



**PROJECT DIRECTOR OF
GREEN – AI PROJECT MANAGEMENT UNIT (“PROCURING AGENCY”)**

**Design, Development, and Deployment of a Block chain Enabled GIS-Integrated
Agriculture Track and Trace System/RFP04/2025**

FOR

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

Issue Date: 28 April, 2025

1. The procuring agency invites sealed bids from Firms and companies registered with Income Tax and Sales Tax Department for **Design, Development, and Deployment of a Block chain Enabled GIS-Integrated Agriculture Track and Trace System.**
2. A complete set of bidding documents, containing detailed terms and conditions are available for the interested bidders at Project GreenAI NASTP (ACP), Alpha-3, Old Airport Road, Rawalpindi. Price of bidding documents is Rs.1000/- (if required). Bidding documents may also be downloaded from PPRA’s website. Bids prepared in accordance with instructions in the bidding document must reach at following address on or before **13 May, 2025 at 11:00 am.** Bids will be opened on same day **13 May, 2025 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.

Project Director
GreenAI, NASTP
Alpha-03, Old Airport Road, Rawalpindi
Email: sm_scm@greenai.gov.pk

Date:- **28 April, 2025**

PLEASE READ CAREFULLY

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 fulfillment of other terms and conditions of tenders.

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, 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 tender requirements are liable to be rejected.

Participating bidders are therefore requested to read the bidding documents thoroughly and submit their quotes accordingly without any condition in conformance to all tender 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 tender requirements is liable to be rejected on tender opening date.

☐ **Participating firms are requested to provide particulars of their reps on Cell No 03244411999 at least 01 day prior to a tender opening Date.**

HBL ISLAMIC BANKING		Deposit Slip Customer Copy	
Branch:	Date: 10/04/2025		
Account Title: Public Procurement Regulatory Authority Islamabad			
IBAN: PK HABB 00 04540013100701			
Currency: <input type="checkbox"/> PKR <input type="checkbox"/> USD <input type="checkbox"/> EURO <input type="checkbox"/> GBP <input type="checkbox"/> JPY <input type="checkbox"/> Others	Account Type: <input type="checkbox"/> Current <input type="checkbox"/> Savings		
Credit Card No.			
<input type="checkbox"/> CASH	AMOUNT		
BANK / BRANCH	CHEQUE/INSTRUMENT NO. 13656934	90,000/-	
TOTAL AMOUNT		90,000/-	
Total Amount in Words: NINETY Thousand only-			
Depositor's Name: Omer Alam			
Contact No. 0306-5182453			
Depositor's CNIC No. 61101-8559166-3			
Depositor's Account No.			
<div style="text-align: right;">  Depositor's Signature </div> <div style="text-align: left;">  10/04/2025 03:26pm </div>			
Received By: 21079903	(As per Terms & Conditions on reverse) (Not official unless validated)		

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PROJECT DIRECTOR GREEN – AI PROJECT MANAGEMENT UNIT (PMU) GENERAL INSTRUCTIONS TO BIDDERS

1. **Bid Reference No. Design, Development, and Deployment of a Block chain Enabled GIS-Integrated Agriculture Track and Trace System/RFP04/2025**
2. **Procuring Agency.** Project Director, GreenAI Project Management Unit.
3. **Invitation of Bid.** Procuring Agency invites sealed bids for **Design, Development, and Deployment of a Block chain Enabled GIS-Integrated Agriculture Track and Trace System/RFP04/2025** with details in the attached **Schedule of Stores**.
4. **Last Date & Time of Submission of Bid.** 13 May, 2025 (11:00 am).
5. **Bid Opening Date & Time.** 13 May, 2025 (11:30 am).
6. **Bid Opening Address.** Project GreenAI, NASTP, Alpha 03, Old Airport Road, Rawalpindi. Tel:0324-4411999 Email: sm_scm@greenai.gov.pk
7. **Condition Governing Contracts.** The “Contract” made as a result of this Tender Inquiry shall be the agreement entered between the parties i.e. the “Purchaser” (Procuring Agency) and the “Seller” (M/s -----) in accordance with the law of Contract Act, 1872 and those contained in Procuring Agency purchase procedures and other special conditions that may be added to give contract for the supply of Procuring Agency stores specified therein.
8. **Delivery of Tender.** The procuring agency is adopting a ‘single stage-two envelope’ bid procedure as specified in rule 36(b) of PPR 2004 (single stage two envelope basis). The details are as follows:-
 - (a) **Technical Offer:** It shall contain all relevant specifications along with essential literature in **duplicate** in a separate envelope and clearly marked “**Technical Offer without prices**”, tender number and date of opening. **Bid Security** shall be in a separate sealed envelope clearly marked **Bid Security** and Tender Number.
 - (b) **Commercial Offer:** It shall contain Financial Proposal Form **Annexure “H”** filled and dully signed in a separate sealed envelope clearly marked on the face “**Financial Proposal with prices**”, tender number.
 - (c) Both the “**Envelopes**” of Technical and Commercial offers should be enclosed in one cover, properly sealed and bear the address of Procuring Agency with tender 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) Annexure “H” duly filled-in are to be returned with the offer duly signed by the authorized signatory person of bidding firm.

9. **Single / Multiple Offers:** Only one offer can be made in relevant currency for same item. Multiple rates, if quoted, may be rejected. Multiple quotations against the tender may also be rejected.

10. **Date & Time for Receipt of Tender:** The tender must reach Procuring Agency by the date and time specified in the **Schedule to Tender**. Tenders 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. Tender can also be sent through mail courier. However, to avoid misplacement of the quotations, all firms are required to intimate this office **via email** sm_scm@greenai.gov.pk.

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 tender is dispatched by courier then same should reach Procuring Agency at least 01 day prior to tender opening date. You or your representative may also attend the proceeding (Name / Designation of attendees" along with copy of CNIC will be required 01 working day prior to tender opening date for arranging their entry).

11. **Tender Opening:** Technical offer i.e. without prices will be opened on the date and time mentioned in the presence of bidders' representatives who choose to attend. The bidder's representatives who are present shall sign a tender 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.

12. **Delivery Period:** The total project duration is six months from the date of contract signing. The first month will be dedicated to stakeholder consultations, requirements gathering, and finalization of specifications. The second month will focus on design, UI/UX prototyping, and architecture finalization. Development and integration will take place in the third and fourth months. System testing, user acceptance trials, and training sessions will be conducted in the fifth month. The sixth month will be allocated to final deployment, system tuning, documentation, and submission of deliverables.

13. **Rights Reserved:** Procuring Agency reserves the right to accept or reject any tender and to annul the tendering process and reject all tenders at any time prior to contract award as per rule 33 of PPRA 2004 without there by incurring any liability to the affected Bidder. Moreover, past performance of the firms may also be considered.

14. **Addition and Deletion of Scope:** The purchaser has the right to increase or decrease the scope of any part of RFP (up to 20% the amount of initial tender) and cancellation of the contract without any financial repercussion on either side without assigning any reason within 30 working days of signing the contract. Such information will be passed on to the supplier /seller through the fastest means e.g. telephone, telegram, email or fax etc.

15. **Validity of Quotation:** The quotation must be valid for **90** days.

16. **Technical Literature, Specifications and Interchangeability:** Offers are to be submitted in duplicate supported by technical literature in original. Offers must conform to tender specifications. A copy of relevant page of publication must be attached to prove correctness of offered.

17. **Deviation from Specifications:** Solution received at consignee, if found not conforming to the contract specifications will be rejected and replacement in accordance with contractual specifications against rejected solution would be provided to consignee as per delivery schedule laid down in the contract. The amended solution will be provided without any additional cost. In case solution are rejected after delivery schedule of the contract, replacement is to be provided at the earliest or by the date advised by Procuring Agency.

18. **Application of Official Secrets Act 1923:** All matters connected with this in query and subsequent actions arising there after 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.

19. **Quoting of Prices:** Prices are to be quoted as follows:-

- (a) **DDP** price of the stores (Line Item Wise) in **Pak Rupees Only inclusive of all applicable taxes, duties, levies and charges.**
- (b) Percentage of agent commission (on Ex-Factory price) is to be inclusive of quoted price, if applicable. Principal must indicate if agent commission is not applicable.
- (c) 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 Tender **(Annexure-‘H’)**.

20. **Disqualification:-** Offers are liable to be rejected if:-

- (a) There is a deviation from any instruction described in this invitation to tender.
- (b) Offers are found conditional or incomplete in any respect.
- (c) Multiple quotations against the tender.
- (d) Multiple rates are quoted against one item.
- (e) Relevant technical documentation is not attached.
- (f) All Annexures are duly filled in and signed by the Bidders are not received with the offer.
- (g) Offer received later than appointed date and time.
- (h) Technical specification if not conforming to the requirement in tender document.
- (i) Offer subject to restriction of Export License.
- (j) Over writing / erasing in prices.
- (k) Change in prices by the supplier after opening of commercial offers unless

asked by Procuring Agency.

- (l) Validity of offer is not quoted as required in tender document or made subject to confirmation later.
- (m) Bid Security of required amount not provided.
- (n) Offer without certification of OEM.
- (o) Offer with Prior sale condition.

21. **Payment:-** For payment of goods / services supplied / rendered following procedure will be adopted:-

- (a) Submission / Payment of Bills.
- (b) 20% advance payments will be made (Bank Guarantee of same amount will be required).
- (c) Payment for the supply of itemized Milestones amounts thereof, after deduction of the applicable taxes and duties, shall be made within thirty (30) days upon receipt of error free invoice from Supplier.
- (d) Bank charges incidental to the withdrawal of payment shall be borne by the Supplier.

S. No	Milestone	Payment (As %age)
(a)	Milestone No 1	20% will be paid upon approval of SRS and design documents.
(b)	Milestone No 2	20% will be released upon completion of core development
(c)	Milestone No 3	20% will be paid after successful testing and user training. (BG /CDR of the Mob advance will be released)
(d)	Milestone No 4	The final 20% will be paid after final acceptance and submission of all documentation, deployment and codes

22. **Bid Security:** Bid security amounting to Pakistani Rupees 100,000/- will be submitted in the shape of pay order / demand draft in favor of "Project Director GreenAI, Alpha 03, Old Airport Road, NASTP, Rawalpindi". Bid security shall be attached with the technical proposal otherwise proposal will not be accepted.

- (a) Bids without required Bid security will be rejected without any right of appeal.
- (b) The bid security shall be forfeited in case of occurrence of any one of the following: -

- (i) If a bidder withdraws its bid during the period of bid validity specified in this RFP document; or
- (ii) In the case of successful bidder, if it fails:-
 - a. To furnish performance guarantee in accordance with the RFP document; and
 - b. To sign the contract.
- (c) Bid security of technically disqualified bidders will be returned to them before financial opening. Bid securities of technically and financially qualified bidders will be returned upon the award of contract to successful bidder, and after furnishing of the performance guarantee.

Performance Security. The Performance Security shall be of an amount equal to **ten percent (10%)** of the Contract Price in the currency of the Contract at the option of the bidder, in the form of unconditional and irrevocable **Bank Guarantee** from any Scheduled Bank in Pakistan or Cash Deposit Receipt (CDR). The said security shall be furnished by the successful bidder within Thirty (30) days of signing of contract(s) in favor of "Project Director GreenAI, Alpha 03, Old Airport Road, NASTP, Rawalpindi". The format of Bank Guarantee is attached in the contract form.

23. **Evaluation Process.** The evaluation of bid will be carried out as per following:-

- (a) As per PPR 2004 the procuring agency intends to exercise a quality-and-cost-based selection methodology. Technical proposals will carry a weightage of 40%, and financial proposals will account for 60%. The technical evaluation will assess the bidder's relevance, proposed approach, system design methodology, team qualifications, and innovation in mobile and GIS application integration. Only firms scoring at least 75% in the technical evaluation will proceed to the financial bid opening.

Technical Evaluation Matrix

	Item Name	Marks
1	Quality of the Technical Proposal / Understanding of the assignment and proposed solution	10
2	Presentation of the Proposed Solution/System	10
3	Demonstration of GIS Based System development experience	10
4	Demonstration of Mobile Application development experience	10

- (b) The Bid shall comprise a single stage containing two (02) separate envelopes. Each envelope shall contain separately the technical proposal and the financial proposal.
- (c) The envelopes shall be marked clearly as "**TECHNICAL PROPOSAL**" and "**FINANCIAL PROPOSAL**" in bold and legible letters to avoid confusion.
- (d) Initially, only the envelope marked "TECHNICAL PROPOSAL" shall be

opened. Technical Proposal must contain the technical proposal including the company profile, project methodology, team CVs, mock-ups, and Gantt chart. Bidders must also provide a soft copy of the technical proposal on USB.

(e) The envelope marked as “FINANCIAL PROPOSAL” shall be retained in the custody of the procuring agency without being opened.

(f) Procuring agency shall evaluate the technical proposal, without reference to the price and reject any proposal which does not conform to the specified requirements.

(g) During the technical evaluation no amendments in the technical proposal shall be permitted, however, purchaser can seek clarification / additional specifications of submitted bids.

(h) Financial bids of only the technically qualified bidders shall be opened.

(i) 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:

(j) Bidders shall be notified of any correctable error detected in their bid during the notification of award.

(k) 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:

(i) If there is a discrepancy between words and figures, the amount in words, shall be considered.

(ii) 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.

(iii) 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

(iv) 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.

(v) 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.

(l) Prior to the expiration of the period of bid validity, procuring agency will notify the successful bidder in writing of its intent to award the contract. The contract will be executed subject to satisfactory discussion of the terms and conditions of the contract. The discussion shall be in accordance with PPR rules 2004 of Pakistan.

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

25. **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, the Competent Authority may place such firm under Embargo.

26. **Documents Required:** Following information / copies of document must be provided with Tender:-

- (a) Photocopies 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 tender closing date.
- (b) Proof of Income Tax status in ATL is "Active" and GST status "Operative" issued by Tax Authorities.
- (c) 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 02 years. Number of years in the business or dealing in similar items may also be mentioned.
- (d) Firm/Supplier name, complete address, contact numbers, and email addresses.
- (e) Undertaking that their firm / company and their proprietors / directors have not been in litigation / blacklisted by any Govt./Semi-Govt./ Autonomous body (**Annexure D**). Any other document if required during procurement proceedings according to Rule 17 of PPR rules 2004.

27. **Litigation.** In case of any dispute only Court of Jurisdiction at Islamabad Pakistan will have the Jurisdiction to decide the matter.

28. **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.

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."

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.

29. **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 Project Director Green AI who will be the sole arbitrator of the disputed matter and two representatives, one to be nominated by each party, will assist PD Green AI for decision. The award/decision of PD Green AI (The Sole Arbitrator) will be final and binding on all parties such as Supplier, Purchaser and related party (if any).

30. **Risk Purchase.** In the event of failure on the part of the Seller to comply with the contractual obligations, the contract is liable to be cancelled at his risk and expense of Successful bidder.

31. **Termination of contract.** If at any time during the pendency 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.

32. **Late Delivery.** The supplier shall deliver the goods to the purchaser within the period specified in the Contract. If failure to Deliver the Goods within the specified time frame, shall not have arisen because of "Force Majeure" In case of Force Majeure, the Supplier shall, within fifteen (15) days of its commencement, notify the Purchaser of any such event, act or circumstances, 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 canceling 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 installments) 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.

33. **Intellectual Property Rights.** All deliverables, including but not limited to source code, documentation, designs, and data collected, shall be the sole property of the Procuring Agency. The selected firm shall transfer all Intellectual Property Rights through a legally binding agreement upon project completion

34. **Authority to Sign Documents:** - Tender must be accompanied by Letter of Authorization to sign the Tender on behalf of the Bidder. Bidder must prove that the person who signs this Tender 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.

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

Technical Clarification: - 03130588026

Bidding /Contracting Procedure: - 03244411999



Project Director
GreenAI, NASTP
Alpha 03, Old Airport Road, Rawalpindi
Email:- sm_scm@greenai.gov.pk

Date:- 28 April, 2025

Annexure “A”**SYSTEM REQUIREMENTS SPECIFICATIONS**

1. PROJECT TITLE: "Design, Development and Deployment of a Blockchain-Enabled Agricultural Track and Trace System with GIS and Mobile Applications"

INTRODUCTION

2. The Project GreenAI invites sealed proposals from reputable and experienced software development firms or consortia for the design, development, and deployment of a technologically advanced, fully integrated agricultural traceability system. The proposed system will utilize block chain technology in combination with GIS tools and mobile application interfaces to ensure end-to-end transparency in the production, handling, and distribution of selected agricultural commodities. This initiative is a strategic intervention aligned with government efforts to digitize the agri-supply chain and promote consumer trust through enhanced traceability. The initial implementation shall focus on three pilot crops: Potato, Tomato, and Onion. However, the system must be scalable and flexible enough to accommodate at least two additional crops during later phases of implementation.

3. Food safety, quality assurance, and traceability have become critical areas of focus for both governments and consumers. Increasing demand for sustainable, ethically sourced, and safe food products has compelled regulatory bodies and agricultural stakeholders to adopt modern technologies that can ensure transparency and integrity in the agricultural value chain. In this context, this RFP is intended to develop a digital platform that integrates emerging technologies—blockchain, GIS, mobile data capture, and QR coding—to build a transparent and secure traceability infrastructure. The envisioned system will capture real-time field-level data related to agricultural practices and make it accessible to consumers through a simple scan of a QR code, thereby validating the journey of produce from farm to fork.

PROJECT BACKGROUND

4. The Green AI project is a strategic initiative aimed at revolutionizing Pakistan's agricultural sector by integrating advanced Information and Communication Technologies (ICT) and Artificial Intelligence (AI). By leveraging dual-use aerospace technologies, the project seeks to enhance precision agriculture practices, thereby increasing productivity, ensuring food security, and promoting sustainable farming methods.

Objectives

- (a) Implement AI-driven solutions for real-time monitoring and management of agricultural activities.
- (b) Utilize aerospace technologies, including satellite imagery and Unmanned Aerial Vehicles (UAVs), for data collection and analysis.
- (c) Establish a robust cloud-based infrastructure, termed the “AgriVerse Cloud,” to store, process, and disseminate agricultural data.
- (d) Enhance decision-making capabilities for farmers and policymakers through data-driven insights.
- (e) Promote sustainable agricultural practices by optimizing resource utilization and minimizing environmental impact.

Key Components

- (a) **AgriVerse Cloud Data Centre:** A centralized facility designed to handle vast amounts of agricultural data, facilitating real-time analysis and decision-making.
- (b) **AI Algorithms and Models:** Development of machine learning models to predict crop yields, detect diseases, and recommend optimal farming practices.
- (c) **Integration of Aerospace Technologies:** Deployment of satellite and UAV-based systems for comprehensive field monitoring and data acquisition.
- (d) **Farmer Engagement Platforms:** Creation of user-friendly interfaces and mobile applications to provide farmers with actionable insights and recommendations.
- (e) **Capacity Building:** Training programs for stakeholders to effectively utilize the technologies and tools developed under the project.

OBJECTIVES OF THE ASSIGNMENT

- (a) Establish a **transparent and tamper-proof record** of agricultural product lifecycles using blockchain.
- (b) Empower consumers to verify product authenticity and sourcing through QR codes.
- (c) Enable farmers to log real-time data (e.g., planting dates, irrigation schedules) via a mobile app.
- (d) Utilize GIS for geofencing farms, monitoring cultivation activities, and preventing fraud.
- (e) Ensure scalability to include additional crops (e.g., wheat, maize) and regions.

6. The objective of this initiative is to develop a centralized digital infrastructure that facilitates real-time tracking and verification of agricultural activities across the value chain. This system will empower farmers with data tools for recording cultivation activities while ensuring secure, immutable storage of that data through blockchain technology. Through the use of mobile applications, geospatial tools, and automated digital workflows, the platform will allow stakeholders—including consumers, regulators, distributors, and policymakers—to access and validate crop production records, farming locations, handling activities, and packaging events. Ultimately, the system aims to enhance food safety, prevent fraud, promote good agricultural practices, and support market access for smallholders by instilling confidence in the quality and integrity of produce.

7. The system will support the registration and geofencing of farm plots, capture time-stamped data on field operations such as ploughing, sowing, fertilizer application, irrigation events, harvesting, and packaging. Data entries will be supported by multimedia evidence including geo-tagged photographs and will be validated through a blockchain-based workflow. At the consumer end, a dedicated mobile application will be developed to scan unique QR codes printed on packaging and retrieve the complete traceability history of the product in an easy-to-understand, visual format.

SCOPE OF WORK

8. The selected service provider shall be entrusted with the comprehensive design, development, deployment, and post-deployment support of an integrated and modular track-and-trace digital ecosystem tailored for agricultural products. This platform will be a combination of blockchain-based data logging, spatial intelligence via GIS mapping, and mobile-based field data acquisition, with a centralized administrative control system for real-time oversight and analytics. The project is intended to digitize and enhance every

stage of the agricultural lifecycle, starting from pre-cultivation planning through post-harvest packaging and delivery to end consumers.

Blockchain Backbone

9. The service provider will be required to develop and deploy a blockchain backbone that acts as the immutable data layer of the system. This component will be responsible for logging each critical event in the life cycle of the agricultural produce, including land preparation, sowing, irrigation, pesticide application, fertilization, harvesting, sorting, grading, and packing. Every event must be captured with time-stamped metadata, GPS coordinates, user authentication credentials, and, where applicable, photographic or sensor-based evidence. The blockchain ledger must support smart contract capabilities for validating field operations based on predefined business rules, as well as enabling third-party audits of selected records. The architecture must be extensible to accommodate increasing data volumes and additional crops.

Mobile Application for the Farmers

10. A critical deliverable is the development of a user-friendly, multilingual mobile application for farmers and field operatives. The app must facilitate easy and guided data entry for various crop activities, with geo-tagging and offline capability as mandatory features. It must also incorporate multimedia capture, GPS coordinate locking, calendar-based activity logs, and user dashboards summarizing data entered. The mobile app should also be capable of sending timely reminders and alerts to farmers regarding pending activities or data anomalies. Seamless synchronization with the central server must occur once connectivity is restored, ensuring no data loss.

Mobile Application for the Consumers

11. Parallel to the farmer application, the service provider must deliver a dedicated mobile application for consumers. This application will allow end-users to scan QR codes embedded on packaged agricultural products and retrieve a comprehensive traceability history, which includes the identity and location of the originating farm, crop cultivation and input data, harvest timelines, and post-harvest handling records. The user interface of this application must be aesthetically appealing, multilingual, and optimized for both basic and high-end Android smartphones.

GIS Dashboard

12. The service provider shall also design and implement a centralized, web-based GIS dashboard, which serves as the administrative and monitoring portal for stakeholders such as government officials, regulators, and project managers. This dashboard must visualize farm boundaries, cultivation zones, and activity heat maps in real-time. It must provide powerful filtering, reporting, and data exploration capabilities, including crop-wise, district-wise, and time-based breakdowns. Users should be able to generate printable reports, export datasets in various formats, and monitor real-time compliance based on expected versus logged activities.

QR Code – Management System

13. Another key component of the system is a QR code management and tracking module. This component must be capable of generating unique, tamper-proof QR codes at the packaging stage, which are cryptographically linked to the data recorded on the blockchain. The system must ensure that each code is uniquely assigned to a single batch or unit of produce and cannot be duplicated or reused. The QR codes should remain scannable under a range of lighting conditions and physical environments. Print-ready

versions of these codes must be made available through a secure portal with access restrictions.

Other Features

14.To support holistic agricultural traceability, the system must include modules for stakeholder management (farmers, inspectors, processors), configurable settings for various crops, and audit trail generation. These functionalities must support role-based access and allow for field verification visits, feedback loops, and escalation protocols in cases of missing or irregular data.

Deployment

15.Furthermore, the selected firm must provide complete deployment of all system components on the client's infrastructure on a cloud native platform based on OpenStack. This includes installation, integration, and operationalization of blockchain nodes, GIS services, mobile application management servers, web dashboards, and data storage modules. The firm must also ensure proper handover of system documentation, user manuals, SOPs, and conduct end-user training. Post-deployment support must include issue tracking, bug fixing, performance optimization, and minor feature enhancements over the contracted support period.

SYSTEM REQUIREMENTS SPECIFICATION (SRS)

16.The proposed system must be developed in close consultation with the Procuring Agency to ensure full alignment with the operational, regulatory, and technical needs of the project. At its core, the system must support a robust spatial data management module that enables precise geofencing of each farm plot registered within the traceability network. The geofencing capability should allow for the accurate delineation of farm boundaries, verification of agricultural activity within defined spatial parameters, and the mapping of input applications such as water, fertilizers, and pesticides. The system must also support the overlay of satellite imagery and aerial surveillance data for real-time visual validation of crop growth stages and field interventions.

17.The backend system must be capable of managing a high volume of concurrent transactions and storing agricultural event data using a blockchain architecture. This data must be encrypted and secured through strong cryptographic protocols that ensure data integrity, non-repudiation, and tamper-proof archival. Access control mechanisms must be role-based, allowing for differentiated permissions for farmers, inspectors, administrators, and auditors. Additionally, the system should be resilient against data loss and cyber intrusions, with scheduled backups and logging of all access and changes within the database.

18.Mobile applications shall be developed for both farmers and consumers. The farmer app must operate effectively in low-connectivity environments, enabling offline data capture and synchronization with the server once a network connection is available. The application must include biometric login or PIN-based access to protect against unauthorized usage. Functionality should include guided forms for data entry, GPS-tagged image capture, timeline-based activity logs, and notification features. The consumer-facing application must present data in a user-friendly, multilingual interface, allowing consumers to scan QR codes and view the full lifecycle of the product in an intuitive format including graphical representations, maps, and textual records of all production activities.

19.The administrative dashboard must serve as the central control panel for system administrators and supervisory staff. It should support the configuration of workflows, enable customized reporting, and provide visualizations such as maps, charts, and

timelines. It must allow for the scheduling of routine and ad hoc inspections, tracking of compliance metrics, and monitoring of anomalies such as missing activity logs or geofencing violations. Integration with GIS data layers such as shapefiles and raster datasets is mandatory, as is the ability to export reports in commonly used formats like CSV, PDF, and GeoJSON.

20. System architecture must be modular, scalable, and maintainable. Each module—including the blockchain engine, GIS services, mobile applications, QR code generation, and web dashboard—must be independently deployable and upgradeable. This will ensure that future enhancements, such as integration with smart irrigation systems or machine vision for crop disease detection, can be seamlessly incorporated without requiring a complete system overhaul.

21. Deployment of the solution must take place entirely within the infrastructure provided by the Procuring Agency. The vendor must install and configure all components—including application servers, blockchain nodes, GIS services, and analytics engines—within the client's data center or designated IT environment. Compatibility with existing infrastructure such as operating systems, database servers, network configurations, and security protocols must be ensured. The selected firm will be required to coordinate with the client's IT department for firewall configurations, load balancing, domain management, and user access provisioning.

21. No part of the system shall rely on third-party cloud infrastructure unless prior written approval is granted. Full data residency within Pakistan must be maintained, and the system must comply with all applicable data protection laws and national cybersecurity policies. The system should also include a well-documented set of APIs for future integration with IoT sensors, traceability platforms, mobile analytics engines, and national agricultural information systems.

Annexure “B”

CHECKLIST TO BE FILLED IN BY BIDDER

Firm is required to provide confirmation of following points and in case of any change, same is to be highlighted in remarks column.

S No	Description	Yes / No	Remarks
1.	Whether Final Product offered conform to the specification and confirmation to this effect has been made in the quotation.		
2.	Whether deviation from the demanded specification is attached with Annexure “H”		
3.	Whether complete quotation has been submitted in duplicate .		
4.	Whether the prices are inclusive of taxes/duties.		
5.	Whether Annexures are duly filled in and signed by the Bidder have been returned in herewith.		
6.	Whether copy of valid registration / business authorization of firm have been enclosed herewith		
7.	Bid Security is sealed in separate envelope and placed in financial bid envelope.		
9.	It is confirmed that no Taxes / Duties & Dues payable to Pakistan Govt. are outstanding at the part of vendor / firm.		
10.	Copy of NTN, sales tax certificate OR Equivalent Tax compliance Certificate (for foreign firms) has been attached.		
11.	It is confirmed that firm and their proprietors have not been in litigation / blacklisted by any Govt./Semi-Govt. / Autonomous body		
12.	Valid, original agency agreement has been attached with quotation.		
13.	Unit Price has been provided against same unit of issue as mentioned in it. In case of change in unit of issue, price has been converted as per its unit of issue in a separate column along with conversion formula		
14.	Specimen of End User Certificate has been attached (If required)		
15.	Country of origin and port of shipment have been mentioned.		
16.	All requisite documents as per Para 32 of Invitation to tender have been attached.		
17.	10 % BG will be provided within 30 days of signing of contract		
18.	Warranty / Guarantee will be provided for required period		
19.	Letter of Authorization to sign Tender Documents on behalf of firm has been attached.		
20.	Incoterm is as per bidding document .i.e. FOR etc		
21.	Offer is without any condition		
22.	All terms and conditions mentioned in bidding documents are acceptable		
23.	Final price should be mentioned inclusive of all taxes & duties etc		
24.	Delivery of equipment must be Brand New		

Note: The Check list should be duly filled, signed, stamped and pasted on Technical Proposal envelop.

Dated:

(Signature of Bidder & Stamp)

Annexure "C"

FORMAT OF AFFIDAVIT/UNDERTAKING

Bidder must submit following undertaking (on stamp paper of Rs.100), failing which the bid may be rejected at the discretion of procuring agency:

(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 blacklisted 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:_____

Annexure “D”

**NON-DISCLOSURE AGREEMENT (NDA) OF
CONFIDENTIAL INFORMATION**

Except as required to further the relationship between Procuring Agency and M/s xxxxxxxx or as expressly authorized in writing on behalf of Procuring Agency, M/s xxxxxxxx, its shareholders/partners, directors, advisors, officers, and employees shall not disclose, provide or share directly or indirectly by any mean (verbal, writing, social media), any Confidential Information (partial or complete) during the period of his /her relationship with Procuring Agency or any time after the termination of such relationship.

Signed
Purchaser
Dated

Signed
Seller
Dated

Annexure "E"

LIMITED SCHEDULE TO TENDER
(To be filled by bidders on Company's Letter Head)

1. Tender Inquiry No - GAI-GIS-BLOCKCHAIN-INTEGRATEDAGRI/RFP04/2025
1. Tender Submission Time - Before 1100 am 13 April, 2025
2. Time and Date of opening Tender - 11:30 am 13 April, 2025
3. All Prices should be inclusive of all taxes
4. **No further extension in opening date will be granted except extreme circumstances**

(1)	(3)	(4)	(8)	(9)	(10)
Item No	Description	Specs	Total Price	GST % (As applicable)	Total Price (incl GST)

5. Bid is Valid upto _____.

Dated:-

(Signature of Bidder & Stamp)

Financial Offer Form

(To be filled by bidders on Company's Letter Head)

FINANCIAL OFFER (Summary)			
Contract Title: Procurement of Scientific Equipment		Tender Reference: <u>GAI-GIS-BLOCKCHAIN-INTEGRATEDAGRI/RFP04/2025</u>	
Name of Tenderer:			
Sr. No	Mile stone	Task Description	Bid Amount
Grand Total			

Signature	
Name (Tenderer's Representative)	
Designation:	
Date:	
Tenderer's Official Stamp	

Annexure “F”**EVALUATION OF TENDER****1. Examination of the administrative conformity of tenders**

The aim at this stage is to check that tenders comply with the essential requirements of the tender dossier. A tender is deemed to comply if it satisfies all the conditions, procedures and specifications in the tender dossier. If a tender does not comply with the tender dossier, it will be rejected immediately and may not subsequently be made to comply by correcting it.

2. Technical evaluation

- (a) Applicants must be legal entities registered in Pakistan with valid NTN and GST certifications. The lead bidder or consortium should demonstrate the capabilities in software development, with expertise in blockchain-based systems. Capabilities in GIS projects and familiarity with the agriculture sector will be considered advantageous. The firm must have the financial capacity to manage a project. The proposed team must include dedicated software developers, GIS specialists, mobile application developers, system architects, and a qualified project manager.

(b)

In the interest of transparency and equal treatment and to facilitate the examination and evaluation of tenders, the evaluation committee may ask each tenderer individually for clarification of its tender, within a reasonable time limit to be fixed by the evaluation committee. The request for clarification and the response must be in writing, but no change in the price or substance of the tender may be sought, offered or permitted except as required to confirm the correction of arithmetical errors discovered during the evaluation of tenders. Any such request for clarification must not distort competition. Decisions to the effect that a tender is not technically compliant must be duly justified in the evaluation minutes.

3. Financial evaluation

- a. Tenders found to be technically compliant/ recommended shall be checked for any arithmetical errors in computation and summation. Errors will be corrected by the evaluation committee as follows:
 - i. Where there is a discrepancy between amounts in figures and words, the amount in words will be the amount taken into account;
 - ii. Except for lump-sum contracts, where there is a discrepancy between a unit price and the total amount derived from the multiplication of the unit price and the quantity, the unit price as quoted will be the price taken into account.
- b. Amounts corrected in this way will be binding on the tenderer. If the tenderer does not accept them, its tender will be rejected.

Annexure “G”

Technical Offer Form

(Company Profile must be filled in by Company’s Owner or Legal Representative)

(To be filled by bidders on Company’s Letter Head)

(Please attach the evidence documents which proves the declared figures in Technical Offer Form)

Technical Offer Form					
Contract Title: Procurement of Scientific Equipment		Tender Reference: GAI-GIS-BLOCKCHAIN-INTEGRATEDAGRI/RFP04/2025			
1. Bidder's Profile					
NAME OF COMPANY					
ABBREVIATION					
TYPE OF COMPANY	Public Limited Co	Private Limited Co	AOP	Others	
(√ or X)					
IF OTHER SPECIFY					
COMPANY REGISTRATION No					
PLACE OF REGISTRATION					
DATE OF REGISTRATION					
Company's affiliations for professional certifications					
	Organization Name	Certification	Ranking	Validity Period	Remarks
1					
2					
3					
4					
COMPANY ADDRESS	HEAD OFFICE			BRANCH OFFICE NEAREST TO PAKISTAN	
STRN #		NTN #.			
POSTCODE					
P.O. BOX					
TOWN/CITY					
COUNTRY					
PHONE No					
FAX No					
E-MAIL					

Company Legal Authorized Representative for this Tender:					
Complete Name/		CNIC#		Father's Name	
Nationality:			Position in the Company:		
OFFICAL ADDRESS					
POSTCODE			Signature: Authorized Representative		
TOWN/CITY					
COUNTRY					
PHONE No					
E-MAIL					
Full Name of 3 Key Representatives of Company:	Name	Position	Location	Mobile Number	

2. Bidder's Bank Accounts Details			
	Bank 1	Bank 2	Bank 3
Bank Name			
Branch Address			
Town/City			
Postcode			
Country			
Bank Telephone No			
Bank Fax No			
Bank E Mail			
Bank Account Title			
Account Number			
IBAN			

Technical Specifications

Tender Reference No. GAI-GIS-INTEGRATEDAGRI/RFP04/2025

Annexure “H”

Financial Offer Form

(To be filled by bidders on Company’s Letter Head)

FINANCIAL OFFER (Summary)			
CONTRACT TITLE: Design, Development, and Deployment of a Block chain Enabled GIS-Integrated Agriculture Track and Trace System			
TENDER REFERENCE: GAI-GIS-BLOCKCHAIN-INTEGRATEDAGRI/RFP04/2025			
Name of Tenderer:			
Sr No.		Works Location	Bid Amount
	Grand Total		

Signature	
Name (Tenderer's Representative)	
Designation:	
Date:	
Tenderer's Official Stamp	