



WWW.
CIPOTATO.ORG
Street Address:
Av. La Molina 1895, La Molina, Lima, Perú

REQUEST FOR PROPOSAL Potato Application (app) in West Bengal

I. Introduction

The International Potato Center (CIP) was founded in 1971 as a research institution for the development of roots and tubers, providing sustainable solutions to the pressing global issues of hunger, poverty, and natural resource degradation. CIP is a global center, with headquarters in Lima, Peru, and offices in 20 developing countries across Asia, Africa, and Latin America. Working closely with our partners, CIP aims to achieve food security, greater well-being, and gender equity for the poor in the developing world. CIP promotes its mission through rigorous research, innovation in science and technology, and capacity strengthening in root and tuber cultivation and food systems.

CIP is part of the CGIAR Consortium, a global partnership uniting organization dedicated to research for a food-secure future. CGIAR research is dedicated to reducing rural poverty, increasing food security, improving human health and nutrition, and ensuring more sustainable management of natural resources. Donors include countries, foundations, and international entities.

The center is an autonomous entity, with an international board of trustees, established as an international organization in 1971 in Lima. CIP has the status and privileges and immunities of an international organization under its host country agreement with the Government of Peru as well as with various other countries in which it conducts research.

In India CIP is established as a Branch Office under regulation with the Reserve Bank of India to carry out research programs to increase the production and productivity of potato and sweet-potato at the national level in cooperation with the Indian Council for Agricultural Research (ICAR), and its associated research institutes working on potato (CPRI) and sweet-potato (CTCRI). Collaborate with universities and international research organizations to advance agricultural innovations in India and the region.

CIP is promoting Apical Rooted Cutting Technology to promote local seed potato production in West Bengal being supported by Department of Agriculture, West Bengal. Project intends to develop digital solutions to ensure traceability at each stage of seed production and to provide customised advisory services to farmers and nursery personnel through mobile and web applications.

II. Object of the contest

1.- Technical Specification of the item:

Part 01: Developing digital solutions for ensuring traceability (3 Apps)

Tissue Culture

1. Developing tissue culture lab profiles
2. Mobile App to capture all the activities in activities at Tissue Culture labs (Mother culture, sub-culturing, media preparation, usage etc).
3. Developing traceability system for different varieties, tc multiplication cycles
4. Inventory Tracking
5. Developing dashboard and generating customized reports

ARC Nursery

6. Managing ARC nurseries profiles
7. Capturing all the activities in respective nurseries across the different locations through mobile App.
8. Developing traceability system for different varieties and batches
9. Inventory Tracking
10. Developing dashboard and generating customized reports

Seed Production

11. Farmers, partners registration - Profile
12. Parent seed inventory
13. Data Capturing for planting, cultivation practices, harvesting, grading, storage etc
14. Floating forms to collect data on quality parameters at each stage of the seed production
15. Inventory Tracking
16. Generating different reports and providing insights

Part 02: Customized Advisory Services to farmers- Mobile App (01 App)

1. Advisory requests by farmers/partners- Sharing details of the problem through Video, Pictures, audio
2. Collection of critical data for problem analysis
3. Problem diagnosis through Image matching, Machine Learning and/or Artificial Intelligence
4. Providing Advisories to farmers (base don the schedules shared by CIP)
5. Managing crop history
6. Providing alerts and making announcements through push notifications
7. Dashboard – Various reports as per the requirement

Other Terms and Conditions

- a) Warranty requirements for at least 3 years and Support on call for the requirement, in case needed for with one day turnaround time.
- b) Apps should be available in Google Play
- c) Documentation: technical manual (how it was built), operations manual (how the backend is operated: database backup, monitoring, licensing, hosting) and user manual

2.- Deliverables and dates for delivery (place):

Part 01: Traceability App

01. Tissue Culture: 6 weeks from signing the contract
02. ARC Nursery: 16 weeks from signing the contract
03. Seed Production: 22 weeks from signing the contract

Part 02: Crop Advisory Apps. : 22 weeks from signing the contract

Annual Maintenance Contract: 2025 and 2026

9.- Other comments: Please refer Guidelines for more details on the technicalities.

Guidelines

1. Software development project management. An agile framework such as Scrum must be followed to ensure better alignment between business requirements and application through an iterative process that allow for quick learning, focus on value and fluid communication.
2. Requirements collection. Starting from the requirements defined in the Terms of Reference, requirements must be subsequently defined to the point where:
 - a. Requirements can be clearly coded or configured, and validated during the unit tests by the development team; and
 - b. Requirements can be clearly validated by the users during the integrated tests.
3. Non-functional requirements:
 - a. Performance (guidance)
 - i. The system should respond to user requests within 2 seconds.
 - ii. The system should support a minimum of 100 concurrent users.
 - iii. The system should be able to process 10 transactions per second.
 - b. Scalability
 - i. The system should be able to scale horizontally to handle increasing user load.
 - ii. The system should support adding new servers dynamically without downtime.
 - iv. The system should be able to handle a 50% increase in traffic during peak hours
 - c. Reliability
 - d. Availability
 - e. Security
 - f. Usability
 - g. Compatibility
 - h. Performance efficiency
4. Programming Language. PHP, Python and other modern languages can be used.
5. Third-party components or libraries can be used and must be detailed including any fixed or variable costs attached. All components must provide equivalent security and support
6. Programming standards. Provider must share its development and documentation standard for: organization or source code files; commenting code; declaring and naming variables, modules, functions, files and libraries; database naming conventions (for tables, procedures, functions and other objects); and adhere to such standards during development.
7. Source Code Licensing. As per CIP Open Access Policy's [Software License Implementation Guidelines](#).
8. Source Code Management. During all development stages, the source code must reside on CIP's GitHub source code repository.
9. Web versions of the application must be responsive, which means it can be fully used on a mobile phone with a 5-inch screen or larger, and a table with an 8-inch screen or larger.
10. Web versions of the application must run equally well on the last 2 versions (at the time of testing) of Chrome, Firefox and Edge, both on desktop and mobile devices.
11. Mobile versions of the application must be available on Google Play and/or Apple AppStore under CIP's developer account.
12. Testing. Must be in complete alignment with business requirements and performed at two levels:
 - a. Unit tests, or test of individual functionality and modules, mainly performed by developers and technical testers.
 - b. Integrated tests, or test of all modules and components tested at once by users.
13. Application language. – English and Bengali the code must be created in a way that allows for dynamic labels and text creation and update, so that multilanguage strings are not “hard-coded”.

14. Hosting. The backend of the production environment of the application must reside on CIP’s Amazon Web Services or Microsoft Azure:
 - a. Cloud hosted database, for relational databases on MySQL, or PostgreSQL on AWS, SQL Server on Azure.
 - b. Cloud hosted web server, running on Apache or IIS, respectively. In any case using a secure connection (HTTPS with TLS 1.3 or later). The certificate will be provided by CIP.
15. Domain. The production and development version of the application must reside on cipotato.org or cip.cgiar.org domain names.
16. Operation. If the provider will be operating the application infrastructure, all operation must adhere to section Acquisition of Managed Services which includes monitoring, patching, backup and operation-specific support requirements.
17. Application Support. The provider must include its application functional support terms for the first 12 months of the application operation.
18. Warranty. The provider must offer 6 to 12 months warranty against errors in code that prevent or limit the normal utilization of the application.
19. Development support. Provider must include a proposal for providing additional development (not covered by warranty) for up to 6-12 months after formal application delivery.
20. Access control
 - a. If the application is being developed for internal CIP use only or will have a very small number of external users (without a CGIAR account), it must integrate with Azure AD for authentication purposes for better user experience and security control.
 - b. If the application will have mainly external users, authentication must be implemented in the application with these requirements:
 - i. Enforce the use of strong passwords or passphrases (preferably): 12 characters long that must include uppercase, lowercase, numbers and special characters.
 - ii. Ensure passwords are encrypted and hashed when stored in the database.
 - iii. Preferably, the use of OTP (One time password) that can be provided by Microsoft or Google Authenticator mobile apps.
21. Documentation.

Development	<ul style="list-style-type: none"> • Business Requirements documentation • Architecture Overview. A high-level description of the system architecture, components, and interactions, to ensure alignment with sprint goals. • Design Documentation. Detailed specifications for system design, including diagrams, data models, and interface definitions, to guide development efforts. • API Documentation. Documentation for any APIs developed as part of the sprint, including endpoints, parameters, request/response formats, and authentication methods. • Unit Testing plan and results. • Integration Test Plans and results. Plans for integration tests to validate the interaction between components developed during the sprint. • Database model and data dictionary.
Operation (if applicable)	<ul style="list-style-type: none"> • Database, web server and application setup instructions • Backup and restore procedures • Access control procedures • Monitoring procedures • Troubleshooting Guide
User Manuals	<ul style="list-style-type: none"> • Administration Manual • User Manual

22. Training. Provider must deliver training sessions to:

- a. users on the use of the application
- b. technical team, on the operation of the system and an overview of the development

23. Technical approval. Technical deliverables including source code, documentation and operation environment must be validated and approved by the Information Technology Unit at least 3 weeks in advance of the expected release for production date, to allow for analysis and any needed corrections.

Acquisition of Managed Services

A managed IT service is that delegated by CIP to a third-party service provider (MSP) to perform infrastructure operation services.

When these services are acquired the following minimum requirements must be addressed and defined by data and/or process owners; and provided by the MSP:

1. Operation

- a. Configuration Management. All components of the solution must be initially documented, shared with CIP IT and kept up to date as changes are made.
- b. Access control. All requests for access to the system must follow a formal approval process that includes process owners.
- c. Change Management. All changes to the system configuration must follow a formal request, evaluation, approval and implementation procedure.
- d. Monitoring. System servers, database, web, network, and application access must be monitored to detect potential security and resource utilization issues.
- e. Event management. In case a system component issue or incident is detected a formal response must be followed.
- f. Perform application and database backups aligned with Recovery Time (RTO), Recovery Point Objectives (RPO) and data retention requirements described in Table MSP1.
- g. Perform backup retention tests.
- h. Perform restore activities on demand.
- i. Patching. All server patching must be successfully tested in test environments before applying them on a production instance. A patch policy is defined in Table MSP6

2. System Support Scope is defined in table MSP0.

3. Service Level Agreement

- a. Service level requirements for assessing, classifying and prioritizing service requests are described in tables MSP2 and MSP3.
- b. Service level requirements for responding to service requests are described in table MSP4.
- c. Service level requirements regarding system availability are described in table MSP5.

4. Reporting

- a. Report on security and resource utilization monitoring results.
- b. Provide SLA reports on the agreed service level indicators and opportunity.
- c. Provide updated documentation.
- d. Provide a report of changes requested, approved and applied in the production environment.

5. Provide recommendation regarding services, options, service levels and features relevant to the service operation.

Table MSP0: System Support Scope

System Support Activities	Estimated Frequency
Support business requirement 1	
Support business requirement 2	
Support the integration with other services and other development activities related to infrastructure operation.	Once a year
Support disaster recovery planning, testing and execution activities.	Once a year
Support CIP development teams for continuous integration needs for software development.	Once a year
Support the execution of a penetration test of the system	Once every other year

Table MSP1: Disaster Recovery Requirements

In case of a disaster (server crash, data corruption due to application failure or unauthorized access, or similar situations) recovery objectives must be established by process owners

Each component of an information system is a potential point of failure. For mission critical systems, the need for these components redundancy must be assessed.

Disaster Recovery	Value	Comment
Recovery Time Objective (RTO): maximum time for service restoration take	1 day	
Recovery Point Objective (RPO): maximum time of information loss affordable	1 day	
Data Retention Requirement for daily backups	7 days	
Data Retention Requirement for weekly backups	4 weeks	
Data Retention Requirement for monthly backups	12 months	

Table MSP2: Service Request Evaluation

Priority of service requests submitted to MSP support must be based on its impact and urgency from a system owner perspective. The following definitions of impact and urgency must be reviewed and agreed with the provider.

	Impact	Urgency
Critical	All users internal, external (or both) of an essential service are affected or there is severe business impact	Service is unavailable, user(s) unable to work because of problem
High	Multiple users of a specific service are affected	A major portion of the service is unavailable
Medium	Multiple users in one physical location are affected.	User(s) able to work but with some difficulty
Low	One user is affected, service is degraded but still operating within SLA definitions.	User(s) able to work, aware of problem, has little or no effect

Table MSP3: Service Request Classification

Based on the impact and urgency established the request are classified according to this table:

Priority Levels*		Impact			
		Critical	High	Medium	Low
Urgency	Critical	Critical	Critical	High	Moderate
	High	Critical	High	High	Moderate
	Medium	High	High	Moderate	Low
	Low	Moderate	Moderate	Low	Low

Table MSP4: Service Request Response Requirements

The service level, in terms of response and resolution times under standard (usually MSP’s business hours) or on-call conditions (usually outside of MSP’s business hours), and level of are defined as:

Priority	Standard Support		On-Call Support		Response Performance
	Response SLA	Resolution SLA	Response SLA	Resolution SLA	
Critical 1	1 hour	6 Hours	4 hours	24 Hours	95%
High 2	2 hours	12 hours	8 hours	36 Hours	95%
Moderate 3	4 hours	36 hours	Log and refer	-	90%
Low 4	8 hours or 1 business day	60 hours	Log and refer	-	90%

Table MSP5: Planned Down Times

Additionally, for any planned downtime (for patching or other reference

Service Level Agreement	Value	Comments
Preferred time window for down-time	17:00 – 19:00 GMT-5	This window covers most of CIP and other CGIAR centers operations business hours.
4-hours Planned Down Time Notification Anticipation required	2 days	
8-hours Planned Down Time Notification Anticipation required	1 week	
System Uptime (measured for a calendar month period)	99%	1% is equal to roughly 7 hours a month (calendar)
Critical application functions response times	Critical function 1: TBD response time (in seconds) Critical function 2: TBD response time (in seconds)	

Table MSP6: Software Patching Policy

Software Component	Zero-day Vulnerabilities	Critical Update	Regular Updates
Operating System	48 hours	1 week	1 month
Application Server	48 hours	1 week	1 month
Web server	48 hours	1 week	1 month
Database Server	48 hours	1 week	1 month
Middleware	48 hours	1 week	1 month
Other	48 hours	1 week	1 month

Zero-day vulnerabilities: those that are known as already being exploited by hackers.

Critical updates: related to known security vulnerabilities the manufacturer has identified and issued a patch for or defects (bugs) that may result in system malfunctioning (data loss, data integrity or performance degradation risks) in common cases.

Regular updates: related to defects (bugs) that may result in system malfunctioning (data loss, data integrity or performance degradation risks). These are usually related to very particular situations (edge-cases).

III. Timetable

1. Invitation to applicant companies	May 06, 2024
2. Confirm your desire to participate	May 08, 2024
3. Inspection visits (if required)	N/A
4. Submission of Applicant Inquiries	May 10, 2024
5. Response to inquiries	May 13, 2024
6. Proposal submission	May 17, 2024
7. Opening and evaluation of proposals	May 21, 2024
8. Winner identification and communication to bidders	May 24, 2024
9. Contract signing	June 07, 2024
10. Contract commencement	June 10, 2024

(*) Please direct your inquiries via email to Mr Barun Raj (barun.raj@cgiar.org) copying Mr Arun Gugnani (a.gugnani@cgiar.org).

IV. Proposals

Proposals must address each of the elements listed in the Terms of Reference. Proposals may be rejected if they do not meet the requirements detailed in the call for proposals. All companies interested in participating and seeking clarification of this document must send their questions via email to CIP no later than May 10, 2024, attention to barun.raj@cgiar.org copying a.gugnani@cgiar.org.

They must submit their complete quotation, including technical specifications, by email to barun.raj@cgiar.org copying a.gugnani@cgiar.org no later than May 17, 2024.

The costs of preparing proposals are the sole responsibility of the applicant and will not be reimbursed by CIP.

V. Installation/delivery Location

International Potato Center (CIP), West Bengal as indicated above.

IV. Process Evaluation

Evaluation Matrix

	<i>Relevance %</i>	<i>Points (1-5)</i>	<i>Total</i>
Years of experience and client portfolio	20		
Similar works and implementations	25		
Cost	35		
Delivery time	20		
Total	100		

(*) Only the offers that meet all the requirements included in this tender will be considered.

V. CIP Rights

CIP reserves the right to accept or reject proposals in whole or in part and to cancel the process at any time if CIP has not signed the corresponding contra

V. Letter of presentation

Sirs

International Potato Center (CIP)
NASC complex, DPS Marg
Pusa campus, New Delhi - 110012

Ref. TITLE

Dear Sir/Madam,

With this letter, our company [company name], represented by Mr. [name of the legal representative], requests to participate in the Selection Process for the provision of xxxxxxxxxxxx at the main headquarters in La Molina, Lima", as communicated to us.

We certify that we have become aware of the conditions required for participants and we commit to abide by them in their entirety.

We are enclosing the documentation demonstrating that our company meets the requirements for participation in this process.

Yours faithfully

VI. Identification

BIDDER IDENTIFICATION	
Name of the company	
Years in the market	
Principal clients (attach letter recommendation)	
RUC/TAX ID	
Address	
Contac person	
Position	
E-mail	
Phone number/ cell phone number	
Total Sales	
2,021	
2,022	
2,023	
Name and sign of the legal representative	