hereinafter  
called the Employer) has entered into a Contract for  
\_\_\_\_\_ (Particulars of Contract), with  
\_\_\_\_\_ (hereinafter called the Contractor).

AND WHEREAS the Employer has agreed to advance to the Contractor, at the Contractor's  
request, an amount of Rupees \_\_\_\_\_ (Rs.  
\_\_\_\_\_) which amount shall be advanced to the Contractor as per  
provisions of the Contract.

AND WHEREAS the Employer has asked the Contractor to furnish a Guarantee to secure  
advance payment for performance of his obligations under the said Contract.

AND WHEREAS \_\_\_\_\_ (Bank) (hereinafter  
called the Guarantor) at the request of the Contractor and in consideration of the Employer  
agreeing to make the above advance to the Contractor, has agreed to furnish the said  
Guarantee.

NOW THEREFORE the Guarantor hereby guarantees that the Contractor shall use the  
advance for the purpose of abovementioned Contract and if he fails, and commits default in  
fulfilment of any of his obligations for which the advance payment is made, the Guarantor  
shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, as  
aforesaid, on the part of the Contractor, shall be given by the Employer to the Guarantor,  
and on such first written demand payment shall be made by the Guarantor of all sums then  
due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall come into force as soon as the advance payment has been credited to  
the account of the Contractor.

This guarantee shall expire not later than \_\_\_\_\_  
by which date we must have received any claims by registered letter, telegram, telex or  
telefax. It is understood that you will return this Guarantee to us on expiry or after settlement  
of the total amount to be claimed hereunder.

\_\_\_\_\_  
Guarantor (Bank)

Witness:

\_\_\_\_\_  
\_\_\_\_\_  
Corporate Secretary (Seal)  
Title \_\_\_\_\_

Signature \_\_\_\_\_  
Name \_\_\_\_\_

Name, Title & Address

\_\_\_\_\_  
Corporate Guarantor (Seal)

**Annex "VIII"**

**PERFORMANCE GUARANTEE (ON JUDICIAL STAMP PAPER OF Rs.100/-  
OR AS SUITABLE TO THE AMOUNT OF BG)**

CONTRACT NO. \_\_\_\_\_ DATE \_\_\_\_\_  
 NAME OF FIRM/CONTRACTOR: \_\_\_\_\_  
 ADDRESS OF FIRM: \_\_\_\_\_  
 NAME OF GUARANTOR: \_\_\_\_\_  
 ADDRESS OF GUARANTOR: \_\_\_\_\_  
 AMOUNT OF GUARANTY in Rs. \_\_\_\_\_ (In Words) \_\_\_\_\_  
 DATE OF EXPIRY OF GUARANTY \_\_\_\_\_

To: Project Director GreenAI

Sir,

1. Whereas your good self have entered into Contract No. \_\_\_\_\_ dated \_\_\_\_\_ with Messer's \_\_\_\_\_ (FULL NAME AND ADDRESS) Hereinafter referred to as our customer and that one of the conditions of the contract is the submission of unconditional Bank Guaranty by our customer to your good-self for a sum of Rs. \_\_\_\_\_ Rupees \_\_\_\_\_

2. In compliance with this stipulation of the contract, we hereby agree and undertake as under:

(a) To pay to you unconditionally on demand and/or without any reference to our Customer an amount not exceeding the sum of Rs. \_\_\_\_\_ Rupees \_\_\_\_\_ as would be mentioned in your written Demand Notice.

(b) To keep this Guaranty in force till \_\_\_\_\_

(c) That the validity of this Bank Guaranty shall be kept Two clear Months ahead of the original / extended delivery period or the warrantee of the Agri verse Cloud which so ever is later in duration on receipt of information from our Customer i.e. M/s \_\_\_\_\_ or from your office. Our liability under this Bank Guaranty shall cease on the closing of banking hours on the last date of validity of this Bank Guaranty. Claim received thereafter shall not be entertained by us whether you suffer a

loss or not. On receipt of payment under this guaranty, this document i.e. Bank Guaranty must be clearly cancelled, discharged and returned to us.

(d) That we shall inform your office regarding termination of the validity of this Bank Guaranty one clear month before the actual expiry date of this Guaranty.

(e) That with the consent of our customer you may amend/alter any term/clause of the contract or add/delete any term/clause to/from this contract without making any reference to us. We do not reserve any right to receive any such amendment/alternation or addition/deletion provided such like actions do not increase our monetary liability under this Bank Guaranty which shall be limited only to

Rs\_\_\_\_\_ (Rupees\_\_\_\_\_)

(f) That the Bank Guaranty herein before given shall not be affected by any change in the constitution of the Bank or Customer/Supplier or Vendor.

(g) That this is an unconditional Bank Guaranty, which shall be encashed on sight on presentation without any reference to our Customer/Supplier or Vendor.

**GUARANTOR:**

**Dated:** \_\_\_\_\_

**BANK SEAL & SIGNATURE:**

**Annex "IX"**

**FINANCIAL PROPOSAL FORM**

1. Contract No \_\_\_\_\_
2. Time and date of Opening: Date \_\_\_\_\_ At \_\_\_\_\_ Hrs

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Item No	Item S No	Part No	Noun	Specs	UI	Qty	Unit Price	Total Price	GST % on Total Price (As applicable)	Total Price (incl GST) <u>9+10</u>

Inclusive Excluded: Excise Duty @ \_\_\_\_\_ %

Sales Tax @ \_\_\_\_\_ %

Surcharge @ \_\_\_\_\_ %

Any other Tax@: \_\_\_\_\_ %

Total Price: \_\_\_\_\_ (Rs in words) \_\_\_\_\_

No.	Itemized Financial Matrix	Reference
1a	Technical User Requirement - Application Zone	Appedix"A" to Annex "XIV"
1b	Technical User Requirement - High Performance Zone	Appedix"A" to Annex "XIV"
1c	Technical User Requirement - Data Zone	Appedix"A" to Annex "XIV"
1d	Technical User Requirement - Network	Appedix"A" to Annex "XIV"
2	Cloud orchestration Software	Appedix"B" to Annex "XIV"
3	Data Center Hosting	Form B-9 to Annex "II"

The above-mentioned Forms in Para no.2 should be filled for all the above-mentioned components separately

**Bid is valid upto** \_\_\_\_\_.

**Dated:-**

**(Signature of Bidder & Stamp)**

**Special Instructions**

1. Technical Specification mentioned at **Annex "XIV"** are reflected at appendix-I to this schedule must be studied carefully prior to filling in proposal.
2. Date by which stores are required (In case it is not possible for you to give delivery by given date please indicate date by which store can be delivered by the firm).

3. The price quoted must be net per accounting unit as shown in the schedule to proposal inclusive of sales Tax /Excise Duty/Surcharge (fix/variable taxes or any other relevant tax).
4. Prices will be mentioned for each item separately.
5. Only one rate quoted for entire qty will lead to rejection of offer.
6. Original quotations from the manufacturer /supplier must be attached in support of quoted price. A certificate from the principal will be endorsed on the original quotation to the effect that the prices do include %age of agent commission discount and do not include any such commission. And apart from this, there is no other element of agent's commission / discount included in the quotation. Only one rate will be quoted for entire qty item-wise.
7. In case of OEM products are offered, OEM part No and its interchangeability with demanded part No should be indicated and provided with the help of relevant catalogue/extract.
8. The prices will be indicated in US\$/EURO/UK£ (in case quoted prices are in different currencies then for the sake of comparison, these will be converted into Pak Currency at rate prevailing on opening day of commercial offers).
9. The bid sum as submitted and read out during financial bid opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity except that if the Bid is substantially responsive, the procuring agency shall handle only the undermentioned errors on the following basis:
  - (a) Bidders shall be notified of any correctable error detected in their bid during the notification of award.
  - (b) Any arithmetic errors in the submitted bid arising from a miscalculation of unit price, quantity, subtotal and total bid price shall be rectified on the following basis:
  - (c) If there is a discrepancy between words and figures, the lowest amount, either in words or figures, shall be considered.
  - (d) If there is discrepancy between the unit price and the total price which is obtained by multiplying the unit price and quantity, or between sub- total and the total price, the unit or sub-total price shall prevail, and the total price shall be corrected.
  - (e) In case of discrepancy between sub-total price obtained by adding various prices in the schedule and the sub-total price indicated for that particular schedule, the sub-total obtained by addition of various arithmetically corrected prices would be considered for evaluation.
  - (f) In case of any discrepancy in the applicable rates or calculation of applicable taxes discussed, agreed and added to the contract amount in separate lines, as needed, corrections in item and subtotal prices may be allowed as per applicable Govt. rates / rules.
10. The procuring agency shall be entitled to award the contract to the most advantageous bidder after applying permissible arithmetic / tax corrections in the bid proposal sheets. If the bidder does not accept the correction of the errors as above, his bid will be rejected.

**Special Note:** You may say Agreed to / not Agreed to conditions / clauses mentioned in these documents. In case of disagreement you may suggest option / alternative course for consideration by Procurement agency but it will not be binding on Project Director GREENAI to accept the same.

## Annex "X-A"

**BIDDER'S JV MEMBERS INFORMATION FORM**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture]].*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page\_\_\_\_\_of\_\_\_\_\_pages

1. Bidder's Name: <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i>
4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i>
5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i>
6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Annex “X-B”**

**POWER OF ATTORNEY**

**Power of Attorney to be provided by the Bidder / Lead Member in favour for its representative as evidence of authorized representative’s authority.**

Know all men by these presents, I \_\_\_\_\_ (name and address of the registered office of the Bidder or Lead Member of the consortium, as applicable) do hereby constitute, appoint and authorize Mr. / Ms. \_\_\_\_\_ (name and residential address) who is presently employed with us and holding the position of \_\_\_\_\_ as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid in response to the RFP dated \_\_\_\_\_ bearing reference no. \_\_\_\_\_ issued by Project GreenAI NASTP, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which Project GreenAI NASTP may require us to submit. The aforesaid attorney is further authorized for making representations to and providing information/ responses to Project GreenAI NASTP, representing us in all matters and generally dealing with GreenAI NASTP in all matters in connection with our Bid till the completion of the Bid process as per the terms of the RFP.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

**Signed by the within named \_\_\_\_\_ [Insert the name of the executant company] through the hand of Mr. \_\_\_\_\_ duly authorized by the Board to issue such Power of Attorney. Dated this \_\_\_\_\_ day of \_\_\_\_\_ Accepted**

\_\_\_\_\_  
Signature of Attorney (Name, Designation and Address of the Attorney)

**Attested**

**WITNESS:**

\_\_\_\_\_  
(Signature)

Name \_\_\_\_\_

Designation \_\_\_\_\_

\_\_\_\_\_  
(Signature)

Name \_\_\_\_\_

Designation \_\_\_\_\_

**Annex “XI”****SPECIAL INSTRUCTIONS**

Under mentioned information must be provided along with quotation else your quotation will be rejected: -

<b>S No</b>	<b>Description / Requirement</b>	<b>Remarks / Attached</b>
1.	Delivery Period	
2.	Quotation Validity Period	
3.	Country of Origin	
4.	Port of Shipment	
5.	Terms of Payment (As per Para 18 of IT)	
6.	Warranty / Guarantee period offered by Firm	
7.	Beneficiary Details (Completed address along with contact No)	
8.	Complete Bank address and Account Details For Payment / Letter of Credit	
9.	Previous Experience (Nature of Business and No of Years in Business)	
11.	Signing Authority (Name, Designation, Contact Details)	
12.	Address of local firm along with contact No, email etc	
13.	Manufacturer and Brand Name (If applicable)	



**Annex “XII”**

**FORMAT OF AFFIDAVIT / UNDERTAKING**

**Bidder must submit following undertaking (on stamp paper of Rs.100), failing which the bid shall be rejected:**

(a) I, Mr. .... S/o..... holding CNIC # ..... from M/s ..... Having Its business office at ....., do hereby solemnly affirm and declare as under;

(b) That M/s ..... is not engaged, under investigation or offences or no proceedings are pending before FBR, Customs, NAB, any Judicial form, FIA or any other Govt. authority with respect to fraud, terror financing, money laundering etc.

(c) We also confirm that our firm has not been black listed by any National/International organization or forum and is entitled to carry out its business activities to the standard business ethics.

(d) That the Partner(s) / Officers of M/s..... have not been subject to financial crime. Nor they every compounded with their creditors in any capacity.

(e) The above statement is true to the best of my knowledge and belief and nothing has been concealed or is false.

**Note:** In case any bidder is found in the list of “Blacklisted Firms-Pakistan” or related links at <https://www.ppra.org.pk/> then its bid shall be rejected

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Stamp: \_\_\_\_\_



**MINISTRY OF DEFENCE THROUGH THE PROJECT DIRECTOR OF ITS GREENAI  
PROJECT MANAGEMENT UNIT ("PROCURING AGENCY")**

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**REQUEST FOR PROPOSAL**

**NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP01/2024**

**FOR**

**ESTABLISHMENT OF "AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD  
FACILITY (PILOT PHASE)"**

**AS A COMPONENT OF PSDP APPROVED PROJECT TITLED "DEVELOPMENT OF ICT  
AND ARTIFICIAL INTELLIGENCE (AI) BASED PRECISION AGRICULTURE  
SYSTEMS UTILIZING DUAL-USE AEROSPACE TECHNOLOGIES - GREENAI"**

Issue Date: MARCH, 2024

1. Project GreenAI, National Aerospace Science & Technology Park, Rawalpindi invites sealed bids from authorized distributors/suppliers/ Data Centre Design & Development Firms, registered with Income Tax and Sales Tax Department, for **AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)** during financial year 2023-24 on "Turnkey Basis".
2. Bids prepared in accordance with instructions in the bidding document must reach at following address on or before **27 March, 2024 upto 11:00 AM**. Bids will be opened on same day **27 March, 2024 at 11:30 AM** in presence of bidders or their authorized representatives. The advertisement along with bidding document is also available on PPRA web address [www.ppra.org.pk](http://www.ppra.org.pk)

**Project Director**

GreenAI NASTP, Rawalpindi

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com)

[diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Date:- 12 March, 2024

## **ESTABLISHMENT OF AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”**

1. Participating bidders are required to submit bids according to instructions mentioned in bidding documents. These bids should meet the requirements / criteria illustrated in bidding documents along with fulfilment of other terms and conditions of contracts.
2. According to rule 31 of Public Procurement Rules, 2004 (“PPR 2004”) no bidder is allowed to alter or modify his bids after the bids have been opened. Moreover, as per rule 36 (b)(vi) of **PPR** 2004 states that no amendment in the technical proposal is permitted during technical evaluation. Therefore, in the light of prevailing Govt. procedures, requests for amendments in quotations and clarifications leading to change of substance of bid after opening of bids cannot be accepted and bids not conforming to contract requirements are liable to be rejected.
3. Participating bidders are therefore requested to read the bidding documents thoroughly and submit their proposals accordingly without any condition in conformance to all contract requirements including Advance Payment, Bid validity, provisioning of original proposals from foreign principal, Bank Guarantee confirmation etc., for consideration of bid. Bid found nonconforming to the requirements is liable to be rejected on opening date.
4. **Pre-bid Meeting.** To clarify any ambiguity / lack of understanding before submission of final bids, a meeting is planned for convenience of bidders on i.e. **21 March, 2024 at 11:00 AM** at NASTP address. Participating firms are requested to provide particulars of their reps on Ph. No. 051-9529532 / 03009884624 at least one (01) day prior to the opening date.



**Project Director**

GreenAI NASTP, Rawalpindi

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com)

[diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Date:- **12 March, 2024**

## **DISCLAIMER**

1. All information provided/ clarified in this Request for Proposal (RFP) is in the best interest and faith of the parties involved. This RFP is neither an agreement nor an offer/ invitation of agreement by the procuring agency to the prospective bidders or any other person. The purpose of this RFP is to provide interested parties with information that may be useful to them in the formulation of their proposals pursuant to this RFP. The information published in this document is not intended to be exhaustive. Though adequate care has been taken in the presentation of this RFP document, the assumptions, assessments, statements, and information contained in this RFP, may not be complete, accurate, adequate, or correct. Interested bidders shall, therefore, are required to make their own investigations and assumptions wherever required and satisfy themselves that the RFP document is complete in all respects. Intimation of discrepancy, if any, should be given to the specified office immediately. If no intimation is received by the office till the date mentioned in the document, it shall be deemed that the RFP document is complete in all respects and parties submitting their proposals are satisfied with respect to RFP document.

2. Information provided in this document or imparted to any respondent as part of RFP process is confidential to the procuring agency and shall not be used by the bidders for any other purpose(s), distributed to, or shared with any other person or organization.

## PLEASE READ CAREFULLY

1. Participating bidders are required to submit bids according to instructions mentioned in bidding documents. These bids should meet the requirements / criteria illustrated in bidding documents along with fulfilment of other terms and conditions of contract.
2. According to rule 31 of Public Procurement Rules, 2004 ("PPR 2004") no bidder is allowed to alter or modify his bids after the bids have been opened. Moreover, as per rule 36 (b)(vi) of PPR 2004 states that no amendment in the technical proposal is permitted during technical evaluation. Therefore, in the light of prevailing Govt. procedures, requests for amendments in quotations and clarifications leading to change of substance of bid after opening of bids cannot be accepted and bids not conforming to contract requirements are liable to be rejected.
3. Participating bidders are therefore requested to read the bidding documents thoroughly and submit their quotes accordingly without any condition in conformance to all contract requirements including Down Payment, Bid validity, provisioning of original quotation from foreign principal, Bank Guarantee confirmation etc., for consideration of bid. Bid found non-conforming to the requirements is liable to be rejected on the opening date.
4. **Participating firms are requested to provide particulars of their reps on Ph No 051-9529532 / 03009884624 at least 02 day prior to bid opening date.**

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**LIST OF PARTICULARS AND ANNEXURES**

<b>No</b>	<b>Title</b>
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5.	Financial year for the operations of the procuring agency
6.	Invitation of Bid
7.	Last Date & Time for Submission of Bid
8.	Bid Opening Date & Time
9.	Bid Opening Address
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12.	Execution of Contract
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14.	Pre-Bid Meeting
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16.	Bid Security
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22.	Restriction of Export / Import License
23.	Application of Official Secrets Act, 1923
24 -25	Quoting of Prices (DDP Price in PKR)
26.	Transportation
27.	Custom Clearance
28.	Rejection of Bid
29.	Bidder's Eligibility
30.	Date & Time for Receipt of bid
31.	Bid Opening

32.	Rights Reserved
33.	Payment Schedule
34.	Sequence of Quotation
35.	Warranty / Guarantee of Store
36.	Country of Origin and Mode of Shipment
37.	Bid Supporting Documents
38.	Performance Guarantee
39.	End User Certificate (EUC)
40.	Withdrawal of Offer
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42.	Authority to Sign Documents
43.	Prior Intimation Regarding Submission of Quotation
44.	Grievances Redressal Committee (GRC)
45.	Litigation.
46.	Bid of Joint Venture/Consortium
47.	Force Majeure
48.	Arbitration
49.	Risk Purchase
50.	Termination of contract
51.	Late Delivery
52.	Bid Discount
53.	Bidding Clarifications to contract
54.	Correction of Arithmetical Errors

## ANNEXURES

Annexure	Title
Annex "I"	RFP Forms (Form A)
Annex "II"	Evaluation Criteria (Form B)
Annex "III"	Bidder Information Form
Annex "IV"	Undertaking
Annex "V"	Non-disclosure agreement (NDA)
Annex "VI"	Certificate for correctness of data/ documents/ Information
Annex "VII"	Bank Guaranty for Mobilization Advance
Annex "VIII"	Performance Guarantee
Annex "IX"	Financial Proposal Form
Annex "X-A":	Bidder's JV Members Information Form
Annex "X-B"	Power of Attorney to be provided by Lead Member
Annex "XI"	Special Instructions
Annex "XII"	Format of Affidavit / Undertaking
Annex "XIII"	Draft Contract Agreement
Annex "XIV"	User Requirement Document (URD)



# INVITATION TO CONTRACT AND GENERAL INSTRUCTIONS TO BIDDERS (SINGLE STAGE TWO ENVELOPE BASIS) (DDP IN PAK RUPEES)

1. **Name of Procuring Agency:** Ministry of Defence through the Project Director of its GreenAI Project Management Unit.
2. **Bid Reference No.** NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP01/2024
3. **Delivery period.** Stores are required of within minimum possible delivery period but not later than **03 Months** after signing of the Letter of Acceptance by the supplier unless otherwise specified for any particular item(s). Offers with minimum delivery period are likely to be preferred. However, delivery period is to be factual as no extension will be subsequently granted except under unavoidable circumstances beyond control of BIDDER or under Force Majeure for which intimation with full justification / evidences is to be dispatched well in advance for consideration.
4. **Commencement Date for delivery of Goods.** signing of the Letter of Acceptance by the supplier
5. **Financial year for the operations of the procuring agency.** 2024-25
6. **Invitation of Bid** Project GreenAI NASTP, Alpha 03, Old Airport Road, Rawalpindi invites sealed bids from reputed firms for establishment of **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** on **“Turnkey Basis”** as per RFP.
7. **Last Date & Time for Submission of Bid.** **27 March, 2024 upto 11:00 AM**
8. **Bid Opening Date & Time.** **27 March, 2024 at 11:30 AM**
9. **Bid Opening Address.** Project GreenAI NASTP, Alpha 03, Old Airport Road, Rawalpindi Tel: +92-51-9529532 Email: **diritcgreenai@outlook.com, diragriverse@outlook.com.**
10. **Condition Governing Contracts.** The procuring agency may, at any time whether on its own initiative or in response to a clarification requested by a prospective bidder, amend the RFP. Any amendment in the RFP shall be issued in writing through addendum/corrigendum.
11. The “Contract” made as a result of this Inquiry shall mean the agreement entered into between the parties i.e. the “Purchaser” (Project GreenAI) and the “Bidder” (M/s -----) in accordance with the law of Contract Act, 1872 and those contained in purchase procedures and other special conditions that may be added to give contract for the supply of stores specified therein.
12. **Execution of Contract.** The successful bidder shall enter into a formal contract, as per the draft placed as **Annex “XIII”** with procuring agency on judicial stamp paper of value as prescribed by the relevant laws. The stamp duty cost etc. would be borne by the successful bidder.
13. **Procurement Procedure.** The bid shall comprise of five sealed separate envelopes. Each envelope shall contain separately the Technical Proposal (one (1) original and two (2) copies), Financial proposal (01 Envelop in original) and the Bid Security (01 Envelop). The envelopes should be clearly marked with “Technical Proposal”, “Financial Proposal” and “Bid

Security". In the first instance, only technical proposal will be opened and scrutinized. The financial proposal and bid security of only technically qualifying firms will be opened. The financial proposals and bid security of firms not meeting the required specifications/ criteria will be returned unopened.

(a) **Technical Proposal:** - It shall contain all relevant specifications along with essential literature / brochure in **duplicate** in a separate envelope and clearly marked "**Technical Proposal without prices**", contract number and date of opening. **Bid Security** shall be sealed in an envelope **separate** from technical and financial proposals clearly marked **Bid Security** and contract Number and will be received with technical proposal.

(b) **Financial Proposal:** It shall indicate prices quoted in figures as well as in words and clearly marked on face of a separate envelope "**Financial Proposal with prices**", along with the contract number (**Annex "IX"**).

(c) Both the "**Envelopes**" of Technical and Financial proposals should be enclosed in one cover, properly sealed and bear the address of **GreenAI NASTP** with contract number and opening date.

(d) The procuring agency reserves the right to verify the letters, documents or information provided by any bidder from issuing parties and may (together with its advisers) visit and hold meetings with them which shall be facilitated by the bidder. Furthermore, failure to provide the Financial Proposal in the form required under this RFP document may also result in disqualification of the Bid.

(e) **Forms** duly filled-in are to be returned with the offer duly signed by the authorized signatory person of bidding firm (**Annex "XI"**).

(f) **Single/Multiple Offers:** Only one proposal can be made in relevant currency (PKR) for same item. Multiple rates, if quoted, will be rejected. Multiple bids against the proposal will also be rejected.

14. **Pre-Bid Meeting.** A pre-bid meeting may be held before 7 days of final date of opening contract.

15. **Language.** The English text of the Contract shall be treated as the authentic text for all purposes including interpretation.

16. **Bid Security.** The amount of the bid security shall be in Pak Rupees. The bidders are required to deposit **Bid Security (refundable) equal to 2% of the total bid value including taxes** in the shape of **pay order, call deposit, bankers' cheque or demand draft** in favour of "**Project Director GreenAI**".

(a) Bid security shall be sealed in an envelope separate from Technical and Financial Proposals.

(b) Bids not accompanied by bid security of the required amount will not be entertained.

(c) Bid security of successful bidders will be released upon submission of **Performance Guarantee** at the time of signing of contract. In event of the successful bidder failing to execute the contract and to submit the performance bond/Guarantee in the period specified, the procuring agency shall be entitled to forfeit the bid bond of the abandoning bidder and may approach the bidder second in line for signing of the contract.

17. **Rights Reserved:** The procuring agency Project GreenAI NASTP reserves the right to accept or reject any proposal and to annul the procurement process and reject all bids or proposals at any time prior to acceptance of a bid or proposal as per rule 33 of PPR 2004 without thereby incurring any liability to the affected Bidder.

18. **Addition and Deletion of Scope of Work.** The procuring agency may increase or decrease the scope of work in accordance with the PPR 2004. Such information will be passed on to the supplier / bidder through the fastest means e.g. telegram or fax etc.

19. **Bid Validity Period.** The validity period of bids must be indicated and should invariably be **90 days** from the date of opening of bids. Within the original validity of the bids, the procuring agency may request the bidders to extend their bid validity for another period not exceeding the original bid validity (**Annex “IV”**). The bidder who chooses not to extend their bid validity as may be required by procuring agency; their bids will be deemed withdrawn and their bid bonds/Guarantee shall be returned.

20. **Technical Literature, Specifications and Interchangeability.** The bidders are required to submit (in triplicate) brochures and technical literature in original. Bids must conform to **User Requirement Document (URD) (Annex “XIV”)**. For any query regarding technical issues, firms may contact Tel: +92-51-9529532 Email: dritcgreenai@outlook.com, diragriverse@outlook.com.

21. **Deviation from Specifications.** In the event that AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) is found not conforming to the TSR will be rejected (**Annex “VI”**). Moreover, the successful bidder is responsible to replace the rejected items at its own cost as per delivery schedule laid down in the contract and the replacement will be provided without any additional cost.

22. **Restriction of Export / Import License.** Bids subject to restriction of Import/Export License will not be entertained.

23. **Application of Official Secrets Act, 1923.** All matters connected with this RFP and subsequent actions arising thereafter fall within the scope of the Pakistan Official Secrets Act, 1923 which forbids providing contractual information to un-authorized / un-concerned person / organization. It is therefore, requested to ensure complete secrecy regarding documents and stores concerned with the inquiry to limit the number of employees having accesses to this information (**Annex “V”**).

24. **Quoting of Prices: ‘DDP price in PKR inclusive of all taxes’** for Goods Manufactured Outside the Purchaser’s Country, to be Imported. Delivered Duty Paid (DDP) prices means that bidder assumes all of the responsibility, risk and costs associated with transporting goods until the purchaser receives the goods at specified locations. Prices are to be quoted on the format attached as.

- (a) **‘DDP price in PKR inclusive of all taxes’** for Goods Manufactured Outside Pakistan, already Imported and Goods Manufactured in Pakistan.
- (b) **‘DDP price in PKR inclusive of all taxes’** for related Services.
- (c) **‘DDP’ price of the stores (Line Item Wise) in Pak Rupees Only inclusive of all applicable taxes, duties, levies and charges.**
- (d) The prices must be stated for each item separately both in figures and words. Additional information if any must be linked with entries on the Schedule to proposal (Annex-IX)
- (e) The price shall be fixed.

(f) All items constituting AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) (Line Item Wise) **inclusive of all applicable taxes, duties, levies and charges** mentioned separately.

(g) The prices must be stated for each item separately both in figures and words. Additional information if any must be linked with entries on the Schedule to proposal.

25. Principal is to endorse following certificate on the original quotation: -

(a) Certified that AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE) offered are factory new and from latest production and prices quoted are not more than the international market prices and also not more than those being charged from other buyers”.

(b) Shelf / installation life of each item (if applicable) is to be mentioned separately.

(c) Certificate as per attached Annex “III” duly signed by the principal and agent must be attached with financial proposal.

26. **Transportation.** Equipment and supplies will be delivered up to the place of installation / final destination by the bidder at their cost including mode of transportation, loading / unloading.

27. **Custom Clearance.** Equipment and supplies will be cleared (from airport/seaport) customs department by the successful bidder and charges/duty/taxes if any will be paid by the successful bidder.

28. **Rejection of Bid.** Bids are liable to be rejected if:-

(a) There is a material deviation from any instruction described in this RFP.

(b) Proposals are found conditional or incomplete in any respect.

(c) Multiple bids against the proposal.

(d) Multiple rates are quoted against one item.

(e) Manufacturer relevant brochure is not attached (in case of equipment or major assemblies of equipment).

(f) Form-A-12 (Letter of Proposal) GreenAI NASTP duly filled in, printed on bidder's letter head and signed by the Bidders are not received with the bid.

(g) All Annexures are duly filled – in and signed by the Bidders are not received with the offer.

(h) Bids received later than appointed date and time.

(i) Bid is not conforming to the URD.

(j) Bids subject to restriction of Export License.

(k) Over writing / erasing in prices without initial.

(l) Change in prices by the supplier after opening of financial offers.

(m) Validity of bid is not quoted as required in IT or made subject to confirmation later.

(n) Bid Security is not provided.

(o) Bid is without certification of OEM.

- (p) If OEM and principal name, contact details (Ph No, Fax No, Email etc) and complete address is not mentioned.
- (q) Bid is with prior sale condition.
- (r) Partial quotation, received on non-turnkey basis.
- (s) The store will be supplied on supplier's warranty / guarantee with regard to quality and quantity and if found not confirming to specifications, the store will be liable to rejection.
- (t) Documentary Proof of brand to be supplied by the supplier.
- (u) The warranty period should be as per TSR.
- (v) Only OEM or OEM's authorized dealers are to quote. The dealer must provide manufacturer authorization letter (MAL).
- (w) The firm must have repair / maintenance support office at least at Islamabad / Rawalpindi, Lahore, Karachi & Peshawar.
- (x) In case of hard disk warranty, company will not claim Unserviceable hard disk, only Cage of Unserviceable hard disk may be returned on demand and media will be retained by PAF.
- (y) Documentation, media kit (USB/SSD/HDD) of software and drivers etc is to be provided as delivered by OEM.
- (z) The manufacturing date of hardware should not be beyond one year from date of delivery at the depot.
- (aa) Compliance sheet as per TSR must be submitted by the vendor.

29. **Bidder's Eligibility.** Bidders must fulfil all the requirements as per the eligibility criteria provided in these bidding documents. Otherwise, the bidders will be disqualified and their bids will not be considered for further evaluation.

30. **Date & Time for Receipt of Bid.** The bid must reach Project GreenAI by the date and time specified in **Para-7** above. Bids received after the prescribed date and time will, NOT be entertained. The appointed time will, however fall on next working day in case of closed/forced holiday. Telegraphed / Faxed / Telexed bids will be rejected unless specifically asked for. offer can also be sent through mail courier. However, to avoid misplacement of the quotations, all firms are required to intimate this office **via email [diragriverse@outlook.com](mailto:diragriverse@outlook.com)** regarding dispatch of their quotation through courier giving details of the courier through email, so that courier service may be tracked to ensure your participation in the competition. In case bid is dispatched by courier then same should reach Project GreenAI at least 01 day prior to bid opening date. Bidder or the representative may also attend the proceeding (Name / Designation of attendees" along with copy of CNIC will be required 01 working day prior to bid opening date for arranging their entry).

31. **Bid Opening.** Technical offer i.e. without prices will be opened on the date and time mentioned of RFP in the presence of bidders" representatives who choose to attend. The bidders" representatives who are present shall sign a bid opening register / form evidencing their attendance. However, time and date for opening of Commercial offers of all those firms whose technical offers are accepted will be intimated later. Commercial offers of firms, which are not technically accepted will be returned to the firms un-opened. No unauthorized person will be allowed to attend the financial bid opening other than technically qualified bidders.

32. **Rights Reserved.** Procuring agency reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to contract award as per rule 33 of PPRA 2004 without thereby incurring any liability to the affected Bidder. Moreover, past performance of the firms may also be considered.

33. **Payment Schedule.** The Payment Schedule is mentioned in Draft Contract as per following details: -

S. No	Milestone	Payment (As %age)
(a)	Mobilization Advance	Up to 20% of Total Contract amount after receipt of Bank Guarantee/CDR of the same amount of mobilization advance from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(b)	Detailed Specification and Design Documents	10% of total amount will be paid after completion, submission and acceptance of detailed specification and design documents against (CDR of 10%) of contract amount from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(c)	Delivery, Installation, Integration, Testing of Hardware, provisioning of licences and trainings	50% of Total contractual amount will be paid after Delivery, Installation, Integration, Testing of Hardware and operationalization & provisioning of licences and trainings. (80% of the total amount can be released)
(d)	Final Inspection & Completion	20% of Total amount will be paid after 02 months of operationalization and issuance of FINAL ACCEPTANCE CERTIFICATE from End User. (100% percent of the total amount to be released).

For payment of goods / services supplied / rendered following procedure will be adopted:-

- (a) Submission / Payment of Bills
- (b) No advance payments will be made
- (c) Payment for the supply of goods of the itemized amounts thereof, after deduction of the applicable taxes and duties, shall be made within thirty (30) days **with 15 days of grace period** by M/s Solid State Electronics (SSE), upon receipt of error free invoice from supplier. The invoice, in favour of “M/s Solid State Electronics, Rawalpindi” shall be submitted to the purchaser.
- (d) Firm is to present a Sales Tax invoice (where applicable) / numbered bill for the amount agreed upon for the goods / services provided.
- (e) Income Tax on the amount of bill will be deducted at source.

34. **Sequence of Quotation.** Quotation must be prepared in sequence according to the Proposal. (Annex “IX”)

35. **Warranty / Guarantee of Store.** Warranty / guarantee for a period of **one year** be applicable for stores commencing from acceptance of store at consignee.

36. **Country of Origin and Mode of Shipment.** Following details must be provided in offer / quotation and Performa invoice: -

(f) Country of origin, place of manufacture of store and beneficiary should be mentioned.

(g) Name of port where from the store will be shipped. Mode of shipment is to be by Air Sea and road. However, preference will be given to **by air shipment**.

37. **Bid Supporting Documents.** Following documents are required to be submitted with bid.

(a) Audited Bank Statements of last 3 years.

(b) Authenticated Certificate of Tier-1 Partnership from OEM.

(c) Photo copies of National Tax number (NTN) and Sales Tax registration certificate. Foreign firms are required to provide copy of the company's valid Tax Compliance certificate issued by Revenue Authority of the domiciled country, valid as at the bid closing date. Proof of appearance on Active tax payer list of FBR.

(d) Company Profile including proof of existence in particular business.

(e) Proof of Income Tax status in ATL is "Active" and GST status "Operative" issued by Tax Authorities.

(f) Any other document if required during procurement proceedings according to Rule 17 of PPRA rules 2004.

(g) Firm/Supplier name, complete address, contact numbers, and email addresses.

(h) An affidavit on judicial stamp paper that the Firm / Company has never been in litigation/blacklisted by any Ministry / Division / Department of the Government / Semi government / Autonomous body of Federal Government of Pakistan or by any procuring agency in the past (**Annex XII**).

(i) List of major clients and references (complete with names of contact persons, address and telephone numbers) of which the company has supplied similar items in the last 05 years. Number of years in the business or dealing in similar items shall also be mentioned.

(j) In case of foreign supplier photocopy of resident card, passport or equivalent identification card of person signing the bid is to be provided along with 02 passport size photographs.

38. **Performance Guarantee.** The successful bidder shall provide a Performance Guarantee in the prescribed Form annexed to this document at the time of signing of contract or within fourteen (14) days after the receipt of Letter of Acceptance in favour of "PD GreenAI, NASTP (Private) Limited" whichever is earlier. The Performance Guarantee shall be of an amount equal to **ten percent (10%)** of the Contract Price in the currency of the Contract, in the form of unconditional and irrevocable Bank Guarantee (**Annex "VIII"**) from any Scheduled Bank in Pakistan. The validity of Performance Guarantee shall be kept Two clear Months ahead of the original / extended delivery period or the warranty of the Agriverse Cloud which so ever is later in duration.

39. **End User Certificate (EUC):** EUC if required at any stage may be mentioned in the quotation.

40. **Withdrawal of Offer:** If the firm withdraws its offer or backs out from providing items won by the firm within validity period at any stage of contract finalization, Project GreenAI NASTP may place such bidder under embargo for a period of six months, which may extend upto one year along with forfeiture of the Bid Security.
41. **Maximum Time of Completion of Project.** The maximum time to complete the work is 12 months from signing of contract.
42. **Authority to Sign Documents.** Bid must be accompanied by Letter of Authorization to sign the bid on behalf of the Bidder. Bidder must prove that the person who signs this bid is fully authorized to bind his establishment / company. Such proof shall be in the form of clear official documents fully legalized by designated authorities in respective countries.
43. **Prior Intimation Regarding Submission of Bid.** To avoid misplacement of the bids, all bidders are required to intimate this office regarding dispatch of their quotation through courier giving details of the courier through telephone / fax/email, so that courier service may be tracked to ensure your participation in the competition.
44. **Grievances Redressal Committee (GRC).**
- (a) After submission of bid and prior to award of the contract, any bidder feeling aggrieved by any act of GreenAI NASTP may lodge a written complaint concerning his/her grievances to GRC constituted under Rule 48 of PPR 2004 within 07 days of announcement of the technical evaluation report and 05 days after issuance of final evaluation report.
  - (b) GRC will immediately initiate the investigative action and decide the complaint within ten days of its receipt. The decision of GRC shall be intimated to the complainant / aggrieved bidder. The decision of the GRC shall be binding upon all the parties.
45. **Litigation.** In case of any dispute only Court of Jurisdiction at Islamabad Pakistan will have the Jurisdiction to decide the matter.
46. **Bid of Joint Venture/Consortium:** The Bid submitted by a partnership/ joint venture/ consortium comprising of two or more organizations/ companies/ entities shall comply with the requirements given below:
- (a) The Bidder's legal status, in case of partnership, joint venture or consortium, shall remain locked-in during the entire procurement/operationalization process including successfully achieving AGRIVERSE: PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE), in case declared successful.
  - (b) The partnership, joint venture or consortium shall nominate one (01) of the members as lead member and this authorization shall be evidenced by submitting a power of attorney signed by each member itself or its legally authorized signatory(ies). The power of attorney shall be certified by Notary Public and shall be in the format specified in Annex "X-A" to be issued by the lead member and in the format specified in Annex "X-B" to be issued by other members.
  - (c) The lead member shall be authorized to incur liabilities (if any) and receive instructions for and on behalf of any and all members of the partnership, joint venture or consortium during the procurement process.
  - (d) All members of the partnership, joint venture or consortium shall be liable jointly and severally for performance of the Contract and fulfilling the obligations stipulated therein.



(e) The successful Bidder shall at the time of execution of the Contract furnish an executed copy of joint venture agreement to PD GreenAI, NASTP.

(f) Joint Venture /Consortium shall be registered in accordance with applicable rules/regulations.

47. **Force Majeure.** “Force Majeure” means an exceptional event or circumstance, which is beyond a Party’s control; which such Party could not reasonably have provided against before entering into the Contract; which, having arisen, such Party could not reasonably have avoided or overcome; and, which is not substantially attributable to the other Party.

(a) The Supplier shall, within fifteen (15) days of its commencement, notify the Purchaser of any such event, act or circumstance which is relied upon by the Supplier for its inability to comply with its obligation. The Purchaser shall have the right to conduct investigations to satisfy itself about the genuineness of the “Force Majeure” event, act or circumstance. Non-availability of raw material for the manufacture of the Goods or export permit for the export of the Goods from the country of its origin shall not constitute “Force Majeure.”

(b) If by reason of “Force Majeure” the Goods are not delivered by the due date, then the Delivery Period may be extended appropriately for the purpose, provided the said Goods shall be ready to be delivered within one (1) month of the stipulated delivery date. If the said Goods are not ready to be delivered after the lapse of one (1) month as aforementioned, then the Purchaser shall have the right to cancel the Contract by informing the Supplier of the cancellation in writing. This, however, will not apply to consignments of Goods already accepted and delivered according to the terms of the Contract. The Supplier shall not be entitled to any compensation whatsoever as a result of this cancellation.

48. **Arbitration.** All matters of dispute or difference, except regarding rejection of stores / Services by the inspector and or cancellation of the contract by the Purchaser arising out of this contract between the parties hereto, shall be settled by mutual agreement, failing which they shall refer for Arbitration to a final settlement by an Arbitration Tribunal, in Pakistan.

(a) The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party, who before entering upon the reference shall appoint an umpire by mutual agreement, and if they do not agree a judge of the Superior Court of Pakistan will be requested to appoint the umpire. The arbitration proceedings shall be held in Pakistan and under Pakistan Law & Arbitration Act, 1940. Arbitration award will be firmed and final and un- challengeable in any court of law.

49. **Risk Purchase.** In the event of failure on the part of the Bidder to comply with the contractual obligations, the contract is liable to be cancelled at his risk and expense in accordance with General Condition Governing Contracts.

50. **Termination of Contract.** If at any time during the currency of the Contract, the Purchaser decides to terminate the Contract for any reason whatsoever (other than for reason of failure to Deliver the Goods), it shall have the right to do so by giving the Supplier a notice to that effect. In that event, the Purchaser will accept delivery, at the itemized price and terms, of such of the Goods then in the actual possession of the Purchaser.

- (a) In the case of remainder of the undelivered Goods, the Purchaser may select either:
  - (i) To have any part thereof completed and take the delivery thereof at the itemized prices, or
  - (ii) To cancel the residue and pay to the Supplier for the Goods or components thereof in the actual possession of Supplier at the prices to be determined by the Purchaser in which case Goods in the possession of Supplier shall be delivered by the Supplier.
- (b) No payment shall, however, be made for any Goods not yet in the actual possession of Supplier on the date notice of termination is received.
- (c) GreenAI may by written notice sent to Contractor and Offshore Supplier terminate the Agreement in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for GreenAI, NASTP convenience, the extent to which performance of Work under the Agreement is terminated, and the date upon which such termination becomes effective.

51. **Late Delivery.** The Supplier shall deliver the Goods to the Purchaser within the time frame specified in the Contract. If failure to deliver the Goods within the specified time frame, shall not have arisen because of "Force Majeure", the Purchaser shall be entitled at its option:

- (a) To cancel the Contract and forfeit the Performance Guarantee; or
- (b) To withhold any payment due to the Supplier until all the Goods have been Delivered and directly deduct or recover, where considered necessary, as liquidated damages the sum up to 2% but not less than 1% of the itemized prices of the un-Delivered Goods for each and every month, or part thereof thereafter, beyond the specified dates of Delivery during which these may not be delivered, subject to a maximum of 10% of the total Contract Price of the Goods; or
- (c) To repurchase from elsewhere, at the risk and expense of the Supplier, other goods of the same or similar description as it thinks fit to make good this default to the extent necessary, by cancelling the Contract, either wholly or for the un-Delivered balance and with or without intimation to the Supplier who shall be liable for any loss which the Purchaser may sustain due to repurchase but shall not be entitled to any gain on repurchase.
- (d) The Goods shall be deemed to have been delivered when repurchased Goods are delivered to the Purchaser.
- (e) In the event of the contractor refusing to carry out the work, or leaving incomplete, at any time or after the commencement of work, the contractor shall pay as compensation an amount equal to, ten percent or such smaller amount as PD GreenAI NASTP(whose decision in writing shall be final) may decide, on the amount of the estimated cost of the whole work as shown in the BOQ, by notice in writing, rescind the contract in which case the whole of the security deposit of the supplier (whether paid in one sum or deducted by instalments) shall stand forfeited and be

absolutely at disposal of Project GreenAI and the same consequences shall ensure as if the contract has been rescinded under clause 37 hereof.

52. **Bid Discount.** There will be no Bid Discount

53. **Bidding Clarifications to Proposal.** In Case any clarification is required regarding proposal, firm may contact on following address however, queries in regards to the proposal shall only be entertained till one week prior to the deadline for submission of bids.

Technical Clarification : 0333-4231634

Bidding / Contracting Procedure : 0321-9400527

54. **Correction of Arithmetical Errors.** Provided that the bid is substantially responsive, the Employer shall correct arithmetical errors on the following basis:

(a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

55. Bidders shall be requested to accept correction of arithmetical errors. Failure to accept the correction, shall result in the rejection of the Bid.

Yours sincerely,



**Project Director**  
GreenAI NASTP, Rawalpindi  
Email: diritcgreenai@outlook.com,  
diragriverse@outlook.com

Date:- 12 March, 2024

**Annex “XIV”  
(URD-01)**

**TECHNICAL USER REQUIREMENTS FOR PROVISIONING OF  
“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY  
(PILOT PHASE)”**

**Introduction**

1. The objective of this User Requirements Document URD is to clearly specify the overall architectural concept and related technical requirements pertaining to key components of **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** and its delivery to the procuring agency on TURNKEY basis. It is expected that bidders will utilize the given information to come up with a comprehensive design of said cloud facility based on their respective supply chains along with a well thought plan to operationalize it (including deployment within a 3<sup>rd</sup> party datacentre facility for one year).
2. TURNKEY in the context of this RFP means fully integrated and operational Agriverse: National Precision Agriculture Cloud Facility consisting of following three components: -
  - (a) **Cloud Hardware Solution.** The core of the requirements is centred around design and provisioning of complete cloud hardware.
  - (b) **Cloud Orchestration Software.** Another critical requirement is the deployment of various software elements that enable core cloud orchestration layer for multiple users as well as 3rd party cloud-native applications to be run on the Agriverse Cloud. OpenStack and its related ecosystem of open source modules / software is the preferred choice for cost effective and functional demonstration of cloud.
  - (c) **Data Center Hosting:** The entire solution is to be deployed in a Tier-3 (Ready/Certified) data centre facility, minimizing setup and management complexities. One year hosting plan to be included as part of financial proposal. (Purchasing agency reserves the right to select an alternate data center hosting facility).
3. This document describes the technical requirements of the NATIONAL PRECISION AGRICULTURE CLOUD FACILITY. The document is structured such that the bidder is aware of the complete set of requirements which include allied services, equipment, systems, integration, configuration, processes, post installation work and subsequent operating support. This documentation will be carried over to the implementation agreements as well. No deviation in specification given in this document will be accepted.
4. **Documentation.** The cloud solution provider should furnish comprehensive documentation, organized in the following sections:-
  - (a) **Proposal Document:** This should outline the bidder's understanding of our requirements, proposed solution, implementation approach, timeline, and cost breakdown. It should also include details on the team's expertise and relevant experience.
  - (b) **Statement of Work (SOW):** A detailed document specifying the scope of work, deliverables, milestones, acceptance criteria, and any assumptions or constraints. It provides a clear understanding of what will be delivered and when.
  - (c) **Executive Summary:** A concise overview highlighting the solution's key features, benefits, and outcomes.

- (d) **Technical Architecture Design\*:** This document should describe the proposed architecture (Architecture Diagram, Network Diagram, Data Flow Diagram, etc) for the cloud equipment and cloud software deployment, including.
  - (i) **Hardware Specifications:** Description of hardware components, including types, capacities, and performance guarantees.
  - (ii) **Storage Documentation:** Details on storage types, configuration performance characteristics, capacity, and scalability.
  - (iii) Power, Energy efficiency and peak throughput (theoretical) Worksheets
- (e) **Cloud Orchestration Documentation:** Details on cloud solution layer, including components, services, and functional and non-functional capabilities specified as per Appendix "B".
- (f) **Installation and Configuration Plan (deployment Guide):** A step-by-step plan detailing how the bidder intends to install and configure the cloud equipment and cloud software, including any customizations, additions or integrations required.
- (g) **Testing and Validation Plan\*:** Documentation outlining the bidder's approach to testing the OpenStack or equivalent deployment to ensure it meets requirements (See Appendix "A") and performs as expected. This may include functional testing, performance testing, and security testing.
- (h) **Support and Maintenance Plan\*:** The bidder provides documented support offerings, including response times, escalation procedures, updates and patches workflow, and ongoing maintenance services. Documentation relevant to the level of support (SLA) is included and any additional costs associated with ongoing maintenance.
- (i) **Training Materials\*:** Upon completion of the installation and configuration the bidder is to provide training materials and training relevant to Cloud equipment and also training against Cloud software that will be provided to a team of 2 to 3 people (Local/international should be mentioned). This should include user manuals, administration guides, and any custom documentation specific to the proposed solution.

## Introduction

### AGRIVERSE: A National Precision Agriculture Cloud Platform (Pilot Phase)

1. We're developing Agriverse, a national cloud platform specifically designed for precision agriculture. Initially launching as a pilot project, Agriverse aims to create a comprehensive ecosystem of computational services. (Note: the Agriverse application is being developed internally and is not a part of this RFP). This ecosystem will encompass several key components:

- (a) **Geographic Information System (GIS) Framework:** A user-friendly platform for visualizing and analyzing agricultural data overlaid on geographical maps.
- (b) **High-Performance Computing (HPC) Services:** Powerful computing resources dedicated to accelerating AI and machine learning workloads related to agriculture.
- (c) **Data Lake:** A vast repository for storing and managing a diverse range of agricultural data, primarily collected from imaging sensors.

2. The Agriverse cloud infrastructure will act as the foundation for these services. It will not only support Agriverse's own software applications but also provide open interfaces and APIs (Application Programming Interfaces) for external developers and collaborators. This openness will foster innovation and collaboration within the agricultural technology space. See (Fig T-01) below for a conceptual overview of the Agriverse Ecosystem.

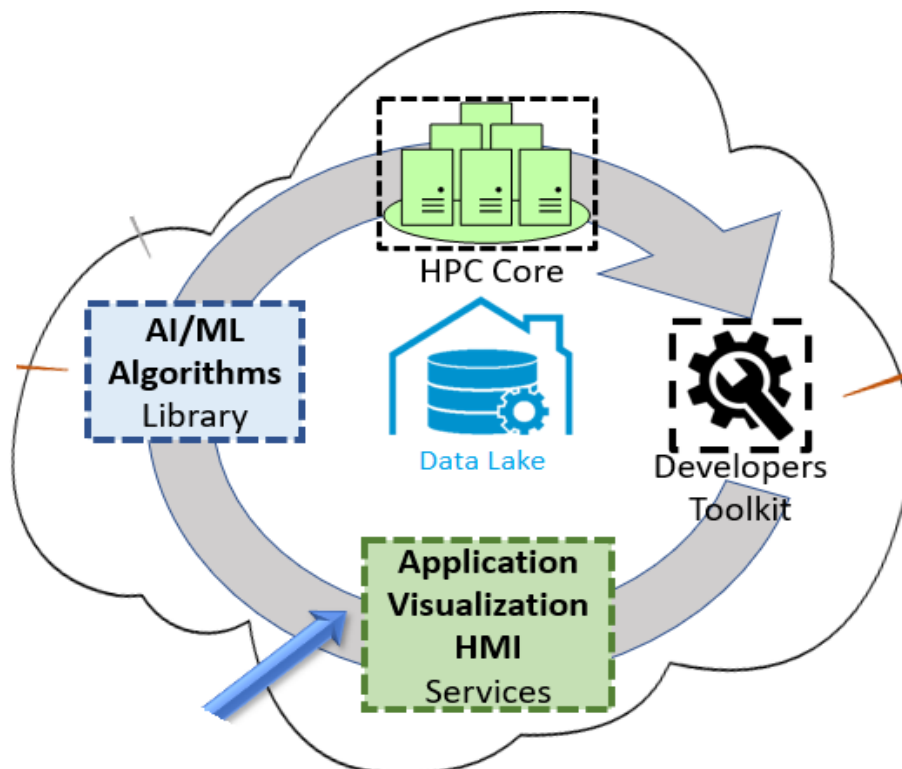


Fig T-01

3. The Agriverse Cloud hardware is conceptually segmented into three zones as shown in Fig T-02. Each zone is to be designed with a specific set of tasks, to be executed within it and as envisioned in the Agriverse ecosystem architecture, further elaborated below:-

- (a) Application (A) Zone

- (b) High Performance Computing (H) Zone
- (c) Data (D) Zone

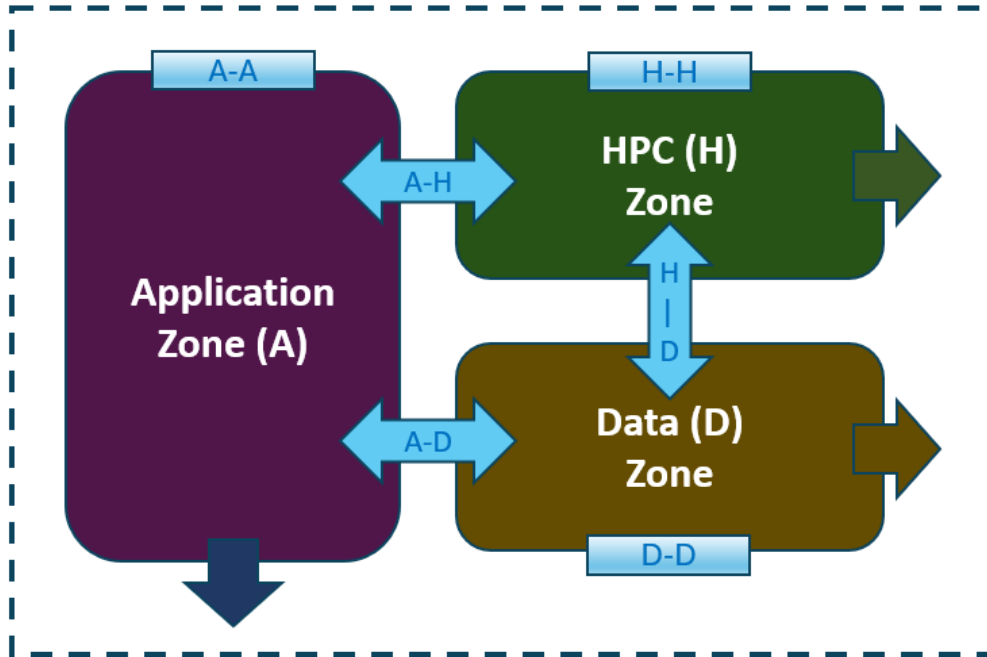


Fig T-02

4. In order to give the bidders clarity with regards to the functional components and their scale within each zone in terms of high level design requirements as shown in the following figure (Figure T-03).

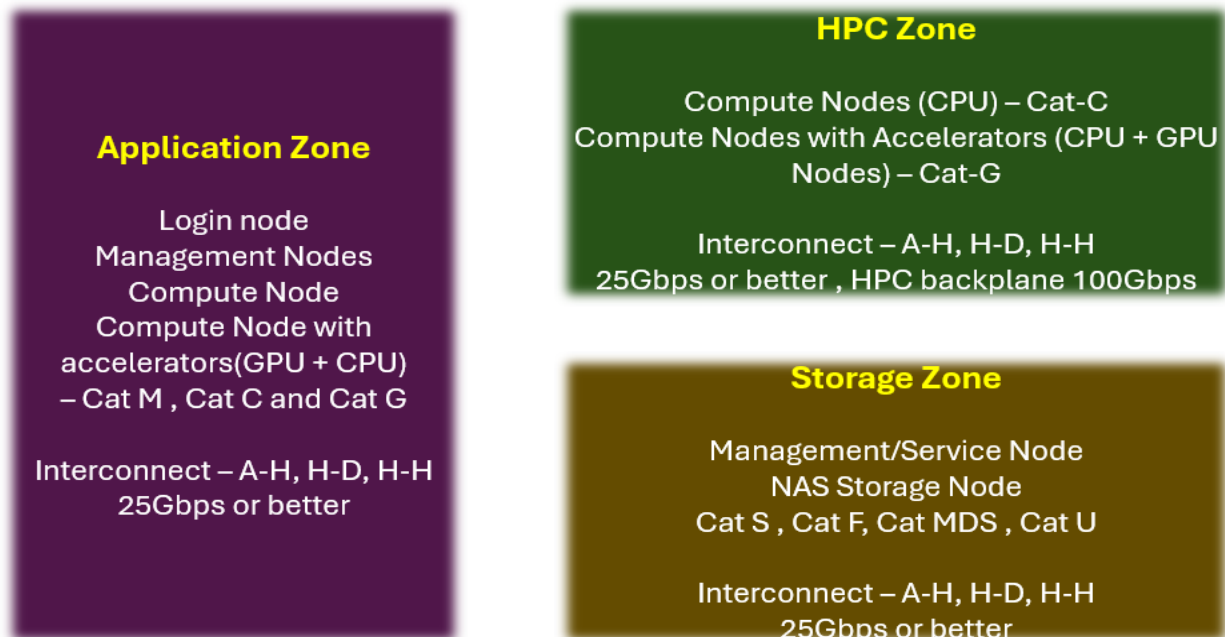


Fig T-03

5. While this RFP focuses on deploying the system at a single site (marked in red on Figure T-04), the winning solution should be designed with scalability in mind. This

scalability applies to both individual growth within each of the three zones (Data Lake, HPC, GIS) and future replication across multiple sites nationwide.

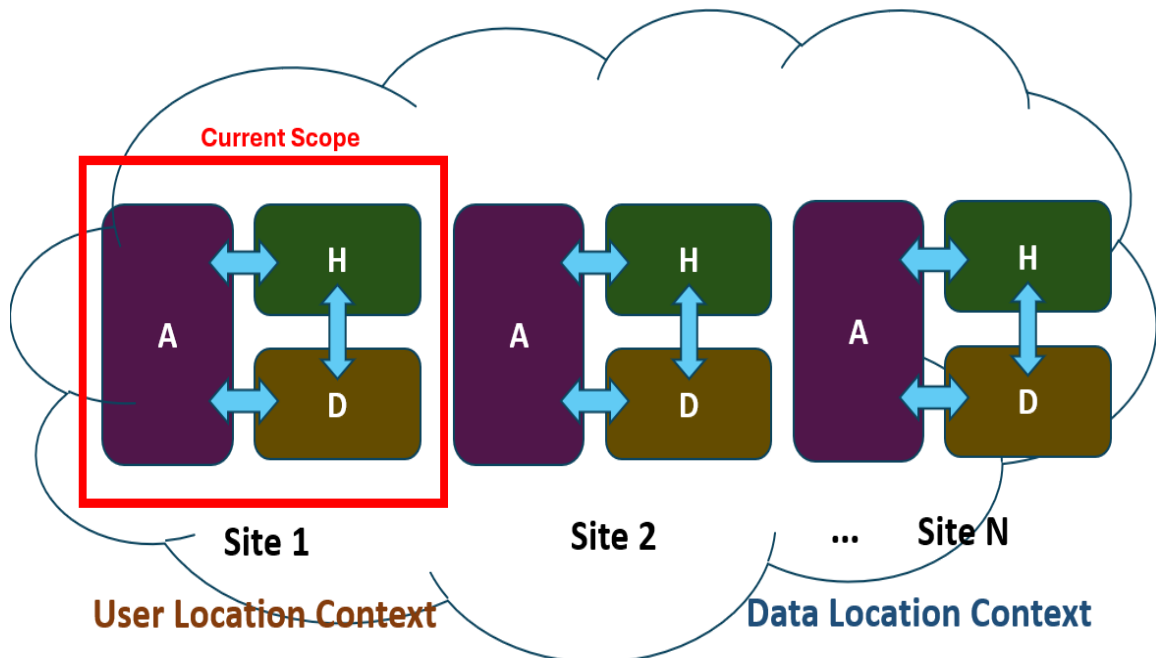


Fig T-04

6. There are several reasons for considering a multi-site deployment, such as disaster recovery (DR) and addressing user and data localization performance limitations (as shown in the following figure). Therefore, bidders are encouraged to propose architectures that can scale efficiently to accommodate these future needs.

## Technical Requirements

1. The Procuring Agency aims to obtain a comprehensive proposal for the setup of the “AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)” on turnkey basis from the bidding teams in the form of a detailed designs of all the three sub-zones identified above, namely Application, HPC and Data Zones. In order to clarify the scope of each zone, this document provides key information to help you prepare your bid for the proposal. The requirements have been further divided into Sizing Information, Network & Interconnects, Cloud Orchestration Software and Performance Benchmarks for the solution.

- (a) **Sizing Information:** This document outlines the scale of computational resources needed, including various node configurations for your reference.
- (b) **Network Design:** The document specifies network design requirements within and between zones under the "Network" section for each zone.
- (c) **Performance Benchmarks:** Benchmarks are provided to indicate the expected performance of each zone.
- (d) **Cloud Orchestration:** This section below details the cloud orchestration layer to be included in the turnkey solution.

2. To meet our requirements.

- (a) We encourage the bidder to leverage resources and components offered by your Original Equipment Manufacturers (OEMs).



(b) This document's specifications form the basis for the technical evaluation criteria in Appendix "A". It will be used to compare technical proposals and designs.

(c) The bidders may request any further clarifications before the Pre-bid Meeting.

3. **Application (A) Zone Requirements.** The application zone is the core zone of the cloud facility focused on serving as the point-of-entry for all end users accessing services of Agriverse. The zone, in addition to providing user access control and login functionalities, would be hosting the graphical user interface (GUI) application with dashboards for all Agriverse services. Fundamentally, the zone is to provide a GIS framework for display and manipulation of agriculture data in the form of 2D & 3D map overlays. The zone is to also include some computational capacity for regular map manipulation and some data pre-processing functions. These requirements are further elaborated below: -

(a) **Sizing Information.** The following information is being provided to serve as a reference for bidders to assess the capacity and capability of the Application Zone in terms of compute, memory and storage aspects (For details on various category nodes mentioned below refer to **Appendix "A"**):-

(i) Qty 03 x Management Nodes (**Category "M"**)

- For High-Availability (HA) OpenStack, Kubernetes or equivalent cloud software deployment.
- Is used to manage entire cloud.

(ii) Qty 06 x Compute Nodes (**Category "C"**)

- Will host application services.
- Focus on geographically annotated multispectral image processing.
- Focus on memory intensive applications.

(b) **Network & Interconnect Requirements** (A-D, A-H, A-A) Gbps:

(i) 25, 25, 25 or "better" (A-D, A-H, A-A)

(ii) "Better" is considered to be next best performance level i.e.  $\geq 40$  Gbps

(c) **Benchmarks:** Geek benchmark (Single/multicore), linpack/SpecHPC, iperf3, iozone/ IO benchmark

4. **High Performance Computing (H) Zone Requirements.** The purpose of H-zone is to provide large scale computational services as an HPC sub-cloud within the Agriverse framework, primarily focused on AI/ML models development. This zone will contain all the necessary services and third-party libraries relevant to implementing an ML Ops pipeline. Through a job scheduler the H-zone shall allocate computational resources for the development and training of AI/ML Models through processing of large amounts of data and any other large scale image processing algorithms. The H-zone needs to be supplemented with Graphic Processing Units (GPUs) to support high performance demands of AI/ML and image processing compute loads. In general, it is special consideration needs to be given to per watt performance being delivered from proposed configuration i.e. maximum

(a) **Sizing Information:** The following information is being provided to serve as a reference for bidders to assess the capacity and capability of the High Performance Computing Zone in terms of compute along with GPU-based acceleration, memory and

storage aspects (For details on various category nodes mentioned below refer to **Appendix “A”**):-

- (i) Qty-04 x Compute Nodes with Accelerator **Category ‘G’** (CPU + GPU)
  - Focus on AI/ML model training GPU workload
  - Focus on multicore image processing
  - Focus on memory intensive applications.
  - Tensor Ops for AI/ML Model based inference and training applications. (Single & Double Precision and Tensors Ops throughput (measured in Teraflops))
  - For hardware *specification please See Cat “G”*
- (b) **Network & Interconnect Requirements (A-H, H-D, H-H) Gbps:**
  - (i) 25, 100, 100 or better (A-H, H-D, H-H)
  - (ii) InfiniBand or “Better” (Better is considered to be next best performance level i.e.  $\geq 40$  Gbps for 25 Gbps interconnect or similar  $\geq 200$  Gbps for 100 Gbps interconnect).
- (c) Benchmarks. Linpack /SpecHPC, STREAM (Tensorflow), iperf3, iotzone/ IO benchmark

5. **Data (D) Zone Requirements.** The D-Zone aims to implement a highly scalable cloud-based Datalake service of Agriverse Cloud ecosystem for all structured and un-structured agriculture data. The Scalable data repository’s intended purpose is to archive, store, retrieve and disseminate time-series agriculture related data for Agriverse users. D-zone is required to be designed with high data throughput requirements of both GIS & Mapping requirements of A-zone and training data requirements of H-zone. This may be catered in the design using and appropriate mode of data storage i.e Unified, block, object, archival etc. Further details to serve as reference for design of this zone are given below.

- (a) **Sizing Information** (For details on various category nodes mentioned below refer to **Appendix “A”**):
  - (i) Qty-02 x Management (Data) **Category “MDS”**
    - For processing and storage of metadata
  - (ii) Qty-02 x Storage node, (SSD storage ...) **Category “S”**
    - Store for Object / block data for further processing
  - (iii) Qty-04 x Fast Storage, **Category “F”**
    - Focus on large files with fast random access to parts of it
  - (iv) Qty-02 x Storage (Unified/object storage. etc) **Category “U”**
    - The archival data store component that may store and/or further provide data on different tier as required for processing
- (b) **General Guidelines:** for all storage types,
  - (i) Capability for object, block storage and parallel file system
    - Support NFS v4.1+
    - Support Object storage with HTTP GET and Range request support

(c) **Network Requirements (D-A, D-H, BP) Gbps:**

(ii) 25, 100 , 25 or better (D-A, D-H, BP)

(iii) The current design of the Agriverse (Precision Agriculture) HPC cloud features 25 Gbps connectivity between the previously identified zones. This connectivity can be **scaled upwards to the next best standard, such as 40 Gbps**

(d) **Benchmarks:** Bonnie++, iozone/ IO benchmark ,iperf3

6. **Cloud Orchestration Software Requirements.** The system should leverage OpenStack or similar cloud stack software. The infrastructure should be built using a software-defined architecture (SDA), enabling its deployment as Infrastructure as a Service (IaaS). Additionally, container orchestration (like Kubernetes with Docker) will be implemented on top of the core cloud infrastructure, along with their necessary configuration. The cloud solution shall use free and open-source Linux based OS (e.g. Ubuntu). The cloud solution must support high performance bare metal containers for running AI/ML training and inference workload on H-Zone compute resources. The cloud network layer must support high performance low latency network. This integration could be built around as individual server consisting of Cat “MDS”, “S”, “F”, “U” or it could be built with combination of unified and block storage catering to the storage needs specified vide in the Appendix “A”. For detailed functional and non-functional requirement see Appendix “B”.

7. **Perpetual and Permanent License Requirement**

See Clause 38 of Draft Contract (Annex “XIII”)

**Appendix “A”**  
**To Annex “XIV” of URD-01**

**REFERENCE CATEGORY HARDWARE SPECIFICATIONS**

Hardware Category	Purpose	Specification	Qty
<b>Application Zone Nodes</b>			
<b>Cat 'M'</b>	Management	<ul style="list-style-type: none"> <li>-Dual processor series (32 cores or more per processor (or equivalent) Latest generation processors)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>Preferred minimum 2.6Ghz per core clock (better is preferred)</li> <li>RAM = 256 Gb DDR 5 ECC (and upgradable)</li> <li>-2*480GB SSD and 5 x 960GB SSD (with Hotspare). Or, 6*960 SSD (with hotspare) (Enterprise level Storage)</li> <li>-RAID Controller (12 Gb/s SAS, 6Gb/s SAS/ SATA, PCIe 3, RAID Levels 0,1,5,6,10,50,60)</li> <li>-Drives are hot swappable</li> <li>-At least two(2) 25Gbps ports and two(2) (10Gbps or 25Gbps as design demand) ports network Connectivity</li> <li>-devices support Link aggregation (LAG)</li> <li>-NVIDIA GPU supported</li> <li>-PCIe SSD Supported</li> <li>-External storage connectivity to proposed storage (provide connectivity to Storage to be used as external storage)</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency power supply (N+N)</li> </ul>	3
<b>Cat 'C'</b>	Compute Node (CPU) Parallel Processing	<ul style="list-style-type: none"> <li>-Dual processor series (60 cores or more per processor (or equivalent) latest generation)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>-Minimum 2.6 Ghz per core clock (better is preferred)</li> <li>-RAM = 512 GB DDR 5 ECC (and upgradable)</li> <li>-High speed internal enterprise Storage SSD/ NVME (with raid capability Levels 0,1,5,6,10,50,60)</li> <li>-prefer storage capacity 4 TB (usable) with hot spare</li> <li>-Enterprise level Storage</li> <li>-Drives are hot swappable.</li> <li>-At least two(2) 25Gbps ports and two(2) 25Gbps (or better) ports network Connectivity</li> <li>-Devices support Link aggregation (LAG)</li> <li>-CUDA supported.</li> <li>-PCIe SSD Supported</li> <li>-infiniband or equivalent</li> <li>- External connectivity to proposed storage (provide connectivity to Storage to be used as external storage)</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency power supply (N+N)</li> </ul>	6

HPC Zone Components / Nodes			
Cat 'G'	Parallel Processing with accelerator (CPU + GPU)	<p>CUDA supported (either option 1 and option 2)</p> <ul style="list-style-type: none"> <li>-NVIDIA HGX H100 - H100 SXM4 80GB GPU Assembly or equivalent /better</li> <li>-Option 1) 4 server with four GPU per server</li> <li>-Option 2) 8 server with two GPU per server (option 2)</li> <li>-Dual processor series (30 cores or more per processor or better)</li> <li>-multicore processors with hardware-assisted virtualization extensions</li> <li>-Minimum preferred 2.6 Ghz per core clock (better is preferred)</li> <li>-RAM = Minimum 256 Gb DDR 5 ECC (and upgradable)</li> <li>-High speed internal enterprise Storage qty 4 (or more)* SSD/ NVME (with raid capability) with preferred 8TB (Usable) ( or different combination may be allowed for Separate OS and High processing storage drive )</li> <li>-Drives are hot swappable.</li> <li>-At least two(2) 25Gbps ports and ideally 100Gbps (backplane) or equivalent ports network Connectivity</li> <li>-devices support Link aggregation (LAG)</li> <li>-External Storage Connectivity to proposed storage</li> <li>-Cloud ready / compatible</li> <li>-Redundant High Efficiency Power Supply (N+N)</li> <li>-Internal storage scalable</li> <li>-infiniband or equivalent</li> </ul>	4 or 8
Data Zone Components / Nodes			
Storage (High Performance Computing Storage ) (Cat "MDS" , Cat "S" , Cat "F" , Cat "U" )	Generalize requirements for all Storage related servers	<p><b>Generalized requirements for all storage related equipment be it Individualized storage server (Cat "MDS", Cat "S", Cat "F", Cat "U") Or Multi-tier (unified) or equivalent/better storage solution)</b></p> <p><b>Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.</b></p> <p>Redis Compatible</p> <ul style="list-style-type: none"> <li>-Processor configuration if required should be similar to Cat M or better. Capability for Object, block storage and parallel file system.</li> <li>-in case RAM Latency: 40ns or less</li> <li>High throughput Raid Controllers and hotspare drive capability.</li> <li>Cloud ready / compatible</li> <li>Data ware house/lake ready</li> <li>-Modules such as "redis", "swift", "Cinder","Ceph" and "elastic search" integration capability</li> <li>-Hosts that provide Block Storage volumes must have Logical Volume Manager (LVM) support</li> <li>-Redundant High Efficiency Power Supply (N+N).</li> <li>-Storage Connectivity minimum 25GBPS (depend on Vendor Solution along with -Storage (25Gbps or better)</li> <li>-Preferable features (Thin provision supported, -Replication storage deduplication and compression capability</li> <li>-Drives are hot swappable.</li> <li>-Switches / connecting devices support Link aggregation (LAG) where applicable</li> </ul>	
Cat "MDS"	Management of Storages	<ul style="list-style-type: none"> <li>-Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.</li> <li>-NVME SSD mixed use ideally 30 TB or more (with hotspare)</li> </ul>	2

<b>Cat “S”</b>	HDD Storage	-SAS SSD 12 TB (Usable) (or more) SAS SSD (Usable) high-speed enterprise (or SSD/NVME) -SAS SSD capability to add more drives (for approximately 10 TB to be added later)	2
<b>Cat “F”</b>	Fast Storage	-NVME 50 TB (Usable) or more (with hotspare) NVME capability to add more drives (for approximately 10 TB to be added later)	4
<b>Cat “U”</b>	Storage	Expansion bay/housing provided for future expansion upto 1 PB (500 TB preloaded +500TB expansion) or more storage. 500 TB archival (NLSAS) or higher Option for SAS SSD based storage i.e HPCS Data Deduplication	2
<b>Network Components</b>			
<b>Network Cat 'Core' , Cat 'RoCE' , Cat 'Access', Cat 'Distribution' , Firewall, Router</b>	Networking	The internal networking Router/switch for connectivity between A, H & D Zones. (25Gbps or better)  Cabling for mention equipment connectivity  Switches / connecting devices support Link aggregation (LAG) and use the same protocol	
<b>Cat 'Core'</b>	Core Switch	48 port 25 Gbps per node (all interface) (core Switch) Qty 2 or equivalent	2
<b>Cat 'Access'</b>	Network interconnect for management, application, storage, HPC	48 port 25 Gbps per node (all interface) Qty 4 or more dependent on solution	4
<b>Cat 'RoCE'</b>	High Speed Backplane	100 Gbps switch for HPC backplane preferably Infiniband or RoCE or equivalent (more if required by designed)	1
<b>Cat 'Distribution'</b>	management	management switch 48 port 10 Gbps per node (all interface) qty2	2
<b>Firewall</b>	Firewall	Fortigate 1101 series or equivalent with support	2
<b>Router</b>	Router	Cisco ISR 8300 or equivalent with support	2
<b>clock</b>	Rack mounted clock	Meinberg LANTIME NTP Server or equivalent	1

**Appendix “B”**  
**To Annex “XIV” of URD-01**

<b>CLOUD ORCHESTRATION -FUNCTIONAL REQUIREMENT</b>			
	Examples	Mandator y	Remarks
Managed HA Onprem Cloud Platform	OpenStack	Yes	
Managed HA Kubernetes	OpenStack Magnum	Yes	
Compute nodes with GPU support	OpenStack Nova	Yes	
Managed Postgres Database with HA Active-Active support	OpenStack Trove	Yes	Must be HA Active-Active configured
Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	Yes	Must be HA Active-Active configured
Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	Yes	Must be HA Active-Active configured
Load Balancers	OpenStack Octavia	Yes	
Autoscaling for nodes, clusters, and containers	OpenStack Heat	Yes	
Container image storage	OpenStack Glance	Yes	
Container image signing and automatic verification	Cosign	Yes	
FaaS support	Qinling, OpenFaaS	No	
Network accessible storage with NFSv4 and RWX support	OpenStack Manila	Yes	Must be fault tolerant and PB scalable

Object storage with HTTP range request support	Minio, OpenStack Swift	Yes	Must be fault tolerant and PB scalable
Encryption at rest for storage	OpenStack Cinder + Key encryption	Yes	
Internal network level encryption	TLS 1.3 Enabled	Yes	
Private and secure Git managed repository with CI/CD support	GitLab	Yes	
Dashboard for administration with RBAC support	OpenStack Horizon	Yes	
Administration APIs for future integration and automation			
Replication and disaster recovery support		No	backup VMs, storage, container, etc
<b>Non Functional Requirements</b>			
GPU Passthrough			
Infiniband or similar HPC Network Supported			
No single point of failure			
Nodes/hardware could be added or removed by our Admin team (scalability)			
Must be well-integrated and well-tested			
Should not rely on internet for usage, configuration, and setup			



**Annex “I”**

**RFP FORMS**

<b>Form A-1</b>	Bidder's General Data Information Form
<b>Form A-2</b>	Financial Soundness
<b>Form A-3</b>	Summary of similar nature projects completed in last 5 years
<b>Form A-4</b>	Details of similar nature projects completed in last 5 years
<b>Form A-5</b>	Summary of similar nature projects in hand
<b>Form A-6</b>	Details of similar nature projects in hand
<b>Form A-7</b>	Summary of Data Centre Consultancy & resident supervision projects in last 5 years
<b>Form A-8</b>	Personnel capabilities in various specialties
<b>Form A-9</b>	Candidate Summary
<b>Form A-10</b>	Format of Curriculum Vitae (CV) For Proposed Key
<b>Form A-11</b>	Litigation History
<b>Form A-12</b>	Letter of Proposal

**Annex “I”  
Form “A-1”**

**BIDDERS’ GENERAL DATA**

[Name of Department/Entity]

**Assignment:**

**Project: Date:**

**INFORMATION FORM**

1. Name of bidder
  - (a) Address
  - (b) Telephone
  - (c) Fax Number
  - (d) E-mail address
  - (e) Registration No. with PEC
  - (f) Registration No. with SECP
  - (g) Description of bidder firm (ownership/organization)
  - (h) Experience (Number of Years)
    - (i) Local / National
    - (j) International
    - (k) Regional (within the country-details)
  - (l) Experience of the Bidders (on appended forms) during the past 10 years:
    - (m) Specific
    - (n) General
2. **Organization chart showing Bidder’s structure.**
  - (a) Capital of Bidder (Financial Statements for the last three (03) years).
  - (b) Subsidiaries and associates.
  - (c) Annual fees in the last five years in current index.
  - (d) Financial reference [ name/address of bank(s)]
3. **Professional staff available for the assignment on the appended format.**
  - (a) Additional information.

Yours truly,

Name of Authorized Representative

Position:

Date:

**Annex “I”  
Form “A-2”**

**FINANCIAL SOUNDNESS**

Name of Bidder: \_\_\_\_\_

Applicant participating for bid is required to provide financial information to demonstrate that they meet the requirements of Evaluation Criteria. Use separate sheets to provide complete information. A copy of the audited financial statements of the past three (3) financial years must be attached.

Year	Turnover (in Actual Currency)	Rupees in Million
2019 — 2020		
2020 — 2021		
2021 — 2022		
2022 __ 2023		
Average of above		

**Annex "I"**  
**Form "A-3"**

**SUMMARY OF SIMILAR NATURE PROJECT COMPLETED  
IN LAST FIVE (05) YEARS**

Name of Bidder: \_\_\_\_\_

Applicant applying for prequalification is required to complete the information in this form.

<b>Project Name</b>	<b>Year of Completion</b>	<b>Location</b>	<b>Value in PKR (Million)</b>

Note: "Each project provided in this form requires a corresponding Form A-4 and adequate documentary evidence in order to be eligible for consideration.

**Annex “I”  
Form “A-4”**

**DETAILS OF SIMILAR NATURE PROJECTS COMPLETED  
IN LAST FIVE (05) YEARS**

Name of Bidder: \_\_\_\_\_

A separate form with adequate documentary evidence (Completion Certificate / Contract Agreement indicating Consultancy Cost) shall be provided for each project in Form B-4.

1.	Name of Contract	
	Location	
2.	Name of Employer	
3.	Employer Address	
4.	Nature of Works and special features of the consultancy Assignment	
5.	Contract Role (Tick One)	
	Sole Bidder	
	Sub- Bidder	
6.	Total Project Cost	PKR _____
7.	Value of the total Consultancy contract	PKR..... USD.....
8.	Date of Award	
9.	Date of Completion	

**Annex “I”  
Form “A-5”**

**SUMMARY OF SIMILAR NATURE PROJECT IN HAND**

Name of Bidder

Applicant applying for prequalification is required to complete information in this form.

<b>Project Name</b>	<b>Date of Award</b>	<b>Expected Date of completion</b>	<b>Location</b>	<b>Value in PKR (Million)</b>

Note: Each project provided in this form requires a corresponding **Form A-6** and adequate documentary evidence in order to be eligible for consideration.

**Annex “I”  
Form “A-6”**

**DETAILS OF SIMILAR NATURE PROJECTS IN HAND**

Name of Bidder:

A separate form with adequate documentary evidence (Letter of Award / Agreement indicating Consultancy Cost) shall be provided for each project in Form A-6.

1.	Name of Contract
	Location
2.	Name of Employer
3.	Employer Address
4.	Nature of Works and special features of the consultancy Assignment
5.	Contractor Role (Tick One) (a) Sole Bidder      (b) Sub- Bidder      (c) Member in a
6.	Total Project Cost PKR _____
7.	Value of the total contract PKR.....
8.	Date of Award
9.	Planned Date of Completion

**Annex “I”  
Form “A-7”**

## SUMMARY OF CLOUD DATA HPC HOISTING CONSULTANCY & RESIDENT SUPERVISION PROJECTS IN LAST 5 YEARS

Name of Bidder:

A separate form with adequate documentary evidence (Letter of Award / Agreement indicating Consultancy Cost) shall be provided for each project in Form B-6.

1.	Name of Contract
	Location
2.	Name of Employer
3.	Employer Address
4.	Nature of Works and special features of the consultancy Assignment
5.	Contractor Role (Tick One) (a) Sole Bidder      (b) Sub- Bidder                  (c) Member in a
6.	Total Project Cost                                  PKR _____
7.	Value of the total contract                                  PKR.....
8.	Date of Award
9.	Planned Date of Completion



**Annex “I”  
Form “A-8”**

**PERSONNEL CAPABILITIES IN VARIOUS SPECIALTIES**

Name of Bidder: \_\_\_\_\_

1	Title of Position	
	Name of Candidate	
2	Title of Position	
	Name of Candidate	
3	Title of Position	
	Name of Candidate	
4	Title of Position	
	Name of Candidate	
5	Title of Position	
	Name of Candidate	

Note: A corresponding **Form A-10** and **Form A-11** be filled in for each person in order to be eligible for consideration.

From	To	Company	Project	Position	Relevant Technical & Management Experience

## CANDIDATE SUMMARY

Name of Bidder: \_\_\_\_\_

Position	Candidate		
Candidate Information	Name of Candidate		Date of Birth
	Professional Qualification:		
PEC / EPI Registration No.	Attach copy of PEC / EPI certificate		
Present Employer	Name of Employer:		
	Address of Employer		
	Telephone:		Fax:
	Job Title of Candidate		Years with Present Employer

Summarize professional experience in reverse chronological order.

**Annex “I”  
Form “A-10”**

**FORMAT OF CURRICULUM VITAE (CV) FOR PROPOSED KEY STAFF**

Proposed Position: \_\_\_\_\_

Name of Firm: \_\_\_\_\_

Name of Staff: \_\_\_\_\_

Profession: \_\_\_\_\_

Date of Birth: \_\_\_\_\_

Years with Firm: \_\_\_\_\_

Nationality: \_\_\_\_\_

Membership in Professional Societies: \_\_\_\_\_ (Membership of PEC is Mandatory)

Detailed Tasks Assigned on the Project: \_\_\_\_\_

Key Qualifications: [Give an outline of staff member’s experience and training most pertinent to tasks on assignment. Describe degree of responsibility held by staff member on relevant previous assignments and give dates and locations. Use up to one page].

Education: [Summarize college/university and other specialized education of staff member, giving names of institutions, dates attended and degrees obtained.]

Employment Record: [Starting with present position, list in reverse order every employment held. List all positions held by staff member since graduation, giving dates, names of employing organizations, title of positions held and location of assignments. For experience in last ten years, also give types of activities performed and client references, where appropriate.

Languages: [Indicate proficiency in speaking, reading and writing of each language: excellent, good, fair, or poor].

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, these bio-data correctly describe myself, my qualifications and my experience.

\_\_\_\_\_  
Signature of Staff Member

Date: \_\_\_\_\_  
Day/Month/Year

\_\_\_\_\_  
Authorized official from the firm

**Annex “I”  
Form “A-11”**

**LITIGATION HISTORY**

Name of Applicant

Applicants, shall provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution. Details must be provided related to (a) year and matter in dispute, (b) value of award if awarded against the applicant and (c) award as a percentage of net worth of applicant.

<b>Year</b>	<b>Award FOR or AGAINST Applicant</b>	<b>Name of client, cause of litigation, and matter in dispute</b>	<b>Disputed amount (current value Pak Rs. or equivalent)</b>	<b>As percentage of net worth</b>

**Annex “I”  
Form “A-12”**

**LETTER OF PROPOSAL**

*[Letterhead paper of the Applicant including full postal address, telephone no., fax no., e-mail address etc.]*

Date:

To:

Project Director GreenAI

NASTP, Rawalpindi

Tel: +92-051-9529541

Email: [diritcgreenai@outlook.com](mailto:diritcgreenai@outlook.com), [diragriverse@outlook.com](mailto:diragriverse@outlook.com)

Sir,

1. Reference is made to the GreenAI NASTP contract Enquiry No. \_\_\_\_\_.
2. Being duly authorized to represent and act on behalf of ..... (hereinafter “the Bidder”), and having reviewed and fully understood all the bidding information provided, the undersigned hereby apply as a bidder for the ... ..... and below under the "AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)", for PSDP funded PROJECT GREENAI OF NATIONAL AEROSPACE SCIENCE AND TECHNOLOGY PARK (NASTP)"
3. Attached to this letter are copies of original documents defining:
  - (a) The Bidder’s legal status;
  - (b) The principal place of business;
  - (c) The place of incorporation;
  - (d) Copy of valid registration certificate with PEC and SECP; and
  - (e) Duly filled-in Proposal Forms along with required supporting documents.
4. Your agency and its authorized representatives are hereby authorized to conduct security clearance of the Bidder, its directors, shareholders, affiliates sub-contractors and personnel, raise any inquiries or investigations to verify the statements, documents, and information submitted in connection with this Proposal, and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Letter of Proposal will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves or the authorized representative to verify statements and information provided in this Proposal, or with regard to the resources, experience, and competence of the Applicant.
5. Your Agency and its authorized representatives may contact the following persons for further information, if needed.

General and Managerial Inquiries	
Contact 1	Tel:

Contact 2	Tel:
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Technical Inquiries	
Contact 1	Tel:
Contact 2	Tel:

Financial Inquiries	
Contact 1	Tel:
Contact 2	Tel:

6. This Proposal is made with the full understanding that:
- (a) Bids will be subject to verification of all information submitted for Request for Proposal at the time of bidding;
  - (b) Your Agency reserves the right to:
    - (i) amend the scope and value of any Contract under this project; and
    - (ii) reject or accept all Proposal, cancel the procurement process, and reject all bids.
  - (c) Your Agency shall not be liable for any such actions and shall be under no obligation to inform the bidders of the grounds for actions at 5(b) hereinabove.
  - (d) Your Agency shall not be liable for consequence of, and shall be under no obligation to inform the bidder of the grounds for, actions taken under para 5(b) hereinabove.
7. We agree to abide by this Bid for a period of 90 days after the date fixed for technical proposal opening, or as extended, as per instructions given in RFP and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
8. The undersigned declare that the statements made and the information provided in the duly completed Proposal are complete, true, and correct in every detail.

Signed  
Name  
For and on behalf of Bidder

**Annex “II”**

**EVALUATION CRITERIA FORM B**

<b>Form B</b>	Evaluation Criteria
<b>Form B-1</b>	Company Profile
<b>Form B-2 (a)</b>	Bidder’s Experience (Cloud Application)
<b>Form B-2 (b)</b>	Bidder’s Experience (HPC)
<b>Form B-2 (c)</b>	Bidder’s Experience (Data Lake)
<b>Form B-3 (a)</b>	Quality of Bidder’s (HR) expertise (Application/Cloud)
<b>Form B-3 (b)</b>	Quality of Bidder’s (HR) expertise (HPC)
<b>Form B-3 (c)</b>	Quality of Bidder’s Expertise Data Lake (HR)
<b>Form B-4</b>	Application Zone (Cat "M" & Cat "C)
<b>Form B-5</b>	High Performance Computing Zone (Cat "G")
<b>Form B-6</b>	Data zone (Cat “MDS” , Cat “S” , Cat “F” , Cat “U”)-
<b>Form B-7</b>	Network – criteria
<b>Form B-8</b>	Cloud software requirements
<b>Form B-9</b>	Hosting criteria
<b>Form B-10</b>	Work Sheet

**Annex “II”  
Form B**

**EVALUATION CRITERIA**

1. The evaluation committee appointed by the GreenAI NASTP shall carry out its evaluation, applying the evaluation criteria and point system specified hereunder:
2. Provide documentary evidences to conform the following
3. **Mandatory Requirements**
  - (a) Registration with Pakistan Engineering Council (PEC);
  - (b) SECP Incorporation Certificate;
  - (c) Active Tax Payer’s List with FBR and Sales Tax Department
  - (d) Non-Blacklisting with any Government department/ agencies/ authorities. An affidavit of “Non-blacklisting” of authorized signatory on judicial stamp paper to the effect that the firm has never been black-listed.
  - (e) Participating bidder must have expertise in Computing, HPC, Cloud, Enterprise Storage Solutions, Data Centres, Networking, Switching, Security etc. so that all components should be integrated by single vendor.
  - (f) Participating bidder must have consultancy design experience of facilities of HPC (minimum 02 installations) of 10 Tflops experience in High Performance Computing active facility, Cloud (Minimum 03 installations) in academia/corporate/military environments. Moreover, the winning bidder must have experience with Data Centre of minimum of 20 racks (Minimum 3 references to be given).
  - (g) Participating bidder must have security clearance with Law Enforcement Agencies.
  - (h) Participating bidder must only propose solutions from OEMs having presence in Pakistan since last 10/5 years, share details of OEMs local team along with Names, Contact Nos and official email addresses.
  - (i) Participating bidder must only propose OEMs having support team in major cities of Pakistan (Karachi, Lahore and Islamabad).
  - (j) Participating bidder must have complete spectrum of solution as single source / single OEM, including (computing, GPU, Storage, Networking, Containment, UPS, Cooling Units, Racks, PDUs, DCIM). Different Cooling UPS, Containment and Cooling will be given lesser marking.
  - (k) Participating bidder is to provide following technical data / information regarding experience in Data Centre portfolio:-
    - (i) HPC Cloud Facility projects completed successfully total inland / abroad by the bidder and not the OEM.
    - (ii) HPC Cloud Facility projects consultancy services for technical equipment installation, civil works or both by the bidder not the OEM.
    - (iii) SLA experience for maintenance and operational services for data centres.



(l) Successful bidder will be responsible for hosting of the procured equipment at a reputable tier III certified data centre by choice of procuring agency (preferably at ISLAMBAD/RAWALPINDI) on turnkey centre.

(m) Training for (03 person) that may include hardware/software integration/deployment/management, backup/restores should be part of the Solution. Other specific training such as fault detection, backup/recovery etc, as needed should be included. Training location and number of people as well as trainer information would be required to be shared.

(n) The vendor/solution provide will provide SLA for equipment with parts. They should mention the Hardware/software or any support and the type of support they will ensure for the solution provided. This may include Yearly support type, minimum respond time, faulty hardware replacement time etc. There should be a Three (3) Year Service Level Agreement. The vendor should provide following services/ support with time frame.

- (i) SLA with parts
- (ii) Response time should be same business day
- (iii) Escalation ladder for support in the event for immediate support
- (iv) Support Services should be 24/7
- (v) Local country presence
- (vi) Support network inside country

#### 4. Preferred Requirements

(a) Participating bidder preferred to have a reference of at least one such facility having 20 or more racks Data Centre design during last one year.

(b) Participating bidder should have at least two consultancy projects, local or international.

(c) Participating bidder preferred to have successfully executed at least 03 Data Centres for any Govt / Public / Private Sector during last 07 years (Minimum 2 in Pakistan).

(d) Participating bidder preferred to have experience with Ministry of Defence.

(e) Participating bidder should be in similar business for at least last 05 years.

(f) Participating bidder should have qualified supervisors as permanent employees to take up the project.

(g) Participating bidder should have certified technical team for Servers, Storage, Routing, Switching, Security as well as HPC, Cloud and data centre certified resources on their company pay roll as permanent employees. The participating firm must have CCIE or JNCIE or equivalent, CTDC, CDCS / ATS, CDCP/ ATD, PMP, CNCDP, resources (Documentary proof required & to be submitted with the bid). CVs of Technical staff along with certifications to be submitted with the bid.

(h) Participating bidder preferred to have Rated -III Project Reference having EPI Design Validation (at least 1 reference required)

(i) Participating bidder preferred to have experience of at least 1 Certificate of Conformance for Design Documents (ANSI / TIA-942-B RATED 3). Evidence of publishing on TIA Online is mandatory.

- (j) Participating firm preferred to be capable of undertaking design audit compliance vetting as per TIA-942 B Rated-3 requirement.
- (k) Participating firm should comply to all RFP Specs and clauses.
- (l) Vendor will provide detailed implementation schedule with concrete timeline.

### DETAILED CRITERIA / REQUIREMENTS

1. The Project GreenAI NASTP intends to have the **most advantageous bid** in conformance with PPR 2004 with insertions vide Statutory Regulatory Order S.R.O. No. 442(1)/2020 dated May 15, 2020.

2. Only the bidders meeting the above-mentioned **Mandatory Requirements** will be considered for detailed evaluation of technical bids. The detailed evaluation shall be carried out on the basis of the criteria for the different categories and minimum passing marks prescribed hereunder:

S No	Sub-Head	Max. Marks
(a)	Company profile	15%
(b)	Technical Evaluation	55%
(c)	Financial Evaluation	30%
<b>Total</b>		<b>100%</b>

(a) **Company profile.** The company profile will be further subdivided into following sub groups with their respective score distribution.

Sr. No.	Detail Division Matrix for Company/Consortium out of %	15	Passing Marks	Received Marks	Given Marks
1.	<b>Company/Consortium Profile</b>	<b>15</b>	9		
2.	<b>Firm Experience</b>	<b>105</b>	63		
3.	a) Bidder Experience (Cloud Application)	35			
4.	b) Bidder Experience (HPC)	35			
5.	c) Bidder Experience (Data Lake)	35			
6.	<b>Human Resource Capability</b>	<b>150</b>	90		
7.	a) Quality of Bidder (HR) in Application Cloud	60			
8.	b) Quality of Bidder (HR) in HPC	40			
9.	c) Quality of Bidder (Data Lake)	50			
	<b>Total</b>	<b>270</b>	<b>162</b>		

(b) **Technical Evaluation.** Technical bid of bidders scoring less than sixty percent (60%) overall marks and/ or failing to obtain minimum passing marks against any of the above-mentioned category shall be rejected and their financial proposals will be returned un-opened. Each responsive technical bid shall be attributed a technical score (St).

Sr. No.	Technical Evaluations Sub-Groups (06)	55	Passing Marks	Received marks in %	Given Marks %
1.	Application Zone	10	6		
2.	High Performance Zone	10	6		
3.	Data Zone	10	6		
4.	Network	5	3		
5.	Cloud (Software)	10	6		
6.	Hosting (Data Center)	10	6		
Total		55	33		

3. The evaluation committee shall determine whether the financial proposals are complete and without computational errors. The lowest financial bid (Fm) shall be given a financial score (Sf) of 100 points. The financial scores of the bids shall be computed as follows:

$$S_f = 100 \times \frac{F_m}{F}$$

**F** (F = amount of specific financial bid)

4. Bids, in the quality cum cost based selection (QCBS) shall finally be ranked according to their combined technical (St) and financial (Sf) scores using the weights (**T = 70**; the weight given to the technical bid, **P = 30**; the weight given to the financial bid):

$$S = S_t \times T \% + S_f \times P \%$$

5. Work will be awarded to the firm offering **most advantageous bid** evaluated as the highest ranked bid on the basis of cost and quality.

**Annex “II”  
Form B-1**
**COMPANY PROFILE**

Criteria	Description	Marks	Self-assessment	PMU assessment not to be filled
<b>No. of Years of since establishment of</b>	<b>Max. 08 marks</b>	8		
Establishment of Bidder (Attach Certificate of Incorporation)	02 marks if between 10 to 15 years	-	-	
	01 mark if between 05 to 10 years	-	-	
	No mark will be given if less than 05 years	-	-	
	Max of 06 marks for providing undermentioned mandatory requirements	-	-	
Company introduction and history (Mandatory Requirements)	Mandatory	-	-	
Company introduction and history	Mandatory	-	-	
SECP registration certificate No. (Attach copy of Certificate)	Mandatory	-	-	
PEC Registration with relevant category No. /Attach copy of Certificate	Mandatory	-	-	
Company NTN Registration No. Attach copy of Certificate	Mandatory	-	-	
NTN along with Active Tax Payers List (latest)	Mandatory	-	-	
Registration of Company as Consortium(Attach copy of Certificate)	Mandatory	-	-	
Sales tax Registration No.(Attach copy of Certificate)	Mandatory	-	-	

Audited Financial statements (last 3 years)	Mandatory	-	-	
Afidavit of not being a blacklisted firm	Mandatory	-	-	
Islamabad presence evidence	Mandatory	-	-	
CVs of Key Staff	Mandatory	-	-	
In case of OEM solution, Letter of authorization from OEM.	Mandatory	-	-	
Firm must be Premium / Platinum / Tier-I Partners with OEM.	Mandatory	-	-	
POs/Contract copies of completed/in progress projects.	Mandatory	-	-	
<b>Bidder Presence ( Share details of each office in Pakistan )</b>	<b>Max. 05 Marks</b> 05 marks if the applicant has fully functional design and supervision office in Islamabad. No mark will be awarded, if no permanent office in Islamabad. The Evaluation Committee may visit the Bidders office to assess the firms' presence and technical capabilities before awarding the marks.	5		
<b>Financial Soundness</b> Average Turn over for last three years (Financial Audited Reports for last 3 years )	<b>Max. 02 Marks</b> 02 Marks will be awarded if each financial year's turn over is between PKR 1000 Million to PKR 2000 Million. No Marks will be awarded if turnover is less than PKR 1000 million	2		
	Total	15	0	0

## Annex "II"

## Form B-2 (a)

**BIDDER'S EXPERIENCE (CLOUD APPLICATION)**

Sr. No.	Criteria	Description	Marks	Self-assessment	Purchaser Assessment
1	<b>Specific / Similar Experience</b> On leading cloud platforms like OpenStack cloud solution (Attach copy of documentary evidence)	<b>Max. 15 Marks</b> 05 marks will be awarded for each completed project of OpenStack deployed cloud solution, involving complete design and execution completed in the last 05 years. Minimum number of 05 projects are mandatory to qualify. Maximum of 15 Marks  05 marks will be awarded to each OpenStack completed project completed in the last 05 years. Minimum of 03 Projects are mandatory to qualify. Maximum of 10 Marks No marks will be awarded if Completed cloud solution is less than 2 solutions.	15		
2	<b>In-Hand Similar Project</b> on leading cloud platforms like OpenStack cloud solution (Attach copy of documentary evidence)	<b>Max. 15 Marks</b> 5 mark will be awarded upto maximum of 10 marks to each in-hand OpenStack Cloud solution of more than 20 Racks. Maximum 03 Projects will fetch 15 Marks  01 mark will be awarded upto maximum of 5 marks to each in-hand OpenStack cloud project of more than 10 Racks.  No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/ departments</b> (Attach copy of documentary evidence)	<b>Max. 5 Marks</b> 05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5		
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-2 (b)**

**BIDDER’S EXPERIENCE (HPC SOLUTIONS)**

Sr. No.	Criteria	Description	Marks	Self-assessment	Purchaser Assessment
1	<b>Specific / Similar Experience</b>  <b>On HPC Architectures:</b> Experience in different HPC architectures, including clusters, grids, and cloud-based HPC <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b>  05 marks will be awarded upto maximum of 15 marks to each completed project in the HPC domain (Clusters, Grids or cloud based HPC) minimum of 5 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years. 05 marks will be awarded upto maximum of 10 marks to each completed project in the HPC domain (Clusters, Grids or cloud based HPC) minimum of 3 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years. No marks will be awarded if DC size is less than 10 racks.	15		
2	<b>In-Hand Similar Project</b>  <b>On HPC architectures:</b> Experience in different HPC architectures, including clusters, grids, and cloud-based HPC <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b>  5 mark will be awarded upto maximum of 10 marks to each in-hand project in the HPC domain (Clusters, Grids or cloud based HPC) Cloud solution of more than 20 Tflops. 01 mark will be awarded upto maximum of 5 marks to each in-hand cloud project in the HPC domain (Clusters, Grids or cloud based HPC) Cloud solution of more than 10 Tflops. No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/departments</b> <i>(Attach copy of documentary evidence)</i>	<b>Max. 5 Marks</b>  05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5		
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”**  
**Form B-2 (C)**

**BIDDER’S EXPERIENCE (DATA LAKE)**

Sr. No	Criteria	Description	Mark s	Self- assess ment	Purc hase r Asse ssm ent
1	<b>Specific / Similar Experience</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform. <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b> 05 marks will be awarded upto maximum of 15 marks to each completed project of minimum of 5 deployed Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete design and execution with installed capacity of 100TB or more completed in the last 05 years. 05 marks will be awarded upto maximum of 10 marks to each completed project deployed Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete design and execution with installed capacity of 50TB or more completed in the last 05 years No marks will be awarded if DC size is less than 10 racks.	15		



2	<b>In-Hand Similar Project</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform. <i>(Attach copy of documentary evidence)</i>	<b>Max. 15 Marks</b> 5 mark will be awarded upto maximum of 10 marks to each in-hand Data Lake platforms solutions like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform, involving complete solution with installed capacity of 100TB or more 01 mark will be awarded upto maximum of 5 marks to each in-hand deployed Data Lake platforms like AWS Glue, Azure Data Lake Storage, Google Cloud Storage or equivalent data lake platform involving complete design and execution with installed capacity of 50TB or more. No marks will be awarded if DC size is less than 10 racks.	15		
3	<b>International Projects or Projects funded by International donor agencies/ apartments</b> <i>(Attach copy of documentary evidence)</i>	<b>Max. 5 Marks</b> 05 mark will be awarded for each completed Project outside Pakistan or funded by International Donor Agency/ Department of considerable size.	5	0	
<b>Total</b>			<b>35</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(A)**

**QUALITY OF BIDDER’S (HR) EXPERTISE (APPLICATION/CLOUD)**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>Project Manager (cloud, HPC, Storage)</b> Qualification in IT Project Management + certified PMP with minimum 5 years’ experience.	<b>Max. 10 Marks</b> Full marks will be awarded to at least one Project Manager having minimum qualification and experience dedicated to this project.  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
2	<b>Clouds architect</b> (Cloud Certification) Amazon Web Services (AWS) Solutions Architect – Professional Or Microsoft Certified: Azure Solutions Architect Or Professional Cloud Architect (google) Or Any equivalent recognized vendor specific certification	<b>Max. 10 Marks</b> 05 marks for each valid AWS. / Azure / Professional Cloud Architect (certified) individual  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
3	<b>Cloud Engineer (certified)</b> AWS Certified Solutions Architect - Associate: Or Microsoft Azure Solutions Architect associate: Or Google Associate Cloud engineer:	<b>Max. 8 Marks</b> 04 mark for each valid AWS. (associate)/ Azure (associate / Google associate engineer (certified) or equivalent recognized certification  No mark will be awarded, if minimum qualification	8		

	<p>Or</p> <p>Any equivalent recognized vendor specific certification</p>	<p>and experience criteria is not met</p>			
4	<p><b>Cloud Security Professional (Certified)</b></p> <p>Certified Cloud Security Professional (CCSP) by ISC</p> <p>Or</p> <p>CompTIA Cloud+ with focus on Security:</p> <p>Or</p> <p>Cloud Security Alliance: Certificate of Cloud Security Knowledge (CCSK)</p> <p>Or</p> <p>Certified Information Systems Security Professional - Architecture (CISSP)</p> <p>Or</p> <p>Professional cloud security engineer (google)</p>	<p><b>Max. 8 Marks</b></p> <p>04 mark for each valid CCSP/ CompTIA Cloud + / CCSK / CISSP or Professional cloud Security Engineer</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	8		
5	<p><b>OpenStack expert (Certified)</b></p> <p>Certified OpenStack Administrator (COA)</p> <p>Or</p> <p>equivalent OpenStack partner certified e.g</p> <p>Or</p> <p>equivalent OpenStack partner certified e.g. (Red Hat OpenStack Platform Certification, Ubuntu Conical Open stack, etc.)</p>	<p><b>Max. 10 Marks</b></p> <p>If certified resource is COA, then =10 marks</p> <p>Else if resource has OpenStack partner certification, then =7 marks</p> <p>none=0</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	10		

6	<b>Network Architect:</b> CCIE Routing & Switching (CCIE) /CCIE Enterprise Infrastructure or Cisco Certified Network Associate (CCNA) or equivalent certification	<b>Max. 05 Marks</b> If certified resource is CCIE /CCNA or equivalent, then =5 marks No mark will be awarded, if minimum qualification and experience criteria is not met	5		
7	<b>Resident Engineer</b> Qualified Resident Engineers dedicated to project	<b>Max. 05 Marks</b> 05 mark for Resident Engineer having completed a similar project and deployment project premises No mark will be awarded, if minimum qualification and experience criteria is not met	5		
8	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
<b>Total</b>			<b>60</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(B)**

**QUALITY OF BIDDER’S (HR) EXPERTISE IN HPC**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Self-assessment</b>	<b>Purchaser Assessment</b>
1	<b>HPC architect</b> Master Degree with course in HPC field with minimum 10 years’ experience or Bachelor Degree with course in HPC with minimum 12 years (attach documentary evidence) Or AWS Certified Solutions Architect - Professional: Or Microsoft Azure Solutions Architect Expert: Or Google Cloud Professional Cloud Architect: Or Any equivalent recognized vendor specific HPC certification	<b>Max. 10 Marks</b> 5 mark for valid HPC (certified) / HPC experienced Consultant No mark will be awarded, if minimum qualification and experience criteria is not met.	10		
2	<b>HPC engineer</b> With Bachelor’s or Master Degree in relevant field with minimum 10 years’ experience for Master’s and 15 years’ experience for Bachelor’s. (documentary evidence) Or HPE Certified High Performance Computing Administrator Or LPIC-2 Linux Server Administrator:	<b>Max. 8 Marks</b> 04 mark for each valid HPC engineer (certified) / HPC experienced Consultant or equivalent recognized certification No mark will be awarded, if minimum qualification and experience criteria is not met	8		

	<p>Or</p> <p>HPC Certification Forum (HPC-CF)</p> <p>Or</p> <p>Any equivalent recognized vendor (specific) HPC certification</p>				
3	<p><b>Machine Learning/ AI Engineer: (Any certification below)</b></p> <p>Google Professional Cloud Machine Learning Engineer:</p> <p>Or</p> <p>AWS Certified Machine Learning Specialty:</p> <p>Or</p> <p>IBM Applied AI Professional Certificate:</p> <p>Or</p> <p>AWS Certified Machine Learning Specialty:</p>	<p><b>Max. 8 Marks</b></p> <p>04 mark for each valid AI/ML engineer (certified) or AI/ML certified Consultant</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	8		
4	<p><b>Network Architect:</b></p> <p>CCIE Routing &amp; Switching (CCIE)</p> <p>or</p> <p>Cisco Certified Network Associate (CCNA) or equivalent certification</p>	<p><b>Max. 05 Marks</b></p> <p>If certified resource is CCIE /CCNA or equivalent, then =5 marks</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	5		
5	<p><b>Resident Engineer</b></p> <p>Qualified Resident Engineers dedicated to project</p>	<p><b>Max. 05 Marks</b></p> <p>05 mark for each Resident Engineer having completed a similar project.</p> <p>No mark will be awarded, if minimum qualification and experience criteria is not met</p>	5		

6	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
	<b>Total</b>		<b>40</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-3(C)**

**QUALITY OF BIDDER’S (HR) EXPERTISE (DATA LAKE)**

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Marks</b>	<b>Bidder Self-Assessment</b>	<b>Purchaser Assessment</b>
1	<b>Data lake architecture</b> Data lake platforms like AWS Glue, Azure Data Lake Storage, or Google Cloud Storage or equivalent certification	<b>Max. 10 Marks</b> 05 mark for each valid data lake platforms certification like AWS Glue, Azure Data Lake Storage, or Google Cloud Storage consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
2	<b>Data Lake Engineer (Certified)</b> Microsoft Certified: Azure Data Engineer Associate Or Data bricks Certified Data Engineer Associate: Or Any equivalent vendor recognized certification	<b>Max. 10 Marks</b> 05 mark for each valid data lake engineer (Certified) or equivalent/ Data Lake experience consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	10		
3	<b>Data Scientist (Certified)</b>  Microsoft Azure Data Scientist Associate: Or Microsoft Azure Data Scientist Associate Or Google Professional Cloud Machine Learning Engineer:	<b>Max. 8 Marks</b> 8 mark for valid certified data scientist (certified) or equivalent/ Data Scientist consultant  No mark will be awarded, if minimum qualification and experience criteria is not met	8		



	or Equivalent Data Scientist certified				
4	<b>Storage Engineer</b>  CompTIA Storage+: Or SNIA Certified Storage Networking Expert (SCSN-E): Or AWS Certified Storage Solutions Architect - Associate: Or or equivalent Vender specific Storage certification	<b>Max. 8 Marks</b>  04 mark for each valid storage engineer (certified) dedicated to this project	8		
5	<b>Certified Network Cabling Design Professional</b>  With Bachelor's or Master Degree in relevant field with minimum 10 years' experience for Master's and 15 years' experience for Bachelor's.	<b>Max. 05 Marks</b>  05 mark for each valid CNCDP dedicated to this project  No mark will be awarded, if minimum qualification and experience criteria is not met.	5		
6	<b>Resident Engineer</b>  Qualified Resident Engineers dedicated to project	<b>Max. 05 Marks</b>  05 mark for each Resident Engineer having completed a similar project.  No mark will be awarded, if minimum qualification and experience criteria is not met	5		

7	<b>Implementation Schedule</b>	<b>Max. 04 Marks</b> Vendor will provide detailed implementation schedule with concrete timeline	4		
		<b>Total</b>	<b>50</b>	<b>0</b>	<b>0</b>

Annex "II"  
Form B-4

**APPLICATION ZONE (CAT "M" & CAT "C")**

Criteria - (Hardware Requirement Placed in Annex -K)	Description	Marks	Self-assessment	Purchaser Assessment
Server Cat 'M' CPU (for reference only (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if (100000 / CPU and less than 120% better) = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server Cat 'C' CPU (for reference only ( 2 x AMD EPYC Gen4 Genoa 9554 (64c @ 3.1Ghz)) Passmark.com	if (Pass mark > 140000 and >120% (better or more) = 5 marks , else if (Pass mark > 140000 and less than <120% better) = 4 marks, if Pass mark > 140000 and less than 110% = 3)	5		
<b>QTY -03 Cat "M" - Hardware Specification</b>	if QTY=03 then marks =5, else =0	5		
Dual processor series (32 cores or more per processor (or equivalent)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Preferred minimum 2.6Ghz per core clock (better is preferred)	mandatory	-	-	
2*480GB SSD and 5 x 960GB SSD (with hotspare). Or, 6*960 SSD (with hotspare)	mandatory	-	-	

<b>compliance to Cat 'C' general specification</b>	mandatory	-	-	
RAM = 256 Gb DDR 5 ECC (and upgradable) with Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=300000 =5 marks, else if (IOPS>150000 and IOPS<300000=3, else=0	5		
<b>QTY -06 Cat "C" - Hardware Specification</b>	if QTY=06 then marks =5 , else =0	5		
Dual processor series (60 cores or more per processor (or equivalent) latest generation)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Minimum 2.6 Ghz per core clock (better is preferred)	mandatory	-	-	
Prefer storage capacity 4 TB (usable) with hot spare	mandatory	-	-	
<b>compliance to Cat 'M' general specification</b>	mandatory	-	-	

RAM = 512 GB DDR 5 ECC (and upgradable) with Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5 , else 30<Ram<20GB/s=3 , else=0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS< 700000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS< 500000=3, else=0	5		
<b>Network</b>		-	-	
A-D Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
A-D Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
A-H Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
A-H Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
	<b>Total</b>	<b>90</b>	<b>0</b>	<b>0</b>

Annex "II"  
Form B-5

### HIGH PERFORMANCE COMPUTING ZONE (CAT "G")

Hardware Requirement	Description	Marks	self-assessment	Purchaser Assessment
Server Cat 'G' CPU (for reference only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks , else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Performance NVIDIA H100 80 GB GPU ( for reference only GPU FP64 (double-precision))	34TFlops/GPU	5		
		-	-	
<b>QTY -04 Cat "G" - Hardware Specification</b>	if QTY=04 then marks =5, else =0	5		
<b>QTY -16 NVIDIA HGX H100 - H100 SXM4 80GB GPU Assembly or equivalent /better</b>	if QTY=16 then marks =5 , else =0	5		
Dual processor series (30 cores or more per processor or better)	mandatory	-	-	
Latest generation processors)	mandatory	-	-	
multicore processors with hardware-assisted virtualization extensions	mandatory	-	-	
Minimum preferred 2.6 Ghz per core clock (better is preferred)	mandatory	-	-	
High speed internal enterprise Storage 4 (or more) * SSD/ NVME (with raid capability) with preferred 8TB (Usable) (or different combination may	mandatory	-	-	

be allowed for Separate OS and High processing storage drive)				
<b>compliance to Cat 'G' general specification</b>	mandatory	-	-	
RAM = 512 Gb DDR 5 ECC (and upgradable) with less Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
Internal storage -Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS< 700000=3, else=0	5		
Internal storage -Individual write IOPS (single drive)	if (IOPS >500000 =5 marks, else if (IOPS>200000 and IOPS< 500000=3, else=0	5		
<b>Network</b>		-	-	
H-D Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
H-D latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms ) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
H-A Zone network (connectivity) performance bandwidth compliance 25 gbps or more	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
H-A latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less	5		

	than 50 ms = 3 marks, else none			
HPC H-H Backplane bandwidth 100 Gb/s per link or better	If (H-H Bandwidth >100gbps then marks =5, if conform to 100Gbps =3 else =Disqualify	5		
H-H latency (prefer latency below (less than) < 10 milliseconds)	if (< 10 ms) = 5 marks, if greater than 10 but less than 25 ms = 3 marks, else none	5		
A, HPC & Data Zone overall peak performance in (Tflops) actual benchmark	If (Tflops > 700 =5, else if 700> Gflops<500 =3, else =0	5		
Overall System measured Performance (measured) Energy Efficiency (GFlops/watts)	If (Gflops/watts > 30 =5, else if 30> Gflops<15 =3, else =0	5		
	<b>Total</b>	<b>85</b>	<b>0</b>	<b>0</b>



**Annex “II”  
Form B-6**

**DATA ZONE (CAT “MDS”, CAT “S”, CAT “F”, CAT “U”)**

<b>Criteria (Hardware Requirement)</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
Server (Cat 'MDS') CPU (for reference only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “S”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “F”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
Server (Cat “U”) CPU (for reference (See Cat 'M') only if required (2 x AMD EPYC Gen4 Genoa 9354 (32c @ 3.25Ghz)) Passmark.com or equivalent solution CPU	if (Pass mark > 100000 and Pass mark 120% (better or more) = 5 marks, else if 100000 / CPU and less than 120% better = 4 marks, if conforms Pass mark>100000 and less than 110% = 3)	5		
<b>Generalized requirements for all</b>	-	-	-	

storage related equipment be it Individualized storage server (Cat "MDS", Cat "S", Cat "F", Cat "U") Or Multi-tier (unified) or equivalent/better storage solution)				
Storage for metadata (could be unified storage with NFS/SAN (optional DAS) connectivity option.	mandatory	-	-	
Redis Compatible	mandatory	-	-	
Processor configuration if required should be similar to Cat M or better Capability for Object, block storage and parallel file system.	mandatory	-	-	
- Storage Scalability (Horizontal and vertical)	mandatory	-	-	
<b>compliance to individual storage specification (Cat "MDS", Cat "S", Cat "F", Cat "U")</b>	mandatory	5		
RAM Latency: 40ns or less	if (Latency <= 36ns =5, if latency >36 but <50ns =3, else =0)	5		
RAM read throughput for DDR 5	If (read throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
RAM write throughput for DDR 5	If (write throughput> 30GB/s =5, else 30<Ram<20GB/s=3, else=0	5		
		-	-	
<b>QTY -02 - Cat "MDS" components or equivalent solution</b>		5		

Internal storage - Individual Read IOPS (single drive)	if (IOPS >=500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >=300000 =5 marks, else if (IOPS>150000 and IOPS<300000=3, else=0	5		
<b>QTY -02 - Cat "S" component or equivalent solution</b>	if QTY=02 then marks =5 , else =0	5		
Internal storage - Individual Read IOPS (single drive)	if (IOPS >700000 =5 marks, else if (IOPS>300000 and IOPS<700000=3, else=0	5		
Internal storage - Individual write IOPS (single drive)	if (IOPS >500000 =5 marks, else if (IOPS>200000 and IOPS<500000=3, else=0	5		
<b>QTY -04 - Cat "F" Component or equivalent solution</b>	if QTY=04 then marks =5, else =0	5		
Internal storage - Individual Read IOPS (single drive)	If iops > 800000 =5, else if 800000>iops<600000 =3 else 0	5		
Internal storage - Individual write IOPS (single drive)	If iops > 800000 =5, else if 800000>iops<600000 =3 else 0	5		
<b>QTY -02 - Cat "U" component or equivalent solution</b>	if QTY=02 then marks =5, else =0	5		
-NL-SAS Individual Read IOPS	If iops > 150 =5, else if 150>iops<100 =3 else 0	5		
-NL-SAS Individual Write IOPS	If iops > 150 =5, else if 150>iops<100 =3 else 0	5		
<b>Network</b>		-	-	
D-A Zone connectivity network performance compliance 25 gbps	If (A-H Bandwidth >25gbps then marks =5 , if confirm 25gbps=3, else =Disqualify	5		

D-A Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
D-H Zone connectivity network performance	If (A-H Bandwidth >25gbps then marks =5, if confirm 25gbps=3, else =Disqualify	5		
D-H Zone latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
<b>Total</b>		<b>120</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-7**

**NETWORK - CRITERIA**

<b>Criteria - (Hardware Requirement)</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
<b>Network requirements</b>	-	-	-	
<b>QTY - 02 Cat “Core” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Access” equipment</b>	mandatory	-	-	
<b>QTY - 01 Cat “RoCE” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Distribution” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “firewall” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Router” equipment</b>	mandatory	-	-	
<b>QTY - 02 Cat “Clock” equipment</b>	mandatory	-	-	
Backplane bandwidth 25 Gb/s per link or better	If (Bandwidth >=25gbps then marks =5, else =0	5		
connecting devices support Link aggregation (LAG)	If LAG support =5, else =0	5		
Infiniband or equivalent	mandatory	-		
Open Virtual Network (OVN) or equivalent	mandatory	-		
NIC bonding, unlimited underlay L2 network segregation	Optional	-		
<b>Network Latencies</b>	-	5		
A-A latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else =0	5		

D-D latency (prefer latency below (less than) 30 milliseconds)	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else =0	5		
H-H latency (prefer latency below (less than) < 10 milliseconds)	if (< 10 ms) = 5 marks, if greater than 10 but less than 25 ms = 3 marks, else =0	5		
<b>Total</b>		<b>30</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-8**

**CLOUD SOFTWARE REQUIRMENTS**

<b>Criteria - (Hardware Requirement)</b>	<b>Description Exemple</b>	<b>Marks</b>	<b>self- assessment</b>	<b>Purchaser Assessment</b>
Mandatory software requirement that needs to be cater to in cloud setup	-	-		
Modules and software components Functional requirements	-	-		
Managed HA Onprem Cloud Platform	Openstack	-		
Managed HA Kubernetes	Openstack Magnum	-		
Compute nodes with GPU support	Openstack Nova	-		
Managed Postgres Database with HA Active-Active support	Openstack Trove	-		
Managed RabbitMQ Queue with HA Active-Active support	OpenStack Oslo Messaging	-		
Managed Elasticsearch with HA Active-Active support	Elasticsearch (ECK) Operator	-		
Load Balancers	OpenStack Octavia	-		
Autoscaling for nodes, clusters, and containers	OpenStack Heat	-		
Container image storage	OpenStack Glance	-		
Network accessible storage with NFSv4 and RWX support (Fault tolerant and PB scalable)	OpenStack Manila	-		
Object storage with HTTP range request support (Fault Tolerant and PB scalable)	Minio, OpenStack Swift	-		

Encryption at rest for storage	OpenStack Cinder + Key encryption	-		
Internal network level encryption	TLS 1.3 Enabled	-		
Private and secure Git managed repository with CI/CD support	GitLab	-		
Dashboard for administration with RBAC support	OpenStack Horizon	-		
Administration APIs for future integration and automation		-		
	Optional	-		
Container image signing and automatic verification	Cosign	-		
FaaS support	Qinling, OpenFaaS (if provided =5, else =0	5		
Private and secure Git managed repository with CI/CD support	GitLab	-		
Replication and disaster recovery support (backup VMs, storage, container, etc)		-		

-

Non-Functional Requirements				
GPU Pass-through		-		
Infiniband or similar HPC Network Supported		-		
No single point of failure		-		
Nodes/hardware could be added or removed by our Admin team (scalability)		-		
Must be well-integrated and well-tested		-		



Should not rely on internet for usage, configuration, and setup		-		
Documentations	If (relevant cloud documentation =5, else =0	5		
<b>Cloud Software Compatibility</b>				
these services should be demonstrated		-		
redis	if (module demonstrated =5, else =0	5		
Ceph	if (module demonstrated =5, else =0	5		
Cinder	if (module demonstrated =5, else =0	5		
Swift	if (module demonstrated =5, else =0	5		
Elasticsearch	if (module demonstrated =5, else =0	5		
these services should be demonstrated	max =20, 05 marks for each demonstrated optional module shown below	20		
Hadoop		-		
Hbase		-		
Hive		-		

ZooKeeper		-		
Phoenix		-		
Oozie		-		
Hue		-		
Spark		-		
Sqoop		-		
Flume		-		
Kafka		-		
Solr		-		
Flink		-		
Elasticsearch		-		
HetuEngine		-		
Carbon Data		-		
Ranger		-		
Tex		-		
Hudi		-		
Click House		-		
IpTDB		-		
CDL		-		
As requested by purchaser				
	<b>Total</b>	<b>55</b>	<b>0</b>	<b>0</b>

**Annex “II”  
Form B-9**

**HOSTING CRITERIA**

<b>Criteria for Hosting</b>	<b>Description</b>	<b>Marks</b>	<b>self-assessment</b>	<b>Purchaser Assessment</b>
Secure Location	if (premises in Isl/Rwp =5 marks, else if location in major city (close by) =3, else= 0	5		
Physical security:	If (24/7 security with CCTV =5 marks, else if only 24/7 security =3, else= 0	5		
Cybersecurity	If (firewall and intrusion detection/prevention system =5, else= 0	5		
Remote Monitoring and Alerting	If (remote monitoring software provided on premise =5, else =0	5		
Secure Network Connection (Data encryption at rest and in transit)	If (AES-256 or better- =5, else if AES-128 (or better equivalent) =3, else =0	5		
Redundancy (tier2 or tier 3) data center	If (Tier 3 =10 marks, else Tier 2 =5	10		
Network Connectivity bandwidth (BW)	if (BW connectivity > 100Mbps = 5marks, else if 100Mbps > Bw connectivity < 50 Mbps =3, else =0	5		
Network latency to the application	if (< 30 ms) = 5 marks, if greater than 30 but less than 50 ms = 3 marks, else none	5		
Host experience /reputation (No of year in Data Centre Service)	If (host exp >10 years = 5marks, else if (10> host exp <3) =3, else =0	5		

Uptime Guarantee (UG) (Potential Downtime per Year)	if (UG >= 98% =5, else if (98%>UG<97%=3, Else =0	5		
Hosting on Concurrent-Site Maintainable Infrastructure	Mandatory	-		
One year hosting plan (Data Center) included	Mandatory	-		
Leverage On-Site NOC (ease of access to the data centre for maintenance or troubleshooting)	if (access available =5 marks, else=0	5		
	<b>Total</b>	<b>60</b>	<b>5</b>	<b>0</b>

**Annex “II”  
Form B-10**

**PEAK THEORETICAL THROUGHPUT**

to be calculated by the bidder	Value where applicable		
	A- Zone	H-Zone	Total
CPU performance (theoretical) in Tflops (fp64) (management node)			
CPU performance (theoretical) in Tflops (fp64) (Compute node)			
CPU performance (theoretical) in Tflops (fp64) (GPU node)			
GPU performance (theoretical) in Tflops (fp64)			
GPU performance (theoretical) in Tflops (fp32 tensor core) where applicable			
GPU performance (theoretical) in Tflops (fp64 tensor core) where applicable			
Application zone overall peak performance in Tflops (fp64)			
HPC zone (linpack or equivalent) peak performance in Tflops (fp64) actual benchmark			
Overall peak performance for entire setup (A, HPC & Data Zone) in (Tflops) Rmax			
A, HPC & Data Zone overall peak performance in (Tflops) actual benchmark			
Overall System measured Performance (measured) Energy Efficiency (GFlops/watts)			

**Annex “III”**

**BIDDER INFORMATION FORM**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]*

Date: *[insert date (as day, month and year) of Bid submission]*

No.: *[insert number of Bidding process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page \_\_\_\_\_ of \_\_\_\_\_ pages

1. Bidder's Name <i>[insert Bidder's legal name]</i>
2. In case of JV, legal name of each member: <i>[insert legal name of each member in JV]</i>
3. Bidder's actual or intended country of registration: <i>[insert actual or intended country of registration]</i>
4. Bidder's year of registration: <i>[insert Bidder's year of registration]</i>
5. Bidder's Address in country of registration: <i>[insert Bidder's legal address in country of registration]</i>
6. Bidder's Authorized Representative Information Name: <i>[insert Authorized Representative's name]</i> Address: <i>[insert Authorized Representative's Address]</i> Telephone/Fax numbers: <i>[insert Authorized Representative's telephone/fax numbers]</i> Email Address: <i>[insert Authorized Representative's email address]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above. <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 3.4. <input type="checkbox"/> Establishing that the Bidder is not under the supervision of the Procuring Agency
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Annex “IV”**

**UNDERTAKING (Fill in and Return)**

**To**

**Project Director**

**GreenAI, NASTP**

**Rawalpindi**

**Dear Sir,**

I/We hereby submit our bid to supply to Project GreenAI NASTP **AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)** on turn-key basis and further agree that this bid will remain valid up to \_\_\_\_ and will not be withdrawn or altered in terms of rates quoted and the condition stated therein on or before this date.

I/We understood the instructions to proposal (Technical and Financial) and condition of contract as laid down in IT form and thoroughly examine specification / drawing and / or patterns quoted in the Schedule to perposal and am/are fully aware to the nature of the stores required and my/our offer is to supply stores strictly in accordance with the requirements.

**Witness's Signature:**

**Name:**

**N.I.C No.**

**Address:**

**Date:**

**Date:**

**Tel: Telex/Fax**

**Signature of Bidder:**

**Name:**

**N.I.C No.**

**Capacity in which Signing:**

**Address:**

**Annex “V”**

**[ON RUPEES 200 STAMP PAPER]**

**CONFIDENTIALITY AND NON-DISCLOSURE AGREEMENT**

This Confidentiality and Non-Disclosure Agreement (herein referred to as this “**Agreement**”) is entered into on this \_\_\_\_ day of xxx, 2023

**BETWEEN**

**Project GreenAI, NASTP**, incorporated under the laws of Pakistan, having its registered office at Alpha Three, Old AirPort, Chaklala, Rawalpindi, Pakistan, herein referred to as “**PROJECT GREENAI**”, which expression shall, wherever the context so permits, mean and include its affiliates, subsidiaries, successors in interest and assigns of the **FIRST PART**.

**AND**

**M/s** \_\_\_\_\_, incorporated under the laws of Pakistan having its CUIN No \_\_\_\_\_, registered office at \_\_\_\_\_, having Incorporation number \_\_\_\_\_ herein referred to as “**Company**”, which expression shall, wherever the context so permits, mean and include its affiliates, subsidiaries, successors in interest and permitted assigns of the **SECOND PART**.

(PROJECT GREENAI and Company herein referred to individually as the “**Party**” and collectively as the “**Parties**”)

**WITNESSTH:**

**WHEREAS**, PD GreenAI is incorporated to, *inter alia*, develop a GreenAI NASTP (herein referred to as the “**Project**”) including the establishment of a National Aerospace Science and Technology Park (**NASTP**) therein.

**WHEREAS**, Company has intent to [\_\_\_\_\_].

**WHEREAS**, in order to protect its business interests, PROJECT GREENAI desires Company to assume and undertake certain obligations, including the preservation and protection of its Confidential Information (as defined below in Article 1.1(b)).

**WHEREAS**, Company is agreeable to protecting PD GreenAI’ Confidential Information.

**NOW THEREFORE**, the parties agree as follows:



## DEFINITIONS

The parties agree that the following definitions shall apply to this Agreement:

- (a) **“Business”** shall mean any and all aspects of the business being conducted, planned to be conducted or contemplated to be conducted by PROJECT GREEN AI, including but not limited to the development of the Project and the establishment of NASTP.
- (b) **“Confidential Information”** shall mean and include all information, knowledge and data, whether in a tangible or intangible form, or whether transmitted orally, electronically or in written form, concerning (i) business, financial or technical information, (ii) the business plans, strategic plans, operations, practices, concepts, ideas, research, techniques, methods, and procedures of PROJECT GREENAI, (iii) the know-how developed, used, and contemplated for use in connection with the Business, and (iv) such other information, in any form whatsoever, containing or otherwise reflecting information about PROJECT GREENAI, which PROJECT GREENAI treats as proprietary and confidential.
- (c) **“Authenticity”** The shared information must be treated as “confidential information” and falls in ambit of this agreement. It is strictly prohibited that shared data will be disclosed before third party without permission of PROJECT GREENAI
- (d) **“Representatives”** shall include a party’s shareholders, directors, officers, employees, agents, advisors and Company’s including legal counsel, accountants and financial advisors.
- (e) **“Transaction”** shall include a possible business relationship, contract, or transaction which may at some future date be entered into by the parties.

## NON-DISCLOSURE AND USE OF CONFIDENTIAL INFORMATION

- 1.1. Company acknowledges that the Confidential Information belongs to PROJECT GREENAI and has been obtained by PROJECT GREENAI at great cost and is of great value to PROJECT GREENAI. Company further acknowledges that it has or will become privy to the Confidential Information by virtue of this Agreement with PROJECT GREENAI.
- 1.2. For as long as Company is in possession of any Confidential Information, Company shall hold and maintain it in strict confidence, and shall not directly or indirectly use, divulge, furnish or make accessible to any person or entity not expressly authorized by PROJECT GREENAI to receive such information.
- 1.3. In the event Company or anyone on Company’s behalf are served with or subject to a legal demand, legal obligation, court order or request for disclosure of any Confidential Information, Company shall provide PROJECT GREENAI with notice as soon as practicable and use its best efforts to oppose and/or adjourn any such disclosure and to afford PROJECT GREENAI the opportunity to oppose such disclosure lawfully.
- 1.4. Company agrees that the terms of this Agreement are confidential and may not be disclosed to any third party other than its legal and financial advisors who shall in turn agree not to disclose the terms to any third party.

1.5. The fact that Confidential Information has been disclosed to a limited number of outsiders by PROJECT GREENAI shall not deprive the information, knowledge or data of its proprietary or confidential status.

1.6. Information exchanged by the parties prior to the commencement date shall be deemed to be Confidential Information and protected by this Agreement.

1.7. Company acknowledges that all the Confidential Information obtained by it or submitted or transmitted to it by PROJECT GREENAI in any form shall be held in trust by Company and utilized only for the purpose it is intended.

1.8. It is clearly understood and expressly agreed by Company that it will not copy or retain any Confidential Information and shall forthwith return the same to PROJECT GREENAI upon the expiry or termination of any business relationship between the parties. Company shall, however, continue to be bound by the non-disclosure obligations until the termination of this Agreement in accordance with its terms.

## **2. EXCEPTIONS**

2.1. The obligations with respect to handling and using Confidential Information as set forth in this Agreement are not applicable to information which is:

- (a) In the public domain or becomes common knowledge within the industry (other than through a violation or breach of this Agreement or violation or breach of any other obligation of confidentiality by any person or entity); or
- (b) Known to Company prior to disclosure by PROJECT GREENAI, as evidenced by competent written proof; or
- (c) Independently developed by Company without breach of this Agreement by Company; or
- (d) Obtained by Company from third parties who obtained such information (other than through a violation or breach of any agreement or other obligation of confidentiality); or
- (e) Disclosed as required by governmental decree, law or statute or judicial decree or order subject to the terms of this Agreement.

2.2. If Company intends to use, publish or otherwise disclose any Confidential Information in reliance upon paragraph 3.1(e) above, it shall:

- (a) Give prompt notice of such request to PROJECT GREENAI so that it may seek an appropriate protective order or other appropriate remedy; and
- (b) Cooperate with PROJECT GREENAI to obtain such protective order or other appropriate remedy.

## **3. PRIVACY AND DATA PROTECTION**

3.1. Both Parties shall comply fully with all applicable Pakistani laws and regulations regarding privacy and data protection, and without limiting the generality of the forgoing, each Party shall:

- (a) Obtain all necessary and required consents with respect to the collection, use and disclosure of personal information to be used by the other as contemplated hereunder.
- (b) Ensure that the transfers of personal information by one Party to the other arising from or pursuant to this Agreement will comply in all material respects with any applicable privacy and data protection legislation in Pakistan.
- (c) Identify a member of its management who shall be responsible for ensuring compliance with all data protection obligations under this Agreement.
- (d) Refer any third party who request access to Personal Information to the other Party, if applicable, and both Parties shall provide all reasonable assistance to the other to facilitate such requests.
- (e) Use appropriate security measures to protect the Personal Information in its custody.
- (f) In the event of a dispute between either Party and an individual or a relevant privacy commissioner concerning the collection, use or disclosure of Personal Information, which dispute is not amicably resolved, both parties agree to defend and advocate the lawfulness of the transfer of Personal Information to Company pursuant to this Agreement through available means of dispute resolution as provided for by applicable privacy legislation.

#### **4. NO OBLIGATION**

4.1. Neither party shall be required, by reason of the provision of the Confidential Information hereunder or otherwise by this Agreement:

- (a) To purchase or use any service or item supplied by the other party; or
- (b) To enter into any Transaction, contract or agreement with the other party; or
- (c) To deal exclusively with the other party in any manner.

#### **5. ENFORCEMENT AND REMEDIES**

5.1. Company acknowledges that any breach or violation (or threatened breach or violation) of this Agreement by Company or its Representatives would result in immediate and irreparable injury to Project GreenAI for which Project GreenAI will not have any adequate remedy at law. Project GreenAI shall be entitled, in addition to all other remedies, to a temporary and permanent injunction and/or decree for specific performance of the terms of this Agreement, without the necessity of showing any actual damages, posting a bond or furnishing other security.

5.2. Company agrees to take such reasonable actions as Project GreenAI considers necessary or desirable against any of Company Representatives in the event such Representatives breach (or threaten to breach) the provisions of this Agreement.

5.3. The right to take reasonable action is in addition to all other rights or recourses available to Project GreenAI by contract or at law, as a result of any breach or violation of this Agreement by Company or any of its Representatives.

5.4. In any action in which Project GreenAI obtains a preliminary or permanent injunction or any other relief, Project GreenAI shall be entitled to a judgment or award for reimbursement of its legal costs, including but not limited to reasonable attorneys' fees.

5.5. Company agrees to indemnify and hold Project GreenAI and its Representatives harmless from any damages, costs, expenses, loss or liability (including reasonable legal fees and the cost of enforcing this indemnity) arising out of or resulting from any unauthorized use or disclosure of the Confidential Information, or any other breach or violation of this Agreement by Company or its Representatives.

5.6. No failure or delay by either party in exercising any right, option, power, or privilege hereunder shall operate as a waiver thereof, nor shall any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any other right, option, power or privilege.

## **6. ENTIRE AGREEMENT**

6.1. This Agreement represents the entire agreement between the parties respecting the subject matter hereof, and supersedes all prior agreements, understandings, discussions, negotiations, representations and correspondence made by or between them.

6.2. This Agreement may be amended, modified, waived or terminated only by way of a supplemental agreement signed by the parties.

6.3. All of the WHEREAS recitals set forth at the beginning of this Agreement are integral parts of this Agreement and are incorporated into this Agreement by reference.

6.4. The titles and headings of this Agreement and all sections of this Agreement are for purposes of convenience only, form no part of this Agreement, and shall not be used in interpreting this Agreement.

## **7. SEVERABILITY**

7.1. If any clause or provision of this Agreement, or portion thereof, shall be held by any court or other tribunal of competent jurisdiction to be illegal, invalid or unenforceable, the remainder of such clause or provision shall not be affected thereby and shall be given full effect, without regard to the invalid portion. It is the intention of the parties that, if any court or other tribunal of competent jurisdiction construes any clause or provision of this Agreement, or any portion thereof, to be illegal, invalid or unenforceable, such court or tribunal shall, only to the extent necessary to ensure the legality, validity, or enforceability thereof, either strike or delete such clause or provision or portion thereof or reduce the duration, area, or other aspect of such provision, and, in its reduced form, such provision shall then be enforceable and shall be enforced.

## **8. NOTICES**

8.1. Notices required or permitted to be given under this Agreement shall be in writing and shall be deemed to have been properly given (i) on the day indicated on the corresponding acknowledgement of receipt if dispatched by registered mail, (ii) on the day indicated on the transmission record if transmitted by facsimile, (iii) on the date of actual delivery if delivered by hand, or (iv) on the day indicated on the corresponding acknowledgement of receipt if

dispatched by courier, if such notice is addressed to the party to whom it was sent at the address, or facsimile number, of such party set forth below or at such other address or facsimile number as the party shall subsequently designate to the other party by notice given in accordance with this provision:

**In respect of PD GreenAI:**

Name **Air Commodore Dr Tauseef Ur Rehman**

Designation: PD GreenAI

Address: Alpha-3, NASTP, Old Airport Road, Rawalpindi

Email: pd.tech@acp-nastp.gov.pk

Tel Number: +92-51-9529532

**In respect of Company :**

**M/s Name & Address of the company**

Name: \_\_\_\_\_

Designation: \_\_\_\_\_

Address:

Email:

Facsimile Number:

**9. GOVERNING LAW & JURISDICTION**

9.1. This Agreement shall be governed by the laws of the Islamic Republic of Pakistan and Courts of Rawalpindi have exclusive jurisdiction to adjudicate the matter.

**IN WITNESS WHEREOF** the parties have caused this Agreement to be executed by their respective representatives duly authorized in that behalf, as of the dates written below.

FOR PROJECT GREENAI	FOR COMPANY
	Name: Designation:
Sign:	Sign:

Witness 1	Witness 2
Name: Designation: CNIC:	Name: Designation: CNIC:
Sign:	Sign:

**Annex “VI”**

**CERTIFICATE FOR CORRECTNESS OF DATA/ DOCUMENTS/  
INFORMATION (Date:-----)**

It is certified that the data/ documents/ information submitted in our Proposal is absolutely correct to best of our knowledge and we accept full responsibility for its accuracy.

We understand that any false or incorrect data/ documents/ information may result in disqualification of our bid at any stage of procurement process.

Signature of Authorized Representative: \_\_\_\_\_

Name/Designation of Authorized Representative: \_\_\_\_\_

Designation of Authorized Representative: \_\_\_\_\_

**Annex "VII"**

**FORM OF BANK GUARANTEE FOR MOBILIZATION ADVANCE PAYMENT  
ON JUDICIAL STAMP PAPER OF Rs.100/- OR AS SUITABLE TO THE  
AMOUNT OF BG**

Guarantee No. \_\_\_\_\_

Executed on \_\_\_\_\_

Expiry date \_\_\_\_\_

WHEREAS the \_\_\_\_\_ (hereinafter called the Employer) has entered into a Contract for \_\_\_\_\_ (Particulars of Contract), with \_\_\_\_\_ (hereinafter called the Contractor).

AND WHEREAS the Employer has agreed to advance to the Contractor, at the Contractor's request, an amount of Rupees \_\_\_\_\_ (Rs. \_\_\_\_\_) which amount shall be advanced to the Contractor as per provisions of the Contract.

AND WHEREAS the Employer has asked the Contractor to furnish a Guarantee to secure advance payment for performance of his obligations under the said Contract.

AND WHEREAS \_\_\_\_\_ (Bank) (hereinafter called the Guarantor) at the request of the Contractor and in consideration of the Employer agreeing to make the above advance to the Contractor, has agreed to furnish the said Guarantee.

NOW THEREFORE the Guarantor hereby guarantees that the Contractor shall use the advance for the purpose of abovementioned Contract and if he fails, and commits default in fulfilment of any of his obligations for which the advance payment is made, the Guarantor shall be liable to the Employer for payment not exceeding the aforementioned amount.

Notice in writing of any default, of which the Employer shall be the sole and final judge, as aforesaid, on the part of the Contractor, shall be given by the Employer to the Guarantor, and on such first written demand payment shall be made by the Guarantor of all sums then due under this Guarantee without any reference to the Contractor and without any objection.

This Guarantee shall come into force as soon as the advance payment has been credited to the account of the Contractor.

This guarantee shall expire not later than \_\_\_\_\_ by which date we must have received any claims by registered letter, telegram, telex or telefax. It is understood that you will return this Guarantee to us on expiry or after settlement of the total amount to be claimed hereunder.

\_\_\_\_\_  
Guarantor (Bank)

Witness:

\_\_\_\_\_

Corporate Secretary (Seal)

Title \_\_\_\_\_

Name, Title & Address

Signature \_\_\_\_\_

Name \_\_\_\_\_

\_\_\_\_\_  
Corporate Guarantor (Seal)



**Annex "VIII"**

**PERFORMANCE GUARANTEE (ON JUDICIAL STAMP PAPER OF Rs.100/-  
OR AS SUITABLE TO THE AMOUNT OF BG)**

CONTRACT NO. \_\_\_\_\_ DATE \_\_\_\_\_  
 NAME OF FIRM/CONTRACTOR: \_\_\_\_\_  
 ADDRESS OF FIRM: \_\_\_\_\_  
 NAME OF GUARANTOR: \_\_\_\_\_  
 ADDRESS OF GUARANTOR: \_\_\_\_\_  
 AMOUNT OF GUARANTY in Rs. \_\_\_\_\_ (In Words) \_\_\_\_\_  
 DATE OF EXPIRY OF GUARANTY \_\_\_\_\_

To: Project Director GreenAI

Sir,

1. Whereas your good self have entered into Contract No. \_\_\_\_\_ dated \_\_\_\_\_ with Messer's \_\_\_\_\_ (FULL NAME AND ADDRESS) Hereinafter referred to as our customer and that one of the conditions of the contract is the submission of unconditional Bank Guaranty by our customer to your good-self for a sum of Rs. \_\_\_\_\_ Rupees \_\_\_\_\_

2. In compliance with this stipulation of the contract, we hereby agree and undertake as under:

(a) To pay to you unconditionally on demand and/or without any reference to our Customer an amount not exceeding the sum of Rs. \_\_\_\_\_ Rupees \_\_\_\_\_ as would be mentioned in your written Demand Notice.

(b) To keep this Guaranty in force till \_\_\_\_\_

(c) That the validity of this Bank Guaranty shall be kept Two clear Months ahead of the original / extended delivery period or the warrantee of the Agri verse Cloud which so ever is later in duration on receipt of information from our Customer i.e. M/s \_\_\_\_\_ or from your office. Our liability under this Bank Guaranty shall cease on the closing of banking hours on the last date of validity of this Bank Guaranty. Claim received thereafter shall not be entertained by us whether you suffer a

loss or not. On receipt of payment under this guaranty, this document i.e. Bank Guaranty must be clearly cancelled, discharged and returned to us.

(d) That we shall inform your office regarding termination of the validity of this Bank Guaranty one clear month before the actual expiry date of this Guaranty.

(e) That with the consent of our customer you may amend/alter any term/clause of the contract or add/delete any term/clause to/from this contract without making any reference to us. We do not reserve any right to receive any such amendment/alternation or addition/deletion provided such like actions do not increase our monetary liability under this Bank Guaranty which shall be limited only to

Rs\_\_\_\_\_ (Rupees\_\_\_\_\_)

(f) That the Bank Guaranty herein before given shall not be affected by any change in the constitution of the Bank or Customer/Supplier or Vendor.

(g) That this is an unconditional Bank Guaranty, which shall be encashed on sight on presentation without any reference to our Customer/Supplier or Vendor.

**GUARANTOR:**

**Dated:** \_\_\_\_\_

**BANK SEAL & SIGNATURE:**

**Annex "IX"**

**FINANCIAL PROPOSAL FORM**

1. Contract No \_\_\_\_\_
2. Time and date of Opening: Date \_\_\_\_\_ At \_\_\_\_\_ Hrs

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Item No	Item S No	Part No	Noun	Specs	UI	Qty	Unit Price	Total Price	GST % on Total Price (As applicable)	Total Price (incl GST) <u>9+10</u>

Inclusive Excluded: Excise Duty @ \_\_\_\_\_ %

Sales Tax @ \_\_\_\_\_ %

Surcharge @ \_\_\_\_\_ %

Any other Tax@: \_\_\_\_\_ %

Total Price: \_\_\_\_\_ (Rs in words) \_\_\_\_\_

No.	Itemized Financial Matrix	Reference
1a	Technical User Requirement - Application Zone	Appedix"A" to Annex "XIV"
1b	Technical User Requirement - High Performance Zone	Appedix"A" to Annex "XIV"
1c	Technical User Requirement - Data Zone	Appedix"A" to Annex "XIV"
1d	Technical User Requirement - Network	Appedix"A" to Annex "XIV"
2	Cloud orchestration Software	Appedix"B" to Annex "XIV"
3	Data Center Hosting	Form B-9 to Annex "II"

The above-mentioned Forms in Para no.2 should be filled for all the above-mentioned components separately

**Bid is valid upto** \_\_\_\_\_.

**Dated:-**

**(Signature of Bidder & Stamp)**

**Special Instructions**

1. Technical Specification mentioned at **Annex "XIV"** are reflected at appendix-I to this schedule must be studied carefully prior to filling in proposal.
2. Date by which stores are required (In case it is not possible for you to give delivery by given date please indicate date by which store can be delivered by the firm).

3. The price quoted must be net per accounting unit as shown in the schedule to proposal inclusive of sales Tax /Excise Duty/Surcharge (fix/variable taxes or any other relevant tax).
4. Prices will be mentioned for each item separately.
5. Only one rate quoted for entire qty will lead to rejection of offer.
6. Original quotations from the manufacturer /supplier must be attached in support of quoted price. A certificate from the principal will be endorsed on the original quotation to the effect that the prices do include %age of agent commission discount and do not include any such commission. And apart from this, there is no other element of agent's commission / discount included in the quotation. Only one rate will be quoted for entire qty item-wise.
7. In case of OEM products are offered, OEM part No and its interchangeability with demanded part No should be indicated and provided with the help of relevant catalogue/extract.
8. The prices will be indicated in US\$/EURO/UK£ (in case quoted prices are in different currencies then for the sake of comparison, these will be converted into Pak Currency at rate prevailing on opening day of commercial offers).
9. The bid sum as submitted and read out during financial bid opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity except that if the Bid is substantially responsive, the procuring agency shall handle only the undermentioned errors on the following basis:
  - (a) Bidders shall be notified of any correctable error detected in their bid during the notification of award.
  - (b) Any arithmetic errors in the submitted bid arising from a miscalculation of unit price, quantity, subtotal and total bid price shall be rectified on the following basis:
  - (c) If there is a discrepancy between words and figures, the lowest amount, either in words or figures, shall be considered.
  - (d) If there is discrepancy between the unit price and the total price which is obtained by multiplying the unit price and quantity, or between sub- total and the total price, the unit or sub-total price shall prevail, and the total price shall be corrected.
  - (e) In case of discrepancy between sub-total price obtained by adding various prices in the schedule and the sub-total price indicated for that particular schedule, the sub-total obtained by addition of various arithmetically corrected prices would be considered for evaluation.
  - (f) In case of any discrepancy in the applicable rates or calculation of applicable taxes discussed, agreed and added to the contract amount in separate lines, as needed, corrections in item and subtotal prices may be allowed as per applicable Govt. rates / rules.
10. The procuring agency shall be entitled to award the contract to the most advantageous bidder after applying permissible arithmetic / tax corrections in the bid proposal sheets. If the bidder does not accept the correction of the errors as above, his bid will be rejected.

**Special Note:** You may say Agreed to / not Agreed to conditions / clauses mentioned in these documents. In case of disagreement you may suggest option / alternative course for consideration by Procurement agency but it will not be binding on Project Director GREENAI to accept the same.

## Annex "X-A"

**BIDDER'S JV MEMBERS INFORMATION FORM**

*[The Bidder shall fill in this Form in accordance with the instructions indicated below. The following table shall be filled in for the Bidder and for each member of a Joint Venture]].*

Date: *[insert date (as day, month and year) of Bid submission]*

RFB No.: *[insert number of RFB process]*

Alternative No.: *[insert identification No if this is a Bid for an alternative]*

Page\_\_\_\_\_of\_\_\_\_\_pages

1. Bidder's Name: <i>[insert Bidder's legal name]</i>
2. Bidder's JV Member's name: <i>[insert JV's Member legal name]</i>
3. Bidder's JV Member's country of registration: <i>[insert JV's Member country of registration]</i>
4. Bidder's JV Member's year of registration: <i>[insert JV's Member year of registration]</i>
5. Bidder's JV Member's legal address in country of registration: <i>[insert JV's Member legal address in country of registration]</i>
6. Bidder's JV Member's authorized representative information Name: <i>[insert name of JV's Member authorized representative]</i> Address: <i>[insert address of JV's Member authorized representative]</i> Telephone/Fax numbers: <i>[insert telephone/fax numbers of JV's Member authorized representative]</i> Email Address: <i>[insert email address of JV's Member authorized representative]</i>
7. Attached are copies of original documents of <i>[check the box(es) of the attached original documents]</i> <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITB 4.4.
8. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

**Annex “X-B”**

**POWER OF ATTORNEY**

**Power of Attorney to be provided by the Bidder / Lead Member in favour for its representative as evidence of authorized representative’s authority.**

Know all men by these presents, I \_\_\_\_\_ (name and address of the registered office of the Bidder or Lead Member of the consortium, as applicable) do hereby constitute, appoint and authorize Mr. / Ms. \_\_\_\_\_ (name and residential address) who is presently employed with us and holding the position of \_\_\_\_\_ as our true and lawful attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to submission of our Bid in response to the RFP dated \_\_\_\_\_ bearing reference no. \_\_\_\_\_ issued by Project GreenAI NASTP, including signing and submission of the Bid and all other documents related to the Bid, including but not limited to undertakings, letters, certificates, acceptances, clarifications, guarantees or any other document which Project GreenAI NASTP may require us to submit. The aforesaid attorney is further authorized for making representations to and providing information/ responses to Project GreenAI NASTP, representing us in all matters and generally dealing with GreenAI NASTP in all matters in connection with our Bid till the completion of the Bid process as per the terms of the RFP.

We hereby agree to ratify all acts, deeds and things done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall be binding on us and shall always be deemed to have been done by us.

**Signed by the within named \_\_\_\_\_ [Insert the name of the executant company] through the hand of Mr. \_\_\_\_\_ duly authorized by the Board to issue such Power of Attorney. Dated this \_\_\_\_\_ day of \_\_\_\_\_ Accepted**

\_\_\_\_\_  
Signature of Attorney (Name, Designation and Address of the Attorney)

**Attested**

**WITNESS:**

\_\_\_\_\_  
(Signature)

Name \_\_\_\_\_

Designation \_\_\_\_\_

\_\_\_\_\_  
(Signature)

Name \_\_\_\_\_

Designation \_\_\_\_\_

**Annex “XI”****SPECIAL INSTRUCTIONS**

Under mentioned information must be provided along with quotation else your quotation will be rejected: -

<b>S No</b>	<b>Description / Requirement</b>	<b>Remarks / Attached</b>
1.	Delivery Period	
2.	Quotation Validity Period	
3.	Country of Origin	
4.	Port of Shipment	
5.	Terms of Payment (As per Para 18 of IT)	
6.	Warranty / Guarantee period offered by Firm	
7.	Beneficiary Details (Completed address along with contact No)	
8.	Complete Bank address and Account Details For Payment / Letter of Credit	
9.	Previous Experience (Nature of Business and No of Years in Business)	
11.	Signing Authority (Name, Designation, Contact Details)	
12.	Address of local firm along with contact No, email etc	
13.	Manufacturer and Brand Name (If applicable)	

**Annex “XII”**

**FORMAT OF AFFIDAVIT / UNDERTAKING**

**Bidder must submit following undertaking (on stamp paper of Rs.100), failing which the bid shall be rejected:**

(a) I, Mr. .... S/o..... holding CNIC # ..... from M/s ..... Having Its business office at ....., do hereby solemnly affirm and declare as under;

(b) That M/s ..... is not engaged, under investigation or offences or no proceedings are pending before FBR, Customs, NAB, any Judicial form, FIA or any other Govt. authority with respect to fraud, terror financing, money laundering etc.

(c) We also confirm that our firm has not been black listed by any National/International organization or forum and is entitled to carry out its business activities to the standard business ethics.

(d) That the Partner(s) / Officers of M/s..... have not been subject to financial crime. Nor they every compounded with their creditors in any capacity.

(e) The above statement is true to the best of my knowledge and belief and nothing has been concealed or is false.

**Note:** In case any bidder is found in the list of “Blacklisted Firms-Pakistan” or related links at <https://www.ppra.org.pk/> then its bid shall be rejected

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Stamp: \_\_\_\_\_



**Annex “XIII”**



**DRAFT CONTRACT  
FOR**

**ESTABLISHMENT OF “AGRIVERSE: NATIONAL PRECISION AGRICULTURE  
CLOUD FACILITY (PILOT PHASE)” ON TURN-KEY BASIS**

**AS A COMPONENT OF PSDP APPROVED PROJECT TITLED “DEVELOPMENT  
OF ICT AND ARTIFICIAL INTELLIGENCE (AI) BASED PRECISION  
AGRICULTURE SYSTEMS UTILIZING DUAL-USE AEROSPACE  
TECHNOLOGIES - GREENAI”**

**CONTRACT NO. \_\_\_\_\_**

**DATED \_\_\_\_\_**

**BETWEEN**

**PROJECT DIRECTOR GREENAI, NASTP RAWALPINDI**

**AND**

**Seller**

\_\_\_\_\_

**CONTRACT**

1. This Contract is made on the day of \_\_\_\_\_ between the **Project Director GREEN AI, NASTP RAWALPINDI** (hereinafter called the 'Purchaser') party of the first part and \_\_\_\_\_ (hereinafter called the "Seller") party of the second part.

2. **WHEREBY** it is agreed that the Seller shall establish **“AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)”** (the **“Facility”**) at the designated site subject to terms and conditions as stipulated herein.

**WARNING**

Any information about the Sale and Purchase of the Facility under this Contract shall not be communicated to any person, press or agency not authorized by the Seller to receive it except the manufacturer of the Facility. Breach of this undertaking shall be punishable under the official Secrets Act, 1923.

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**APPENDICES**

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Appendix "C"	Implementation Schedule
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**Note :** - This contract consists of [\_\_\_\_\_] (\_\_\_\_\_) pages and [\_\_\_\_\_] pages of Tech Specs.

**DEFINITIONS**

1.	<b>ATP</b> Means the document describing the acceptance test procedure.
2.	<b>Agents and Principal</b> An 'agent' is a person employed to do any act for another or to represent another in dealing with this person. The person for whom such act is done, or who is so represented, is called the "Principal".
3.	<b>Bank Guarantee (BG)</b> Mean any amount in the shape of Bank Guarantee provided by Seller as per terms of the Contract.
4.	<b>Contract</b> The contract shall mean the contract entered into between the parties that the Purchaser and Seller for supply of Facility.
5.	<b>Competent Purchase Officer</b> Means an officer nominated by the "Purchaser" and specified in the Contract for the purpose of carrying out the duties assigned in this Contract.
6.	<b>Delivery</b> Means actual supply of Facility, by the dates specified in Implementation Schedule of the Contract, which are found acceptable by the Inspector on Purchaser's behalf.
7.	<b>Facility</b> Means "Establishment of Cloud Data Centre Facility "Agri Verse Cloud" for PSDP Project GREEN AI"
8.	<b>FAT</b> Means Factory Acceptance Test/Trial.
9.	<b>Fault</b> Means wrongful act of default.
10.	<b>Inspector</b> Means an officer nominated by the "Purchaser" and specified in the Contract for the purpose of carrying out technical/acceptance inspection of the Facility contracted for, within the country. The terms shall be taken to include the representative(s) of the inspector duly authorized by the latter specifically for the purpose of discharging inspection duties involved.
11.	<b>Letter of Credit (LC)</b> Means confirmed irrevocable letter of credit payable at sight allowing payment to the Seller as per schedule/terms of payment in the Contract.

12.	<b>Purchaser</b> Project Director GREENAI, NASTP, Rawalpindi
13.	<b>Premises</b> Means the place or places mentioned in the Contract shall include the place or places as may be approved by the Purchaser at which Facility under the Contract has to be established.
14.	<b>Price</b> Means the price/cost for purchase of Facility as fixed in the Contract.
15.	<b>Parties</b> Means the PURCHASER and the SELLER as two parties in a contract.
16.	<b>Scheduled Bank</b> Means any (foreign or local Bank approved and included in the list of scheduled Bank of) STATE BANK OF PAKISTAN.
17.	<b>Seller</b> Means [*].
18.	<b>Facility</b> Means the <b>AGRIVERSE CLOUD</b> .
19.	<b>Test</b> Mean the test or tests prescribed in the specifications or any other test considered necessary by the Inspector.
20.	<b>End User</b> Means the Project Director GREENAI
21.	<b>EUC</b> Means End User Certificate.

**GENERAL PARTICULARS**

1.	Scope of Contract	The Seller undertakes to supply the Facility at a cost as mentioned in Contract within Delivery Period.
2.	Name of Indenter	Project Director GREENAI
3.	Principal / Manufacturers' Address	
4.	Principal's Local Agent / Representative	
5.	Manufacturer	
6.	Airport of Shipment	
7.	Country of Origin of Facility	
8.	Value for which LC is to be opened	N/A
9.	Agent Commission payable at Actual in Pak Rs.	N/A
10.	Freight Charges / Insurance Charges	N/A
11.	Total Contract Value	
12.	Value of Contract Performance & Warranty BG	
13.	Validity of Contract Performance & Warranty BG	
14.	Delivery Period	12 months
15.	Airport of Destination	N/A
16.	Terms of Delivery	
17.	Terms of Payment	Payment schedule at Appendix "B"
18.	Warranty Period	
19.	Mode of shipment	N/A
20.	Delivery Date	



## Clause-1

## SCOPE OF CONTRACT

1.1 The Seller undertakes to supply the Facility in accordance with the Technical Specification Requirement of **Appendix “A”** and subject to the terms and conditions contained herein. It is intended that Seller’s performance under this Contract shall include everything requisite and reasonably inferable as necessary to complete the entire scope of work to provide the Facility on turn-key basis notwithstanding the fact that every item necessarily involved may not be specifically mentioned. Details of work which are not indicated by the specifications shall be performed by the Seller if such details are necessary to complete the general intent of this Contract. It is understood that the intent of the Contract is to relieve Purchaser of the necessity of engaging or obtaining any additional services to complete the Seller’s obligations. Any such required work which is not already explicitly stated herein will be performed by the Consultant without any further cost to Purchaser.

1.2 The Seller shall be responsible for all designing, supervision & management of the Facility. The Seller shall submit a detailed Implementation Plan covering details of technical team / resident engineer and delivery timelines within seven days from the Effective Date.

1.3 The Seller shall be responsible to provide complete telecom, architectural, structural and electrical design and drawings (both Planned and Built-in with complete calculations).

1.4 Project Director GreenAI, NASTP or designated team reserves the right to inspect implementations / installations executed by the Seller. The Seller shall ensure and arrange site visit of the Purchaser's representatives at a mutually convenient time.

## Clause-2

### COST OF FACILITY / EQUIPMENT

2.1 The Seller undertakes to provide the Facility as per the cost specified at **Appendix 'B'**.

2.2 The lump sum cost for the Facility (inclusive of all taxes) will be PKR \_\_\_\_\_ (in words Pak Rupees \_\_\_\_\_) in the manner as specified in **Appendix “B”**. The lump sum price shall remain fixed during the Term of the Contract and no revision shall be made. The lump sum price shall be paid as per payment schedule contained in **Appendix “B”**. Any changes / additional work shall be invoiced as agreed between Purchaser and Seller.

2.3 The Seller shall submit its error free invoice(s) in duplicate to the Purchaser, along with supporting documents, which shall be paid by the Purchaser within thirty (30) days after acceptance.

2.4 The Seller shall raise error free invoices for duly performed work and acceptable as per Contract after the approval of deliverable by Seller. Each invoice detailing the work undertaken along with the necessary attachments to substantiate the work claimed for payment.

2.5 All invoices and supporting documents shall be in English language or officially translated into English language.

2.6 All payments to the Seller will be made after deductions of all applicable taxes, duties, levies etc. in Pakistan.

2.7 Each invoice shall be signed by the authorized representative of the Seller.

2.8 If Purchaser disputes any invoice submitted by the Seller, it shall inform the Seller in writing within fifteen (15) days of receipt of invoice. The notice of dispute shall be accompanied by documentary basis for disputing the invoices, if any. The Parties shall, within fifteen (15) days of the issuance of the notice of dispute, seek to meet to resolve the dispute or to refer the matter to arbitration as per clause 26. In case the amount so agreed or determined to be paid to the Seller on the conclusion of arbitration proceedings, the Seller shall submit the invoice along with the invoice for immediately succeeding month(s) following such agreement or determination, and paid for by the Purchaser accordingly.

### **Clause-3 DELIVERY SCHEDULE**

3.1 The Seller will deliver the Facility to the Purchaser in accordance with Implementation Schedule specified in **Appendix "C"**.

3.2 The Seller shall provide detail working drawings before the start of the work and only approved working drawings shall be executed, however, only Purchaser has the right to modify as per site requirements. The Seller shall be responsible to inform the Purchaser and take approval for any change in design.

3.3 **Delay and Delivery Period Extension.** Delay in the supply of Facility up to **21 days** will be regarded "Grace Period" available to the Seller and the delivery date will be considered to have been automatically extended up to that limit without issuance of any formal amendment and payment of any liquidated damages. For delays beyond **21 days** a formal amendment to delivery period will be issued on the request of the Seller. And the period will be calculated from the original date given in the Contract. Request for DP Extension will only be accepted by the Purchaser, before of expiry of delivery period including Grace Period.

### **Clause-4 TERMS OF PAYMENT**

4.1 **Payment Schedule.** The Purchaser will make the payment to the Seller as per the Payment Schedule contained in **Appendix "B"**:

(a)	AGENT COMMISSION	<b>N/A</b>
(b)	FREIGHT & INSURANCE CHARGES (Already covered in DDP contract by Seller)	<b>N/A</b>
(c)	Sea Freight Charges:	<b>N/A</b>
(d)	KPT/Port Wharfage /Allied Charges:	<b>N/A</b>

4.2 **Delivery Order Charges.** Delivery order charges if any while clearance of consignment from Airport authorities will be paid at actual by the Seller on submission of bills duly verified by \_\_\_\_\_ in Pak Currency.

4.3 Import duties and taxes in Pakistan will be paid by Seller to FBR.

4.4 Between the time of inspection and actual delivery DAP, the consignment shall remain at the risk and cost of the Seller.

**Clause-5 CONDITIONS OF PERFORMANCE GUARANTEE**

5.1 To ensure timely and correct supply of Facility, the Seller will furnish a Performance Bond for an amount of \_\_\_\_\_ being **10 %** of the total contract cost at the time of signing of this Contract.

5.2 In case of Bank Guarantee submission- The Bank Guarantee will be endorsed in favour of Purchaser.

5.3. In the event of unsatisfactory performance or any breach of terms of Contract, the Performance Guarantee shall be forfeited by the Purchaser. Seller undertakes not to hinder / restrain its encashment through Court, extra judicial or any other (including administrative) process.

5.4 **Validity of Performance Guarantee.** The Performance Guarantee shall be valid for two months beyond completion of warranty period. In case Performance Guarantee has gone expired and the Seller is reluctant to extend the same, then Purchaser will stop payments of equal amount of the Seller and initiate necessary action in this regard.

5.5 **Submission of Performance Guarantee.** Performance Guarantee shall be submitted by the Seller to the Purchaser a week prior to the signing of the Contract. The Purchaser will scrutinize that the same is in conformity with the format given in request for proposal and will obtain verification of Performance Guarantee from the issuing bank. On verification, the Parties will proceed to sign the Contract.

5.6 If the Seller fails to produce the Performance Guarantee within the specified period, the Purchaser reserves the right: -

- (a) Right of encashment of Bid Security deposited by the Seller forthwith.
- (b) Cancelling the Contract at the Risk & Expense of the Seller.

5.7 **Release of Performance Guarantee.** The Performance Guarantee will be returned to the Seller by the Purchaser on receipt of instruction from the End User after completion of warranty period of the Facility as per DPL-15. The Seller will dispatch '**No Demand Certificate**' to End User as per **Appendix "G"** of the Contract.

**Clause-6 ACCEPTANCE & WARRANTY / GUARANTEE**

6.1 Facility will be accepted against manufacturer's Standard Warranty/ Seller's letter of Guarantee as per DPL-15 attached as **Appendix "E"** to this Contract.

6.2 The Seller warrants that all materials and workmanship will be of the highest grade and consistent with the established and the generally accepted standard for Facility of the type ordered, and in full conformity with the specifications and drawings. The Seller further agrees to protect the Purchaser and save him from any loss, damage or expense whatsoever including lawyer's fees that the Purchaser may suffer as a result of failure of the Facility to be as warranted, and this warranty shall remain effective after inspection of, payment for, and acceptance of Facility as to the patent or latent defects. The Seller further agrees to replace the contracted Facility which may prove defective during warranty period. However, all defective items/parts/equipment within warranty period after discovery thereof shall be intimated to the Seller within a maximum of \_\_\_\_\_ grace period after warranty expiry. Its arrival at ultimate destination in Pakistan. Payment of the full/part price on proof of dispatch shall not absolve the Seller of his responsibility under the Contract to supply items/parts/equipment of the requisite description and in the quantity required and the Seller shall promptly settle any claim made by the Purchaser on that account (**Form DPL-15**).

6.3 Warranty of equipment shall be \_\_\_\_\_ after acceptance by purchaser.

6.4 The Seller shall provide warranty replacement of equipment within two months of the intimation of the fault. Warranty of replaced / rejected items/parts/equipment will be extended accordingly.

**Note:**

1. Any deviation to this clause will be with prior approval of Purchaser.
2. The warranty period shall be extended by a period equal to the time taken by the Seller to repair or replace the equipment under warranty.

**Clause-7**

**DUTIES AND TAXES APPLICABLE**

7.1 The cost given in the **Appendix “B”** are firm and final and without any Legal Claim on the Purchaser. The Purchaser shall not be liable for any payment on account of any taxes or duties that might be imposed or increased on Facility after signing of the Contract.

**Clause-8**

**PACKING AND MARKING AND INSTRUCTIONS**

8.1 Facility will be marked “\_\_\_\_\_” by the Seller in indelible ink, embossed, printed or engraved, as appropriate (where applicable)

8.2 All parts/items/equipment should be suitable preserved and packed by using waterproof material and providing topicalization, where necessary as per standard trade packing. Packing should be suitable for export to long overseas by Air/Road/Rail so as to ensure these being free from damage/loss on arrival at the ultimate destination. Cases containing delicate and fragile parts/items/equipment should be marked as

**“FRAGILE HANDLE WITH CARE” AND “THIS SIDE UP”**

(Prominently in English to avoid rough handling in transit. Cases should wire/strip binding.)

8.3 Any loss/damage due to faulty packing/wrong marking or selection of weak container or late receipt of shipping documents shall be Seller's responsibility. Similarly, demurrage charges due to wrong or delay in transmission of information will be attributable to the Seller.

8.4 Packing lists should be prepared separately for each package; a copy thereof should be placed both inside and outside of each package. In addition, a copy of the invoice along with complete set of packing lists should be placed in package No.1 of the consignment.

8.5 Marking on all packages will be done in accordance with the “MARKING INSTRUCTIONS” attached at **Appendix “F”** to this contract.

**Clause-9**

**DESPATCH / SHIPPING INSTRUCTIONS**

9.1 The seller will dispatch the parts/items/equipment of Facility duly packed and marked as per “Packing and Marking clause”.

9.2 The Seller shall intimate [45 days] in advance of delivery date to the Purchaser about readiness of contracted parts/items/equipment and tentative time schedule for coordination and placement of PIA Flight / PNSC ship. Seller will also provide following details: -

- (a) Contract No. and Date

- (b) Description of parts/items/equipment
- (c) Date of readiness of parts/items/equipment
- (d) No. of boxes/cases
- (e) Weight of each box
- (f) Dimensions and Volume
- (g) Total Weight
- (h) Total Volume
- (i) Port / Airport of Shipment
- (j) Port / Airport of Destination
- (k) Embarkation Unit at Pakistan (for Sea Shipment only)
- (l) IMCO code if any
- (m) Special handling instructions, if any

9.3 The Seller, in case of any difficulty, may contact Project Director GreenAI with the intimation of the same to the procurement agency, at least [one clear month] before the expiry of the delivery period who will assist/facilitate the Seller for timely dispatch of parts/items/equipment. In this case the Seller will forward following documents to ADP concerned along with above information: -

- |                                      |   |          |
|--------------------------------------|---|----------|
| (a) Firm's commercial invoice        | - | 4 copies |
| (b) Packing list                     | - | 2 copies |
| (c) Warranty/Guarantee (Form DPL-15) | - | 2 copies |
| (d) Inspection Note/Certificate      | - | 1 copy   |

#### 9.4 **Trans-shipment is not allowed.**

9.5 Seller will send a set of extra photocopies of above documents, one each to procurement agency and consignee.

### **Clause-10 TECHNICAL SPECIFICATIONS**

10.1 All parts/items/equipment and services supplied under the Contract shall have their origin in the countries and territories eligible source countries as defined under the rules, laws statutes or relevant instructions of the Government of Pakistan. Origin of hardware, sub modules and compliance certificate should be USA.

10.2 "No Back Door / Bugging Device" in Hardware and Software certificate should be provided by the Seller from their respective OEMs of products related to information technology and electronics.

10.3 The Seller undertakes to provide the Facility as per Technical Specification Requirements at **Appendix "A"**.

10.4 Shelf life 05 years and service life 10 years.

10.5 Technical order/ IPB are to be supplied along with equipment.

10.6 Equivalent / compatible Pt No is not required Free of cost replacement of defective/ faulty assemblies/software should be provided by the Seller for two years after release of CRVs.

10.7 The Seller further undertakes to supply all the parts/items/equipment delivered would be brand new current year product in confirmation to purchaser specifications / satisfaction.

10.8 Seller is to provide certificate from OEM, certifying the genuineness of the product and date of production.

#### **Clause-11 TECHNICAL DOCUMENTATIONS**

11.1 All the documents shall be English and System of measurement will be in metric. All manuals/documentation contacted for must be in proper and long-lasting binding/folder.

11.2 If there are any mutually agreed amendments with respect to the equipment made during currency of the contract, the number of technical / operational documents will be provided / amended accordingly.

11.3 All original standard publications, catalogues and technical/operational manuals will be supplied free of cost by the Seller with equipment.

11.4 Seller will also provide two copies of compact disc and handmade drawings wherever applicable.

11.5 The Seller will provide two sets of following documents free of cost for technical scrutiny of the offer (as applicable): -

- (a) Technical literature of each item in original form.
- (b) Manufacturer's Specifications/Technical Data/Drawings and packing details etc. of each item in original form.
- (c) Acceptance test procedure/criteria of each item.
- (d) Country of origin of each item and port of shipment.

#### **Clause-12 TRAINING**

12.1 As per requirement mentioned in Technical Specification Requirements at **Appendix "A"**.

#### **Clause-13 AMENDMENT TO CONTRACT**

13.1 The contract may be amended / modified, to include fresh clause (s) or modify the existing clauses with the mutual agreement by the Seller and purchaser; such modification shall form an integral part of the contract.

#### **Clause-14 CLAIMS**

14.1 In respect of Facility, which are delivered to inspection by Inspector and after inspection are taken over by Purchaser, the responsibility for discrepancies, both in quantity, quality and standard of packing will rest with Seller.

14.2 In respect of Facility which are inspected at Seller's premises, but the packing and dispatch is done by the firm itself-even though under the general supervision of the Inspector- the responsibility will not be divided as under: -

- (a) Inspector will be responsible for quality of parts/items/equipment, packing material and correct packing, as per contract.
- (b) The Seller will be responsible for quantity of parts/items/equipment, correct sealing and numbering of packages and their subsequent dispatch. In case the parts/items/equipment after inspection are packed exclusively by the

Seller (NOT under the supervision of the Inspector), then the Seller will also be responsible for packing material and correct packing.

(c) Any discrepancy observed in quality of Facility during warranty period would be the responsibility of Seller.

(d) If any misconduct in materials used, implemented works or quality is found during works or during the warranty period, it shall be repaired to the required level and to the satisfaction of Purchaser at the cost of the Seller. Time frame for such activity will be decided by Purchaser and will be a compulsion on Seller.

14.3 The Seller has the right to recheck the products under dispute and arrange for replacement within \_\_\_\_\_ after receipt of the claims from the Purchaser. The Seller is not responsible for claims arising from improper storage, wrong handling, wrong storage; wrong handling / operations will be determined by a joint team of experts, the Purchaser and the Seller.

14.4 Such a period (equipment remained in unserviceable / non-operational state) will be subtracted from the warranty / guarantee period.

14.5 Any dispute with regard to claims arising as a result of improper storages, wrong handling and wrong operation will be determined jointly by the Seller and the representative of the Purchaser.

14.6 The responsibility for quality of Facility rests with the Seller and it will not be absolved of its overall responsibility of the supplying Facility according to the correct specifications and quality.

14.7 The Seller is not responsible for claims lodged by the Purchaser arising from improper storage or wrong handling by the Purchaser.

14.8 Either party hereby agrees to indemnify and hold harmless the other party from physical damages to property, injuries to persons including death to the extent resulting directly from the negligence of such Party or its officer's servant agents' employees and / or assignees while engaged in activities under this contract. In the event such damage or injury is caused by the joint or concurrent negligence of Seller and Purchaser the loss shall be borne by each Party in proportion to its negligence.

14.9 To any extent permissible under the applicable law, in no event, the Seller shall be liable for, nor be required to, hold the Purchaser harmless from or indemnify the Purchaser against any loss of use, loss of prospective profits, loss of future contracts, damage to plant or machinery, expenditure incurred on parts/items/equipment supplied, or any indirect, consequential, exemplary, incidental, punitive and multiple loss or damage of whatsoever kind if arising as a result of the usage contrary to that of the agreed procedures under this Contract and/or the breach of the Contract, negligence or other tort, breach of statutory duty or otherwise.

14.10 The provisions of this Clause shall prevail over any conflicting or inconsistent provisions contained in any of the documents comprising the Contract, except to the extent that such provisions further restrict Seller's liability.

14.11 For the purposes of this Clause, the term "Seller" shall mean Seller, its affiliates, subcontractors and Sellers, and their respective agents and employees, whether individually or collectively.

**Clause-15****FAILURE / TERMINATION**

**15.1 Termination.** The Purchaser shall be entitled to terminate this Contract for default on the part of Seller. If the Seller becomes bankrupt, or have a receiving order made against him, or compound with his creditors, or being a corporation commences to be wound up, not being a member's voluntary winding up for the purpose of reconstitution or amalgamation, or carries on its business under a receiver for the benefit of its creditors.

15.2. In case the Purchaser elects to terminate this Contract, the Purchaser shall give notice in writing to the Seller to make good the default. Should the Seller fail to initiate proceedings in order to comply with the notice within \_\_\_\_\_ from the date of serving of such notice, the Purchaser may forthwith terminate this contract by notice in writing to the Seller without prejudice to any rights which may have occurred there under to either PARTY prior to such termination. Upon termination the Seller shall refund all such payments for which goods and / or services have not been delivered or rendered.

15.3 GreenAI may by written notice sent to Contractor and Offshore Supplier terminate the Agreement in whole or in part at any time for its convenience. The notice of termination shall specify that termination is for GreenAI, NASTP convenience, the extent to which performance of Work under the Agreement is terminated, and the date upon which such termination becomes effective

**15.3. Cancellation of Contract on Risk and Expense.** If the Seller delays delivery of any Equipment to be supplied to the Purchaser under this Contract for more than \_\_\_\_\_ days from the time specified for delivery, there of or, \_\_\_\_\_ for any extension of subsequent delays then the Purchaser reserve the right to cancel this contract without prior notice to the Seller and purchase from elsewhere (other firm or country) items/parts/equipment not delivered, at the **Risk and Expense (RE)** of the Seller up to the maximum cap of 100% of the total Contract Cost. However intimation to such a cancellation would be affected by registered letter sent to be Seller and without need to legal or judicial or other formalities. In addition the Purchaser will have the right to recover any loss or damage or payment made to the Seller.

**Note:** Termination should not be mixed with cancellation of contract on **RE**.

**Clause-16****LATE DELIVERY**

16.1 Should the Seller fails to deliver the Facility or any consignment with in the period prescribed, then on the expiry of **21 days** after such period, the Purchaser shall be entitled at his option to take either of the following actions: -

- (i) Cancel the contract, and/or
- (ii) To purchase from elsewhere items/parts/equipment not delivered, at the risk and expense of the Seller and without notice to him, or.
- (iii) To recover liquidated damages when the competent Purchase officer is satisfied that the failure to supply the items/parts/equipment with in the scheduled delivery period has been for reasons with in the control of the Seller, and/or if the Purchaser has suffered loss for reasons of belated delivery. These liquidated damages, if imposed, will be recovered at rate of **2%** but not less than **1%** (depending on the merit of the case as decided by the Competent Purchase Officer) of the value of the items/parts/equipment supply late per



month or a part of a month for the period exceeding the original delivery period, subject to the provision that the total liquidated damages thus imposed will not exceed **10%** of the total value of the Facility delivered late.

**Note:** - The Purchaser's decision under this clause shall not be subject to arbitration.

**Clause-17****FORCE MAJEURE**

17.1 The Parties will not be held responsible for any non-fulfillment or delay in carrying out the contractual obligations due to event of Force Majeure such as Acts of God (earthquake, flood, fire, typhoon, hurricane, mass epidemic diseases), War (military actions, subversive activities or sabotages), Riots, Civil Commotions, strikes, lockouts, prohibitive measures of governments (prohibition of trade relations with certain countries as a result of United Nations sanctions imposition) directly effecting the Parties and any events or circumstances on which the Parties has no control.

17.2 In order to be deemed force majeure, the said events should be of extra ordinary, unpredictable and unavoidable nature, and occur after this Contract comes into force and be beyond control of the Parties.

17.3 Should the force majeure circumstances occur; the suffering Party must notify in writing the other Party of such situation with 30 (thirty) days from occurrence thereof. The said notice should contain information about the nature of the circumstances and, if possible, contain an evaluation or estimate of their probable impact on performance of obligations under the Contract, as well as the time required for such performance.

17.4 Upon termination of the above-mentioned circumstances, the suffered Party should promptly give a relevant written notice to the other Party. The said notice should specify the time, within which performance of obligations under the Contract is being suggested.

17.5 Within reasonable time, the Party exposed to force majeure should transfer to the other Party a Certificate issued by legal authorities, as an evidence of occurrence of the force majeure situation.

17.6 Should the force majeure situation occur, the timing of performance by the Parties of their respective obligations under the Contract shall be extended adequately, by adding on the duration of such circumstances and consequences thereof.

17.7 Should the force majeure circumstances continue for more than consecutive 60 (sixty) days, the Parties shall negotiate and coordinate appropriate measure needed to be taken in order to perform their respective obligations under the Contract. If duration of such circumstances exceeds 4 (four) months and the Parties fail to agree on further coordinated measures needed to perform their respective obligations, the Contracting Party (Buyer) shall have the right to terminate the Contract, whether partially or wholly, free of any subsequent claims, by sending a written termination notice to the other Party (Seller).

17.8 Buyer will not claim LD in relation to delays in delivery, provided that such delays have been caused by occurrence of a force majeure event.

**Clause-18****AGENT COMMISSION****Not Applicable****Clause-19****SECRECY**

19.1 The seller undertakes that any information about the sales/purchase of the Facilities under this contract shall not be communicated to any press or agency not authorized by the Purchaser to receive it except the manufacturer of the Facilities. Breach of this undertaking shall be punishable under the official secret Act, 1923.

**Clause-20****INSURANCE****Not Applicable****Clause-21****INSPECTION**

21.1 **Inspection Criteria.** 100% physical inspection will be undertaken by Inspector(s) with assistance of co-opted member as follows: -

**(a) Physical Check**

- (i) Facility will be checked for physical damage, scratches, corrosion & deformity.
- (ii) Screws / nuts / bolts / casing / channels and power pack / accessories / leads / cables & lens.
- (iii) All items will be identified with serial number and part number.
- (iv) Brand name, model, country of origin.
- (v) Operating/maintenance/safety brochures and manuals. (If applicable)
- (vi) OEM certificate and certificate of conformity or verifiable documents will be provided by the Seller that Facility has been procured from certified source.
- (vii) Facility must be factory new and from current production. Certificate of current production is to be rendered by the Seller.

**(b) Warranty.** A warranty sticker is to be pasted on each item by the firm highlighting following information: -

- (i) Name of Firm.
- (ii) Contract No and Date
- (iii) Description of Facility
- (iv) Warranty Validity

**(c) Packing: -**

- (i) Each item is packed in its original water proof packing.
- (ii) Packing must be suitable for transportation / storage of items over long distance by air/road/rail/sea.

**Note:-**

- (i) In case of premature failure, Seller has to replace/rectify the item free of cost during warranty period.
- (ii) The Seller shall provide all necessary facilities to the inspectors for smooth and prompt inspection of Facility.

**(d) Functional Checks.** Functional / fitment / ops checks will be carrying out by the Inspectors as per User Required Document (URD).**(e) Inspection Team.** A team designated by PD GreenAI will inspect the items. The software, accessories, drawings, training manuals and other

attachments should be in original. Copied software, and photo-copied documentation would not be accepted. Director-Agriverse, GreenAI, NASTP will carry out functional check and will send 'Functional Check Report' clearly stating 'Accepted' or 'Rejected' Facility with the S. No. etc.

**21.3 In Case the Facility is Rejected**, Seller is to re-submit Facility in replacement of those rejected items within \_\_\_\_ after reporting. The Seller has to bear the cost of freight on such replacement without being entitled to any extra payment, Otherwise, the Purchaser will then be at liberty to buy the quantity of the Facility rejected or others of a similar nature from elsewhere at Risk and Expense of the Seller without affecting the Seller's liability as regards to supply of any further consignments due under the contract. Warranty of replaced / rejected Facility will be extended accordingly.

#### **Clause-22 CHECKING OF FACILITY AT END USER**

22.1 The Facility will be checked at End User's end in the presence of Seller's representatives. If for the reasons of economy, or any other reason, the Seller decides not to nominate his representative for such checking; an advance written notice to this effect will be given by the Seller to the Purchaser prior to or immediately on shipment of Facility. In such an event the Seller will clearly undertake that the decision of Purchaser with regard to quantities and description of a consignment will be taken as final and any discrepancy found will be accordingly made up by Seller.

#### **Clause-23 PROGRESS REPORT**

23.1 The Seller shall intimate the progress of supply position at least \_\_\_\_ before the expiry of delivery period of the schedule of Facility being provided in the Contract. However, it by no means will exonerate the Seller from any penalty on account of later deliveries.

#### **Clause-24 SPECIAL CLAUSE / PURCHASER RIGHT**

24.1 The purchaser reserves the right of deletion of any item increase/decrease of any quantity and cancellation of the contract partially or in full without assigning any reason whatsoever, within **21 days** of signing of the contract without any financial repercussion on either side. Such information will be passed on to the Seller/seller through the fastest means e.g. telephone, fax etc.

#### **Clause-25 CONTRACT COMPLETION "NO DEMAND CERTIFICATE"**

25.1 Seller will submit a "**No Demand Certificate**" stating that no Facility / goods/services contracted for are outstanding against the contract, to the Purchaser on the successful culmination of contractual obligations in the contract. Whereas concurrently Project Director GreenAI NASTP, Rawalpindi, Air Headquarters, Islamabad will certify through a **Contract Completion Certificate** that no demand placed on the Purchaser has been fulfilled as per terms and conditions of the Contract.

#### **Clause-26 ARBITRATION**

26.1 Parties shall make their attempt to settle all disputes arising under this contract through amicable discussions in good faith. In the event that either party shall perceive such amicable discussion to be making insufficient progress at any time, then such party may send written notice to the other party of its intention to refer the dispute to arbitration.

26.2. All matters of dispute or difference regarding rejection of Facility by the inspector or cancellation of the contract by the Purchaser, arising out of the agreement between the parties thereto, the settlement of which is not otherwise specially provided for in this agreement, shall be referred to arbitration as under:

(a) The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party, who before entering upon the reference shall appoint an umpire by mutual agreement, and if they do not agree a judge of the Superior Court will be requested to appoint the umpire. The arbitration proceedings shall be held in Islamabad under Arbitration Act, 1940. The arbitration award will be firm and final.

(b) In the course of arbitration, the contract shall continuously be executed except that part which is under arbitration.

(c) All proceedings under this clause shall be conducted in English language.

**Clause-27****SUBLETTING**

27.1 The Seller will be entirely responsible for the execution of the Contract in all respects according to the terms of the Contract. The Seller shall not sublet, transfer or assign the Contract or any part thereof without the prior written permission of the Purchaser. In the event of the Seller contravening this Contract, the Purchaser shall be at liberty to cancel the Contract at the risk and expense of the Seller.

**Clause-28****CORRESPONDENCE**

28.1 All correspondence between Seller/End User/Inspector will always be made through the Purchaser except for matters related to technical aspects, test/trials, inspection, receipt of Facility and training. However, a copy of this should be endorsed to the Purchaser.

28.2 Any meeting between the Seller, inspection authority and End User could be held to facilitate smooth accomplishment and logical conclusion of the contract remaining within the ambit of the contractual clauses. Minutes of such meeting should invariably be recorded and a copy of the same to be endorsed to the Purchaser.

28.2.1 All correspondence related to the Contract shall be made by letter, fax or telex. Information passed through a fax or telex also be communicated through a letter on Seller's letter head.

**Clause-29****OFFICIAL/LEGAL ADDRESSES**

29.1 The official/legal address on which the official/legal correspondence would be exchanged between the two parties with respect to the contract as under:

a.	Purchaser Address	Project Director GREENAI , NASTP Rawalpindi
b.	Seller /Principal / Manufacturer Address	
c.	Seller Liaison Office in Pakistan	
d.	Consignee Address	
e.	Inspection Authority/ Inspector Address	
f.	Bill to Address	
g.	Indenter	

29.2 In case of change of any of the above addresses on the part of Purchaser/Seller shall be notified immediately to the other party by a registered letter through the fastest means indicating his new corresponding/legal address, otherwise all correspondence sent to his address stated in the contract will be considered as correctly directed.

### **Clause-30 RISK PURCHASE**

30.1 In the event of failure by the Seller to comply with its contractual obligations, and provided that the Seller does not rectify such non-compliance within 15 days from the date of receipt of a written notice specifying the non-compliance, the Purchaser shall have the right to cancel the contract at Seller risk and expense.

### **Clause-31 LIQUIDATED DAMAGES**

31.1 When the purchaser is satisfied that the failure to supply the Facility within the scheduled delivery period has been for reasons within the control of the Sellers and/or if the Purchaser has suffered a loss for reasons of belated delivery, the purchaser shall be entitled to impose liquidated damages on the seller. The liquidated damages, if imposed will be recovered up to the rate upto **2%** undelivered contract value per week or a part of a month for the period exceeding the original delivery period, subject to the provision that the total liquidated damages will not exceed 10% of the total value of the Contract.

### **Clause-32 EXPORT LICENSE / PERMIT/END USER CERTIFICATE**

32.1 It shall be the responsibility of the Seller to obtain from the Government concerned all permits and export licenses, etc required to enable each consignment to be shipped immediately as per the delivery schedule.

32.2 In order for seller to comply with 32.1 Purchaser must supply the following:

- (a) Complete DSP-83.
- (b) Signed Chain of Custody.
- (C) End User Statement on Letterhead.

### **Clause-33 OBSOLESCENCE**

33.1 In case seller recommends possible alternative solution which require hardware and software changes due to obsolescence of any items or components of supplies than Seller agrees to supply the complete upgrade solution / software free of any cost, along with necessary components to the End User at reasonable terms and conditions within the period to sustain support as specified.

### **Clause-34 INTEGRITY PACT**

34.1 \_\_\_\_\_ hereby declares/its intention not to obtain or induce the procurement of any contract, right, interest, privilege or other obligation or benefit from Government of Pakistan or any administrative subdivision or agency thereof or any other entity owned or controlled by it (GoP) through any corrupt business practice.

34.2 Without limiting the generality of the foregoing, \_\_\_\_\_ represents and warrants that it has fully declared the brokerage, commission, fee etc paid or payable to anyone and not given or agreed to give and shall not give or agree to give anyone within or outside Pakistan either directly or indirectly through any natural or judicial 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 including the

procurement of a contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP, except that which has been expressly declared pursuant hereto.

34.3 \_\_\_\_\_ 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 GoP and has not taken any action or will not take any action to circumvent the above declaration, representation or warranty.

34.4 \_\_\_\_\_ 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 produced as aforesaid shall, without prejudice to any other rights and remedies available to GoP under any law, contract or other instrument, be voidable at the option of GoP.

34.5 Notwithstanding any rights and remedies exercised by GoP in this regard, \_\_\_\_\_ agrees to indemnify GoP for any loss or damage incurred by it on account of its corrupt business practices and further pay compensation to GoP in an amount equivalent to ten times the sum of any commission, gratification, bribe, finder's fee or kickback given by the \_\_\_\_\_ (itself) as aforesaid for the purpose of obtaining or inducing the procurement of any procurement of any contract, right, interest, privilege or other obligation or benefit in whatsoever form from GoP.

#### **Clause-35**

#### **DISCREPANCY**

35.1 The End User will render a discrepancy report to the seller within **[30 days]** after the receipt of Operationalized Facility for any discrepancy found therein and the Seller shall be responsible to make good the discrepant item free of cost.

#### **Clause-36**

#### **INTELLECTUAL PROPERTY RIGHTS**

36.1 All intellectual property rights, including without limitation, patents and/or the relevant applications, in or relating to the Facility, to the Documentation and to the Software are and shall remain the property of the Seller or its licensors. The Seller hereby grants to the Purchaser for the period of time in which the Facility will be operated, a royalty-free, worldwide, nonexclusive, irrevocable, non-transferable nor sub-licensable, license to use the intellectual property right related to the products solely in connection with the use and operating of such products. The Seller hereby grants to the Purchaser a non-exclusive, non-transferable, non-assignable license to use the software forming a part of the Facility for the period of time during which such products will be operated and without additional cost of the Purchaser. The Purchaser will only use the software with the designated products. The right of use includes the right to reproduce the software for the purpose of its loading, display, execution, transmission or storage as far as this is strictly necessary for its use with the designated products; provided that, to the extent the licensed software contain intellectual property rights licensed from third parties, the Purchaser's rights thereto shall be subject to the terms and conditions applicable to such license(s) (which shall be made available for inspection by the Seller if requested, subject to any applicable confidentiality obligations). Pursuant to the present license, the Purchaser shall neither (i) make whatever copy or reproduction of the software or any part thereof (except as otherwise agreed herein below), nor (ii) use, or attempt to use the software (or any part thereof) otherwise than for the purposes specified in these terms and conditions nor (iii) correct or have it corrected by a third party nor (iv) alter, modify, adapt, sub-

license, assign or otherwise transfer the software in whole or in part to any third party, except as provided elsewhere in these terms and conditions or with the prior written consent of the Seller, nor (v) itself or permit others to decompile, reverse engineer or disassemble the software. The Purchaser is entitled to make a reasonable number of copies of the software free of charge for internal archival or backup purposes. COTS licenses, if necessary for use of the products, will be provided by the Seller at no additional cost to the Purchaser and shall be subject to the terms and conditions of the Sellers of such COTS software.

### **Clause-37 COMING INTO FORCE**

37.1 The Contract shall come into force immediately upon signing of the contract by both parties and submission of Performance Guarantee by the Seller.

### **Clause-38 PERPETUAL AND PERMANENT LICENSE REQUIREMENT**

- (a) The software solution proposed by bidder shall include perpetual and permanent licenses for all software components and associated technologies required for the functionality outlined in this proposal.
- (b) The licenses provided must grant the purchaser perpetual and irrevocable rights to use the software without the need for recurring payments or renewals. The licenses should also include provisions for maintenance and support services for the duration of the software's lifecycle, ensuring that the purchaser receives updates, patches, and technical assistance as needed.
- (c) The bidder warrants that all software licenses provided under this agreement are genuine, legally obtained, and fully compliant with applicable laws and regulations. Any third-party software or components included in the solution shall be accompanied by appropriate licenses and documentation, demonstrating the purchaser's right to use and distribute such software.
- (d) The purchaser retains ownership of all software licenses acquired under this agreement, and the licenses shall not be transferable or subject to termination, revocation, or expiration except in cases of breach of contract by either party.
- (e) Upon termination or expiration of this agreement, the purchaser shall retain perpetual rights to continue using the licensed software for the purposes outlined in this proposal, with no additional fees or obligations to the bidder.
- (f) Failure to comply with the terms of this clause shall constitute a material breach of contract, entitling the purchaser to seek remedies as provided for in this agreement, including termination and damages.
- (g) This clause shall survive the termination or expiration of this agreement and remain in full force and effect thereafter."

(h) It's important to consult with legal counsel to ensure that the language used in the clause accurately reflects your requirements and complies with relevant laws and regulations in your jurisdiction.

**PURCHASER****SELLER**

Signature : \_\_\_\_\_

Signature: \_\_\_\_\_

Name : \_\_\_\_\_

Name : \_\_\_\_\_

Rank : \_\_\_\_\_

C.N.I.C : \_\_\_\_\_

Designation :

Designation: \_\_\_\_\_

(Seal)

Company Seal

For and on behalf Purchaser

For and on behalf of Seller

- Note: -** a. The Seller should preferably sign the contract or Seller may nominate a person by name and designation in writing, to sign the contract or any other document forming part of the contract on behalf of the Seller before signing the contract/documents. Any such authorized person will be obliged to produce written authorization to the satisfaction of the competent purchase officer before signing of the contract/documents to bind the Seller to the terms and conditions of the contract signed.
- b. Distribution of the contract is attached as per **Appendix 'H'**.



**Appendix “A”**

**TECHNICAL SPECIFICATION REQUIREMENTS  
FOR PROVISIONING OF  
“AGRIVERSE: NATIONAL PRECISION AGRICULTURE  
CLOUD FACILITY (PILOT PHASE)”**

As per Technical proposal, provided by the successful bidder and accepted by Project Director GREENAI.

## Appendix “B”

**PAYMENT SCHEDULE**

The Payment Schedule is mentioned as per following details:-

S. No	Milestone	Payment (As %age)
(a)	Mobilization Advance	Up to 20% of Total Contract amount after receipt of Bank Guarantee/CDR of the same amount of mobilization advance from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(b)	Detailed Specification and Design Documents	10% of total amount will be paid after completion, submission and acceptance of detailed specification and design documents against (CDR of 10%) of contract amount from a Scheduled Bank of Pakistan in prescribed form ( <b>Annex “VII”</b> ).
(c)	Delivery, Installation, Integration, Testing of Hardware, provisioning of licenses and trainings	50% of Total contractual amount will be paid after Delivery, Installation, Integration, Testing of Hardware and operationalization & provisioning of licenses and trainings. (80% of the total amount can be released)
(d)	Final Inspection & Completion	20% of Total amount will be paid after 02 months of operationalization and issuance of FINAL ACCEPTANCE CERTIFICATE from End User. (100% percent of the total amount to be released).

For payment of goods / services supplied / rendered following procedure will be adopted: -

- (a) Submission / Payment of Bills
- (b) No advance payments will be made
- (c) Payment for the supply of goods of the itemized amounts thereof, after deduction of the applicable taxes and duties, shall be made within thirty (30) days **with 15 days of grace period** by M/s Solid State Electronics (SSE), upon receipt of error free invoice from supplier. The invoice, in favour of “M/s Solid State Electronics, Rawalpindi” shall be submitted to the purchaser.
- (d) Firm is to present a Sales Tax invoice (where applicable) / numbered bill for the amount agreed upon for the goods / services provided.
- (e) Income Tax on the amount of bill will be deducted at source.

**Appendix “C”**

**IMPLEMENTATION SCHEDULE**

The Seller shall supply the Facility in accordance with the terms of the Contract accordingly:

As per implementation schedule, provided by the successful bidder and accepted by Project Director GreenAI.

**WARRANTY / GUARANTEE FORM  
PRINCIPAL'S MANUFACTURER'S  
STANDARD WARRANTY/SELLER'S LETTER OF GUARANTEE**

Principal's/Manufacturer's/Seller's Name: \_\_\_\_\_

**Dated** \_\_\_\_\_

1. We hereby guarantee that the articles supplied under the terms of this contract are produced new production in conformance with approved drawings in all respect in accordance with the terms of the contract, and that the material used, whether or not of our manufacture, are in accordance with the latest appropriate standard specification, and also in accordance with the terms of the contract complete good workmanship throughout and that we will replace free of cost \_\_\_\_\_ every article or part hereof which before use or in use shall be found defective or is found not within the limits and tolerance of specification requirement, or in any way not in accordance with the terms of the contract.
2. In case of our failure to replace the defective Facility free of cost within **01 Month** of reporting by the consignee, we will refund the relevant cost \_\_\_\_\_ in the currency / currencies in which received plus freight charges, up to consignee's end and the purchaser shall have the right to purchase the Facility declared defective at our risk and expense from elsewhere.
3. The Seller also undertakes to make good the deficiency in supply if any.
4. The warranty will remain valid for \_\_\_\_\_.

Signature \_\_\_\_\_

Name \_\_\_\_\_

Designation \_\_\_\_\_

and on behalf of M/s

\_\_\_\_\_

\_\_\_\_\_

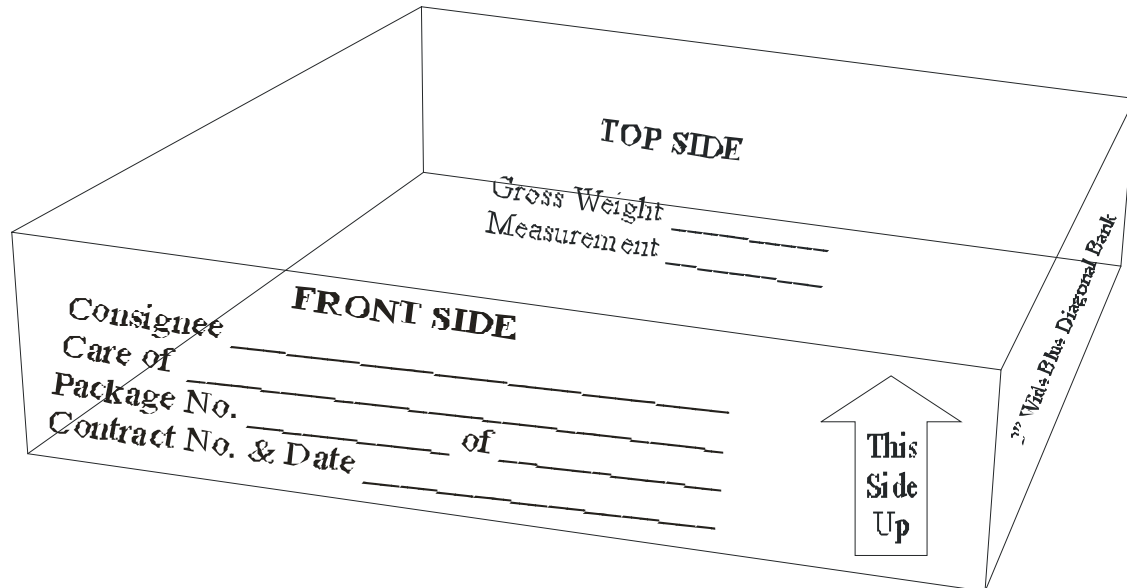
Dated \_\_\_\_\_

**Note:** The signature must be the same as the one on the tender / contract, if otherwise must be shown to be the signature a person capable of giving guarantee on behalf of the Seller / Principal.

## Appendix "E"

**MARKING INSTRUCTIONS**

1. The consignment is to be marked in BLOCK LETTERS as given below:



2. Explanation of the above marking is given below: -

a. **TOP SIDE:**

- i) First Line Gross Weight
- ii) Second Line Measurement

b. **FRONT SIDE**

- i) First Line CONSIGNEE
- ii) Second Line CARE OF
- iii) Third Line PACKAGE NO. OF PACKAGES
- iv) Fourth Line CONTRACT NO. & DATE
- v) A broad arrow in red showing "THIS SIDE UP"

c. **BOTH SIDES.** 2" Wide Diagonal band in blue colour

**Note:** Marking stenciled on the packages must be legible and identical to the marking shown on the bills of lading etc.

CONTRACTOR’S NO DEMAND CERTIFICATE

I (a) \_\_\_\_\_  
Late (b) \_\_\_\_\_  
To the (c) \_\_\_\_\_

Is hereby acknowledge to have received payment in full from the Purchaser for all articles  
supplies and services rendered by me in connection with \_\_\_\_\_ dated  
\_\_\_\_\_ for the supply of

(d) \_\_\_\_\_

and certify that I have no further claims whatsoever against Purchaser in connection  
with, or arising out of, said contract which remain unadjusted.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Signature of Contractor, defacing  
a stamp if executed in Pakistan

Dated: \_\_\_\_\_

Signature of Two Witnesses (e)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

Received from the \_\_\_\_\_ the sum of  
Rs \_\_\_\_\_ (Rupees \_\_\_\_\_) being the amount in refund of my  
security deposit in full against dated \_\_\_\_\_ for supply of  
\_\_\_\_\_

\_\_\_\_\_  
Signature of Contractor with Stamp  
(Only in case firm represented by a local agent)

### INSTRUCTIONS

1. This form will be provided by the Seller represented by a local Agent or dealing directly with Purchaser as the final **No Demand Certificate** for this particular contract and will be completed as follows: -

- a. Full name and residence of the individual and father's name if a Pakistani.
- b. Specify whether employed as a Contractor, agent or in any other capacity and for what supplied work etc.
- c. Specify the name of End User where contracted Facility delivered under the contract.
- d. Specify the title of contract & nature of the Facility delivered under contract.
- e. Along with two photo copies of NIC of each witness.
- f. Affix revenue stamp of Rs. 2/- under the stamp

**Note for (e) & (f) Above: -**

- (i) In case of a foreign firm without a local Agent and dealing directly please affix firms seal after duly signing by Firm Head/authorized Executive at (f) along with full name & designation.
- (ii) In witness block (e) signature of foreign firms two authorized Executives with full name & designation be affixed.

DISTRIBUTION

1	Contract Case File (Master Copy)	:	2 Copy
2	Project Director GREENAI	:	1 Copy
5	Director Budget & Accts GREENAI	:	1 Copies
6	Bidder Copy	:	1 Copies



Appendix “H”

Project Director GreenAI NASTP, Rawalpindi  
[Address]  
Tele:  
No.

Serial No \_\_\_\_\_ 2024

END USER CERTIFICATE

1. This is to certify that Project GreenAI NASTP, Rawalpindi has contracted to purchase the following goods under contract No \_\_\_\_\_ dated \_\_\_\_\_ with M/S \_\_\_\_\_: -

S No	Cat / Part No	Description	Quantity
a.			
b.			

2. It is confirmed that the above items are required for use of Project GREENAI NASTP (ACP) and that none or any part thereof shall be exported to any other country or agency without prior agreement / approval of the Seller / government concerned.

For and on the Behalf of  
Project Director GreenAI NASTP, Rawalpindi.

**TECHNICAL SPECS AND BROCHURES ARE ATTACHED**