



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

## **CORRIGENDUM – I**

**REQUEST FOR PROPOSAL  
NASTP-GREENAI-AGRIVERSE-HARDWARE/RFP02/2024**

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. The procuring agency invites sealed bids from companies for the ESTABLISHMENT OF “AGRIVERSE: NATIONAL PRECISION AGRICULTURE CLOUD FACILITY (PILOT PHASE)” as specified in Request for Proposal document.
2. Bids prepared in accordance with instructions in the bidding document must reach at address mentioned in RFP document. With reference to requests received in Pre-Bid Meeting, held on 09 December, 2024 at National Simulation Center, NASTP, the last date for submission of bidding document i.e. 17 December, 2024 has been extended till **27 December, 2024** until **11:00 AM**. Bids will be opened on the same day **27 December, 2024** at **11:30 AM** in the presence of bidders or their authorized representatives.
3. Based upon the feedback received from the representatives of companies who participated in the Pre-bid Meeting held on **09 December, 2024** which was supplemented by written **Technical Queries** received from participants, **a summary of major amendments made in the RFP is given in the ensuing paragraphs.**

### **CHANGES IN TITLE**

4. The RFP title on Page 1 has been updated to:

**PROJECT DIRECTOR OF GREENAI PROJECT MANAGEMENT UNIT (“PROCURING  
AGENCY”)**

5. Under the heading of “Invitation to contract and general instructions to bidders”, Para 1 on page 60, has been updated as follows:

**Name of Procuring Agency:** GreenAI Project Management Unit.

### Bidding Process Instructions

6. Para 7, “**Last Date & Time of Submission of Bid**” has been updated as  
**Last Date & Time of Submission of Bid:** 27 December, 2024 at 11:00 AM.

Para 8, “**Bid Opening Date and Time**” has been updated as follows:  
**Bid Opening Date & Time:** 27 December, 2024 at 11:30 AM.

### Bid Security Requirements

7. On Page 9, the amount of bid security given at Para 16, has been revised as follows:

The amount of the bid security shall be in Pak Rupees. The bidders are required to deposit **Bid Security (refundable) equal to PKR 10 Million inclusive of taxes** in the shape of **pay order, cash deposit, bankers’ cheque or demand draft** in favour of “**Project Director GreenAI**”.

### Appendix “A2”: ENVISAGED MICRO DATA CENTER BROAD SPECIFICATIONS

8. Under the heading of “User Requirement Document For Provisioning Of “Agriverse: National Precision Agriculture Cloud Facility (Pilot Phase)”, subheading of “Introduction” Para 2 on Page 19, sub-para (c) has been updated as follows:

**“Micro Data Center / Smart or Modular Racks : The stated cloud hardware and cloud orchestration solution is to be deployed at NASTP as Micro Data Center/ Smart or modular racks a preferred option for minimizing setup and management complexities (Bare minimum Tier 2 Ready Data Center Setup). Purchasing agency reserves the right to select an alternate data center/hosting facility. Refer Appendix “A2” To Annex “XIV” of URD-01”.**

9. Under the heading of “User Requirement Document For Provisioning Of “Agriverse: National Precision Agriculture Cloud Facility (Pilot Phase)”, subheading of Documentation on Para 4 on Page 20, sub-para (iii) heading has been updated as follows:

#### **“Micro Data Center, Smart Rack or Modular”**

10. Under the heading of “User Requirement Document For Provisioning Of “Agriverse: National Precision Agriculture Cloud Facility (Pilot Phase)”, subheading of Documentation on Para 6 on Page 20, sub-para (i) heading has been updated as follows:

#### **“Inclusive of Micro Data Center, Smart or Modular rack”**

11. Under the heading of “**Envisaged Micro Data Center Broad Specifications**”, subheading of **Scope of Work** on Para 1 on Page 33, sub-para (a) has been updated as follows:

**“Conduct a detailed site survey to assess the existing infrastructure and identify any potential challenges including civil works, electrical, mechanical, and fire safety systems for purpose (for minimum of tier 2) Micro Data Center, Smart or Modular Rack Solution) ”**

12. Under the heading of “Envisaged Micro Data Center Broad Specifications”, subheading of Scope of Work on Para 1 on Page 33, sub-para (b) has been updated as follows:

**“Design of micro data center layout that accommodates approximately 5 to 6 Smart or Modular racks, including power distribution, cooling, and cabling infrastructure with estimated total Power of ranging between 70 to 100KW”**

13. Under the heading of “Envisaged Micro Data Center Broad Specifications”, subheading of Scope of Work on Para 2 on Page 33, sub-para (i) has been updated as follows:

**“Smart or Modular racks are required/preferred”**

14. Under the heading of “Envisaged Micro Data Center Broad Specifications”, subheading of Scope of Work on Para 2 on Page 33, sub-para (ii) has been updated as follows:

**Uninterruptible power supply (UPS) systems. External UPS in case of Smart or Modular racks installation of APC, Schneider or equivalent brand**

15. Under the heading of “Envisaged Micro Data Center Broad Specifications”, subheading of Scope of Work on Para 2 on Page 33, sub-para (ii) has been updated as follows:

**Server (smart or modular) racks (estimated 5-6 units depending on solution design)**

16. Under the heading of “Envisaged Micro Data Center Broad Specifications”, subheading of Scope of Work, Para 5 sub-para (a) on Page 34 has been updated as follows:

**Provide internet connectivity for egress/ingress traffic from anywhere (or as required) to the cloud infrastructure for a minimum duration of 2 years.**

17. Under the heading of “Evaluation Criteria”, subheading of Mandatory Requirements on Para 3 on Page 52, sub-para (e) has been updated as follows:

**Participating bidder must have consultancy design experience of facilities of HPC solution (minimum 01 installations) of 10 Tflops experience in High Performance Computing active facility, Cloud (Minimum 01 installations) in academia / corporate / military environments. Moreover, the winning bidder must have experience with Data Centre/Micro Data Center or Smart/Modular Rack solution of minimum of 5 racks**

18. Under the heading of “Data Center Criteria”, row 13 criteria has been updated as follows:

**Online/public-cloud hosting plan in case (from the duration) deployment is delayed in Micro Data Center, smart or modular rack**

19. Under the heading of “Data Center Criteria”, row 15 criteria has been updated as follows:

**“Micro Data Center, Smart or Modular rack”**

20. Under the heading of “Data Center Criteria”, row 15 description has been updated as follows:

**“Data Center designed as either Micro/mini/smart rack/modular/Pods”**

21. Under the heading of “Technical Specifications”, sub-heading of Uninterruptable Power Supply (UPS), on Para 4 of Page 34, sub-para (a) has been updated as follows:

Capacity: Sufficient power for the designed solution during a power outage for at least **15 min** of the designed cloud solution. Bidding companies may also propose solutions offering longer battery backup durations but the additional costs should be cited as supplementary scale up costs

22. Under the heading of “Envisaged Hardware broad specifications”, sub-heading **Data Zone Components / Nodes on Page 29**, the Cat-U specifications has been updated as follows:

Hardware Category	Purpose	Specification	Qty
<b>Data Zone Components / Nodes</b>			
<b>Cat “U”</b>	Object Storage	Expansion bay/housing provided for future expansion up to 1 PB (3 times (330 TB preloaded + 300TB expansion) or more storage. 330 TB archival <b>SATA</b> or higher Option i.e SAS / SAS SSD based storage  Data Deduplication or equivalent	3

23. Under the heading of “DATA ZONE (CAT “S”, CAT “F”, CAT “U”) on Page 71, the table “QTY - 03 - Cat “U” component or equivalent solution (Object Storage)” is updated as follows:

<b>Criteria (Hardware Requirement)</b>	<b>Description</b>	<b>Qualify/ Disqualify</b>
QTY -03 - Cat “U” component or equivalent solution (Object Storage)	If QTY>=03 then Qualify else Disqualify	Y/N
Preferred Archival Storage (330 TB ( <b>SATA</b> ) or higher Option for SAS HD based storage i.e HPCS)	Mandatory	Y/N
Storage type SAS, <b>SATA</b> or HD	SATA/SAS SSD /SAS Drives / NLSAS Drives then Qualify else Disqualify	Y/N

<b>Criteria (Hardware Requirement)</b>	<b>Description</b>	<b>Qualify/ Disqualify</b>
Expansion bay/housing provided (3 times (330 TB preloaded + 300TB expansion) or more storage.)	Storage Expansion capacity up to ≥ 300 TB per server then Qualify else Disqualify	Y/N
Data Compression i.e Data Deduplication etc	Supports data Compression/deduplication then Qualify else Disqualify	Y/N

24. Under the heading of “Evaluation Criteria”, on para 3 of Page 52, sub-para (e) has been updated as follows:

“Participating bidder must have consultancy design experience of facilities of HPC solution (**minimum 01 installations**) of 10 Tflops experience in High Performance Computing active facility, Cloud (**Minimum 01 installations**) in academia / corporate / military environments. Moreover, the winning bidder must have experience with Data Centre/Micro Data Center or Smart Rack solution of minimum of 5 racks.”

25. Under the heading of “COMPANY/CONSORTIUM PROFILE”, the table “BIDDER’S EXPERIENCE (HPC SOLUTIONS)” on page 58, sr no (1), description has been updated as follows:

Minimum of 1 deployed HPC solution of at least 10 Tflops, involving complete design and execution completed in the last 05 years = qualify, else disqualify

26. Under the heading of “COMPANY/CONSORTIUM PROFILE”, the table “QUALITY OF BIDDER’S (HR) EXPERTISE (APPLICATION/CLOUD)” on page 60, S No (3), has been updated as follows:

<b>S No</b>	<b>Criteria</b>	<b>Description</b>	<b>Qualify/ Disqualify</b>
3	Cloud Security Professional (Certified) <b>CompTIA Cloud + with focus on Security:</b>  Or <b>Certified Information Systems Security Professional - Architecture (CISSP)</b>  or <b>Equivalent vendor specific certification</b>	<b>CompTIA Cloud + / or Professional cloud Security Engineer = qualify, else disqualify</b>	Y/N

27. Under the heading of “Data Center Criteria”, row 1 has been updated as follows:

<b>Criteria for Hosting</b>	<b>Description</b>	<b>Mandatory</b>	<b>Qualify/ Disqualify</b>
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Secure Location and physical security	Locking i.e. ID, face, key, etc and physical security such as (glass) gated access, CCTV		Y/N
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28. The requirement of Rated 3 data center (TIA-942) has been relaxed wherever applicable as it will be a Tier-II Micro Datacenter.

29. The requirement of a minimum number of 05 projects are mandatory to qualify (cloud/open stack) has been relaxed to 1 or 2 wherever applicable.

30. The requirement of International Project or Project Funded by Internal Donar is relaxed to at least one project deployment in Pakistan.

31. Under the heading of "APPLICATION ZONE (CAT "M" & CAT "C)", the table "QTY -04 Cat "C" -Hardware Specification" on page 64, row no 8, has been updated as follows:

<b>Criteria - (Hardware Requirement Placed in Appendix "A" To Annex "XIV" of URD-01</b>	<b>Description</b>	<b>Qualify/ Disqualify</b>
Usable storage 800 GB (or More) SAS HD (RAID 5) or SATA SSD or SAS SSD or Connection from Block storage device (Enterprise level Storage) (scalable upto 10TB) or as per design	Usable storage NVME SSD/25Gbps Block Storage / SAS SSD / SATA / SAS HD (RAID 5) then Qualify else Disqualify	Y/N

32. Under the heading of "APPLICATION ZONE (CAT "M" & CAT "C)", the table "QTY - 08-10 Cat "M" - Hardware Specification" on page 64, row no 8, has been updated as follows:

<b>Criteria - (Hardware Requirement Placed in Appendix "A" To Annex "XIV" of URD-01</b>	<b>Description</b>	<b>Qualify/ Disqualify</b>
Usable storage 4 TB (or More) SAS HD (RAID 5) or SATA SSD or SAS SSD or Connection from Block storage device (Enterprise level Storage) (scalable upto 10TB)	Usable storage NVME SSD/25Gbps Block Storage / SAS SSD / SATA / SAS HD (RAID 5) then Qualify else Disqualify	Y/N

33. Under the heading of “HIGH PERFORMANCE COMPUTING ZONE (CAT “G”)", on page 67 the table has it's row 14 updated as follows:

Criteria - (Hardware Requirement Placed in Appendix "A" To Annex "XIV" of URD-01	Description	Qualify/ Disqualify
Usable storage 3TB (or More ) SAS HD (RAID 5) or SATA SSD or SAS SSD or Connection from Block storage device (Enterprise level Storage) (scalable upto 10TB)	Usable storage NVME SSD/25Gbps Block Storage / SAS SSD / SATA / SAS HD (RAID 5) then Qualify else Disqualify	Y/N


34. CPU (Single processor AMD EPYC Gen5 Genoa 9115 (16c @ 2.5Ghz)) is being relaxed to **CPU (Single processor AMD EPYC Gen5 Genoa 9115 (16c @ 2.5Ghz)) or equivalent**, wherever applicable.

35. The capacity of solar system has been revised as 150KW, wherever applicable in the RFP. Moreover, in Annex “II” Form B-10, under the heading **Solar System Criteria**, the first row of **Criteria for Hosting** has been updated as follows:

Criteria for Hosting	Description	Mandatory	Qualify / Disqualify
Solar panel 150 kW	Top tier Grade A solar panel, (mono crystalline) with +ve tolerance	Mandatory	

36. Under the heading **Application Zone (Cat “M” & Cat “C”)** on page 66 in **Annex “II” Form B-4**, the description of the **Criteria for Preferred minimum 3.0 GHz per core clock** is to be considered as void. Hence, the stated criteria is to be read as follows:

Criteria - (Hardware Requirement Placed in Appendix "A" To Annex "XIV" of URD-01	Description	Qualify/Disqualify
Preferred minimum 3.0 Ghz per core clock (better is preferred)		Y/N



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