

## TOR for Digitization of Supply Chain (Pilot)

**Background:** Digitization of the supply chain is known to bring about a reduction in costs and increased revenues. As part of NAPP's endeavour to introduce cutting edge technologies to its producers, it would like to undertake two pilots of this technology. The locations of the pilot are in Tajikistan and Myanmar on cotton and coffee respectively.

In this regard NAPP would like to call for proposals from qualified software companies with at least 10 years of standing to enable the undertaking of the pilot.

Duration of the Pilot: 1 year. Post which if the producers see benefit they will continue to pay for the software at their own costs.

Companies wishing to participate in the program may please write to [hr@fairtradenapp.org](mailto:hr@fairtradenapp.org) by the 15<sup>th</sup> of September.

### FUNCTIONAL REQUIREMENTS

#### Proposed Intervention – Integrated MIS and Farm Management platform with GIS capabilities.

Proposed integrated remote sensing & GIS based platform for MIS & farm management should have the following features:

#### 1. Collaborative framework and Technology

The platform preferably should be Cloud based, dynamic digital collaborative platform integrating the entire spectrum of agricultural operations and stakeholders' actions with real-time organized data analytics.

**The integrated digital platform should have Web and Mobile interfaces for real-time monitoring, management, and farmer engagement.**

- **Admin Configuration:** The Admin of the software should have complete control to configure the entire platform as per project needs.
- **Setup Organisation:** This feature should provide an option to capture key information about software project and the NAPP organization.
- **Setup User Roles:** There should be an option to create multiple user roles and provide access to platform features based on these roles. i.e. The list of all web and mobile features should be available in a list and the admin can select what is applicable for the role. This should have provision to edit and change anytime as per program needs. Roles may include Farmers, Farm Managers, IT Admin, MEL Person, Program Officers, Certifiers/Auditors, Managers till CEO.
- **Hierarchy Setup :** All users should be setup in the form of a hierarchy till the CEO and all data should be aggregated in the same order .Ex If a district coordinator logs in he will be able to see only his district data and no other data from other districts unless it is assigned to him.

#### 2. Remote Sensing Terminal ( Web based interface )

The platform should have the facility to integrate Remote Sensing data and should have Artificial Intelligence Engine and ML capabilities for crop prediction, Stress and yield prediction. The models should be more than 80% accurate for all major crops and should have a terminal to showcase plot to region level analysis.

**Satellite and GIS (Plot Level).** The interval for assessments should be ideally 2 weeks for individual plot data and information should be available also in the farmer facing application for helping the farmers.

**Satellite and GIS (region level)** monitoring terminal where the complete state data can be visualised anytime at state, district to pin code level of analysis. Historic data of the last 1 year should be available to be viewed through the platform with details including crop, stage, stress and yield estimations.

### 3. Knowledge Management Platform and Agronomic Module

The platform has a built-in knowledge management framework for configuring crops, their varieties, Good agricultural practices, pest and disease related to crops, crop protection products and cultivation protocols.

- **Setup Crop:** This crop configuration should be available to help admin configure any number of crops, variety wise into the platform
- **Configuration of Field scouting activities** for the field team as well as the farmer POP advisories based on crop stages.
- **Input Recommendation:** There should be an option for configuring input recommendations based on all specific crop varieties with details like method of application, concentration and quantity of chemicals used.
- **Harvest schedule plans:** There should be an option to configure harvest plan based on crop varieties and the number of schedules ( For Multi crop ) as well as grade within every harvest schedule
- **Pest and Disease Recommendation:** This section should have the option to upload all crop pest and disease pictures, symptoms and advice so that the users can access them through their mobile. It should have the option to be changed anytime if new recommendations replace older ones.

- **Mobile Capabilities or the VRP's**

The mobile interface should be functional in both android and iOS platforms and should have these basic functionalities

- **User login based on credentials and encryption of passwords for data security**
- **Overview screen** to showcase the overall performance of the field user.
- **Farmer Registration:** Features should include add farmer with complete details including social security card QR code based scanning facility , Farmer Photo, socio economic conditions , Know Your Consumer details and other customizable form options as required by the program
- **Land and crop Registration** with Crop type, acreage , sowing information and other customised form option to capture any other details as required in future.
- **Geo-Tagging of plots** for location identification
- **Plot area Audit for correct Acreage measurement** – To measure the area of the land accurately so that use or planning of seeds, fertilizer and pesticides recommendations..
- **Farm Activities and POP management** ensuring timely advisory to farmers based on their crop types and ensuring completion of best practices on time
- **Seed Section** : For complete accounting of seeds used or disbursed to the farmers
- **Task Section** to remind the field team of upcoming and pending tasks with filter options.
- **Crop Stage monitoring with Visuals (Images)** – Option to capture crop images and add additional details as required.
- **Advisory Module on Pest and Disease** : Option to capture alerts from the field with images and voice notes which should immediately sync and inform the agronomist on the web application.
- **Harvest Re-estimation** - Option for re-estimation of Harvest quantity & date based on crop performance during the crop season
- **Fertilizers and Pesticides recommendation** – Option to see fertilizer and chemical schedules and capture the actual application on the field.

- **Harvest Details and consignment building** – Facility to capture details like SKUs used, unit price, number of labour used.. Signature of farmers captured during harvest as consent.
- **Cost of Production/Expense Option:** To capture details of cost for sample farmers during the various stages of production divided into Labour, Machinery and Input cost.
- **Events/Training Section** for capturing complete events details: Event data , Location , No of attendees , Picture option , Invitation to farmers and feedback section with geo tagging of event site.
- **Lab Analysis and reports options** : For crops tested for exports consignments
- **Custom forms** option to take care of any additional information requirements through app based custom tailored input forms
- **Order management section** to receive requests from farmers regarding agri-input and other requirements and accordingly supply the same. Keep track of such transactions with a ledger dedicated for each farmer.
- **Complete accounting and Inventory Section:** If goods are issued to farmers through field teams this section should help account issues till farmer disbursal and authentication through OTP.

- 4. Field team Performance evaluation system:** Application to track the performance of the field team and score them according to the weightage defined for various KPI activities performed by the field team. Capability to track details like number of farmers met, distance travelled, number of transactions made on mobile application, GPS tracking etc.

**5. Post-Harvest Management and Traceability platform integrated mobile application**

Here every farmer crop can be tagged with a QR code slip and tracked across the supply chain, production and processing till a final product is made with these complete details. The QR once scanned should showcase its software farmer, details of the program, certification if any, location and other crop stages which were captured by the field team.

Features to include

- a. Mobile application for inventory and process manager across all warehouses.
- b. Geo Tagging warehouses and collection centres facilities
- c. Inventory capacity and availability
- d. Manage, track and monitor inventory during storage , sorting , grading and packaging process
- e. Labelling facility with output QR code for every produce leaving the facility.

- 6. Farmer Application:** There should be a separate farmer application where the Software farmers can be advised specific to their crops they are growing with following critical functionalities

- weather data with forecasts
- Satellite based health of his crop
- Standard crop POP to be followed
- Notification section with News section, Video and training materials
- Alerts section for capturing and reporting field issues with images
- Helpline number for direct connect with the government

**7. Information Dissemination Platform**

The platform should have a uniform, Crop and context specific information dissemination mechanism to facilitate seamless integration with all touch points of the agriculture ecosystem and all stakeholders across the cropping season.

**8. Comprehensive Agriculture and Allied sector integration**

The platform can be easily scaled up to all other allied sectors such as animal husbandry, dairy, sericulture, Apiculture, Aquaculture, etc. to encompass the entire rural ecosystem.

**9. Coordination and Management between stakeholders**

The platform has a built in Hierarchy of reporting and governance with a Task management engine to automate the entire gamut of services and events; including monitoring and approval of tasks for effective completion thus helping the authorities to manage quality and exception.

**10. Scale and Flexibility in architecture**

It is easily configurable, extensible, flexible, robust and scalable to cater to all 10, 00,000 farmers and Agriculture and allied departments and extension staff.

The crop configuration should have provisions to have over 1000+ varieties supported with options to copy variety specific configurations for ease of use.

**11. Value chain Linkages**

The platform facilitates complete end-to-end forward and backward linkages ensuring effective value chain participation.

**12. Multi stakeholder Real time access and collaboration**

All stakeholders (Government, Extension staff, Agri research bodies, Banks, Insurance, Input suppliers, output buyers, Agribusinesses, Marketing agencies, Farmer Communities, Farmers, other related agencies/ departments) should be able to access the platform with configurable options , the control of all of which should remain with the central Admin of Software .

Uniform dissemination of information and real-time collaboration among all stakeholders including farmers, Govt authorities including extension staff, Input suppliers

**13. Real Time Insights and Dashboards**

Maintain and analyze geo-tagged land records, cropping area with remote sensing insights, crop coverage, Crop stage Images, agrochemical inputs usage, Farm activities data , production estimates, weather forecast in real-time.

**14. Ease of Use**

Facilitate seamless, process dependent data capture and data aggregation with minimal data entry effort, so that valuable time of the resources on ground is effectively directed to the more productive areas for greater impact.

**15. Single Source of Truth**

The platform would serve as a single source of truth for all agriculture data across the state for various stakeholders so that a unified, accurate and up-to-date source of information is effortlessly made available for the respective decision makers in real-time.

**16. Effective communication platform**

Facilitates system generated timely flow of information as a true interaction and communication platform for uniform dissemination of information providing right information to the right people at the right time.

**17. Enablement of VRP's and government extension arm**

Provide a comprehensive data capturing and timely task based VRP application for timely intervention and support system for all VRPs, Field staff and all other stakeholders in order facilitate express service and support delivery to the end farmers.

**18. Training & Demonstration**

Provide a framework for capacity building of farmers, VRPs and other extension staff to plan and capture field training and demonstrations on best practices and new technologies for adoption with the farmers. Images of training , Attendance , feedback and historical records should be mandatorily present in this module.

#### **19. Real time farmer engagement and Advisory**

Provide Context specific Crop advisory to each and every individual farmer; delivering best practices advisory (Good Agricultural Practices) specific to their context and the crop they are growing. The advisory should be a continuous process based on the age and stage of the crop. This will ensure that the rural farmers are not overloaded with a deluge of information, rather they should receive the right information at the right time ensuring appropriate action.

Scientifically guide & handhold the farmer from crop selection to post harvest and with advanced technology driven best farming practices

#### **20. Bulk Communication platform with smart filters**

The platform should have provision to select filters including district , crops , pest and disease , user etc and provide bulk SMS to the respective participants. The application should have multilingual apps and SMS facilities.

#### **21. Unified Crop and Farmer Database**

Maintain a database of farmers in specific regions (Taluka and above ) with details of land extent, crops grown, livestock details etc.

#### **22. Facilitate R & D and Research institutions participation for advisory and support.**

Stakeholders can include: agri R&D bodies and Universities from across the state who can advise and do real time communication for farmers requests.

#### **23. Build in Advisory Framework**

Provide context specific Crop Health Management at the field level guiding the VRPs and Agriculture staff to appropriate disease diagnosis for immediate and express service delivery to minimize the crop losses, cost of cultivation and reduce environmental pollution through judicious use of agro-chemicals.

Have a Crop Health Management Framework and Disease Knowledge Repository with images symptoms and advice for respective crops

#### **24. Climate smart Proactive and Predictive advisory**

System should have a built-in predictive and prescriptive advisory framework based on machine learned weather conditions ( Early warning system) at the farm level and correlating to the crop and stage of the farmers geo located plot. It is intended to context specific advisory and to improve the crop yield by effectively guiding the farmers based on their crop and agro-climatic conditions. It should include

- Provide Weather forecasts of the local region of farmers.
- Right time for sowing based on weather
- Smart Irrigation scheduling based on precipitation pattern in the local region
- Right input usage and fertigation based on soil nutrition
- Pest and disease prediction and advisory
- Harvest scheduling based on weather.

## **25. Warehousing management Solution**

The platform should have an Integrated harvest and post-harvest management platform covering all aspects of harvest receipt, supply chain, storage, inventory management, customer order creation and matching to set standards and then processing of inventories to produce final product with a traceability QR code.

The end to end process should be handled through multiple warehouses across the state.

## **26. Integrated Marketplace**

The platform should provide an integrated market place to facilitate direct marketing where the State Marketing board can act as a moderator and encourage online procurement directly from the farmers. This eliminates middlemen intervention and ensures the farmers receive the best price for their produce.

## **27. Provision for horticulture, agriculture and plantation crops**

Should facilitate adoption of new high-value and high-demand crops including Organic farming, Natural Farming etc.

## **28. Should have Financing module for Financial Assistance**

Should have a built-in Financial Assistance module to help banks and financial institutions check the performance of farmers and provide loan services. This should be based on remote sensing data.

## **29. Built in MIS and reporting**

The platform should have a comprehensive reporting and MIS module to visualise data in various formats including multiple dashboards and reports which can be extracted in excel templates for analysis

The web platform should have 3 levels of data visualization :

- **Map view** showcasing geo locations of all beneficiary farmers and the complete details about them their crops and performance
- **MIS Dashboards** for an aggregated view of project progress, activity progress, pest and disease and training and events.
- **Reports:** Comprehensive reports with Excel and PDF download options for monitoring and extracting various project progress reports for internal assessments.

## **30. Cloud based Infrastructure for Remote sensing data storage, processing and warehousing**

Proposed platform should be cloud based to ensure easy processing of Remote sensing data at the scale of state level processing every fortnightly. The platform should not show lag in data representation and analysis.

## **31. Accounting Module for farmer services**

Maintain authenticity of stocks supplied to farmers and accounting of harvest and payment cum settlement of farmers accounts.

## **32. Management Application:** Live field data, Field team performance, Overall project health, Harvest projections, Pest and disease, field team performance in the hierarchy etc

should be all available in reports and charts for managers and management of software on a separate application.

**33. Integration Capabilities:** The platform should have capability to integrate with 3rd party systems and databases to push and pull data.

**34. Farm to fork traceability for exports promotion**

Should facilitate end-to-end traceability of the farm produce thereby enhancing the produce value

1.1 Targeted Users

- NAPP Country project management unit , managers & staff
- NAPP Producers & VRP's
- Agronomists and advisors to the platform
- Farmers

1.2 Non-functional (Technical) Requirements:

The proposed Platform should also meet the following Non-Functional (Technical) Requirements:

ID	Requirement	Method of Compliance		
		Out of Box	Configuration	Customization
<b>1.00</b>	<b>General</b>			
1.01	The supplier should provide a Platform that offers Web application accessible using common web browsers on both desktop and mobile devices Browsers: MS Internet Explorer/Edge, Google Chrome, Mozilla Firefox, Apple Safari			
1.02	The Platform should offer Mobile/Tablet Apps both on iOS and Android for Farmers, Field Staff and other stakeholders			
1.03	The application shall be accessible to all users 24 hours per day, 7 days a week.			
1.04	The application shall contain a secure login feature with a distinct login for each user using industry best practices for password security.			
1.05	The application shall allow the assignment of user roles which limit a user's access within the application.			
1.06	The application shall allow the administrator role to limit which users can delete records			
1.10	The Platform has a provision to upload and maintain historical data related to Agriculture and NAPP.			
<b>2.00</b>	<b>User Accounts</b>			
2.01	The Platform shall have a secure login feature with a distinct login for each user.			
<b>3.00</b>	<b>Platform Build</b>			
3.01	Platform should be built-on robust technologies to support at least 10 lac users ( farmers and allied users)			

3.03	Platform should support enhancements/ upgrades/ modifications throughout the project period with considerable downtime approval from the department.			
3.05	Should have framework for context specific dissemination of extension information based on any relevant parameters			
3.06	Should have built in Digital collaboration framework supporting Text , Images and Voice			
3.07	Should have the facility to automate Task Generation, management, monitoring, controlling and optimization			
3.10	Platform should be capable of extending to all other allied sectors such as Animal Husbandry, Dairy, Aquaculture, etc.			
3.11	Should have a framework for implementing Global Good Agricultural Practices.			
<b>4.00</b>	<b>Remote Sensing Data Interface</b>			
<b>5.00</b>	<b>Weather Data Interface</b>			
<b>6.00</b>	<b>Should have AI/ML based predictive analytics engine</b>			
<b>7.00</b>	<b>Should have GIS Maps interface</b>			
<b>8.00</b>	<b>Platform Architecture</b>			
8.01	Should support Disaster Recovery Plan for business continuity with Industry Standard RTO and RPO			
8,02	Platform should be manageable, secure, scalable, high performance, efficient, elastic, highly available, fault tolerant and recoverable architecture			
9,00	Should support local languages			
10,0	Security: ISO/IEC 27001:2013 complaint architecture			

**Note:** The above list of services with respect to modules is an indicative list, however there will be inclusion or exclusion takes place over detailed Requirement Gathering sessions

### 1.3 Operational and Maintenance Requirements

The vendor shall be required to provide operational and maintenance services for applications delivered for NAPP including, all the connected software and integrated components. This section discusses the Operations & Maintenance services to be provided by vendors with respect to Application Software.

Operations & Maintenance (O&M) phase of the project is by default scheduled for a period of 5 years from the date of “Go-Live” of the application. During these 5 years, the implementing agency is required to undertake the following key activities:

- Maintain the implemented Platform as per prescribed service levels agreement terms laid down in this RFP.
- Implement changes to Platform as per terms and conditions of the RFP
- Maintain systems required for automated generation of compliance of service level requirements laid down in this RFP.

## 2 Pre-qualification Criteria

NAPP invites the interested & eligible bidders / consortium members desirous of bidding for the project and who meet the following Pre- qualification criteria (PQ):

#	Pre-Qualification Criteria Description	Supporting Documents to be submitted by the bidders
	Nature of bidding	Single bid
1	<p><b><u>Legal Entity</u></b></p> <p>Lead bidder and or all members of consortium should be an Indian company or a foreign entity with a local base in India, must have registered under Companies Act, 1956 or under LLP Act, 2008 and also Registered with the Service Tax Authorities.</p>	<p><i>Bidder should submit:</i></p> <p><i>i. RoC</i></p> <p><i>ii. Copy of Service Tax Registration Certificate</i></p>
2	<p><b><u>Sales Turnover</u></b></p> <p>The Lead bidder company should have an average turnover of 20 cr for the last 3 financial years .</p>	<p><i>Bidder should submit the following:</i></p> <p><i>i. Audited balance sheet or</i></p> <p><i>ii. Profit &amp; Loss statement or</i></p> <p><i>iii. Certificate from the statutory auditor</i></p>
3	<p>The lead Bidder should be a profitable organization in the last 3 years of operations and should have a positive net worth.</p>	<p>For each of the financial years, A Certificate of Net worth duly certified by a Chartered Accountant to be submitted.</p>
4	<p><b><u>Manpower Deployment</u></b></p> <p>The lead bidders should have a permanent workforce of not less than 100 personnel in their company/group as on bid calling date.</p>	<p><i>Prime Bidder (lead Member) / Bidder should submit Self- Certification by the authorized signatory.</i></p> <ul style="list-style-type: none"> <li>● <i>List only key management and specialist positions in the Organization.</i></li> <li>● <i>Details of the personnel in the Project Management Team.</i></li> </ul>
5	<p>The lead bidder and the consortium partner must have valid registrations / licenses for ESI, EPF, GST and Shops &amp; Establishment certificate or any other relevant document</p>	<p>Valid Certificates to be submitted within 30 days of awarding the project in case the bidder is a Global firm and does not have a registered office in India.</p>
6	<p><i>Local Presence: Lead Bidder should have a registered office in India. In case the bidder does not have a registered office in India, they should provide an undertaking that they will establish a registered office in India within 15 days of awarding the project.</i></p>	<p><i>Bidder should submit Self certified office address and GST Registration Certificate copy</i></p> <p><i>Undertaking to be submitted if in case the bidder does not have a registered office in India.</i></p>

	Upon contracting, the bidder shall have GST number allotted in <i>India</i> and billing shall be from <i>India</i> office only.	
7	<p><b><u>Past Experience:</u></b> The Lead bidder and consortium members put together should have at least 5 Digital platform development experience on enterprise scale.</p> <p>Should have at least 5 Government projects experience either in India or globally.</p> <p>The lead bidder or the consortium partner should have proven experience of working with Banks , Insurance , Seed and Farming sector with proven experience of engaging with at least 3 lac farmers in India in the past.</p>	<p><i>Certificates from the client for at least one enterprise Digital Platform deployment.</i></p> <p><i>Project completion Certificates from at least 2 Government Entities with mobile number, email ID of the client point of contact.</i></p> <p><i>Relevant work orders or client certificates quantifying number of farmers covered.</i></p>
8	<p><b><u>Blacklist</u></b></p> <p>Lead Bidder or any of its consortium partners shall not have been black listed by any State / Central Government Department, Ministry or Agency for breach of Contractual Conditions as on bid calling date. The bidder should also not be entangled in any legal disputes with any Govt/PSU body.</p>	<p><i>Self-Declaration Certificate that the Bidder is not black listed as on bid calling date to be enclosed in the bid.</i></p>
9	Lead bidder or consortium partners should have ISO 27001:2000 certificates or higher standards.	<p><i>Copy of certificate ISO of lead bidder and or consortium members.</i></p>

Note: In case of consortium bids, only 3 members are allowed. One member cannot submit more than one bid .

## 2.1 Short listing Criteria

- a. NAPP will shortlist bidders who meet the Pre-Qualification criteria mentioned in this Invitation to RFP.
- b. Any attempt by a Bidder to influence the bid evaluation Process may result in the rejection of its RFP Proposal.
- c. NAPP will constitute a Proposal Evaluation Committee to short-list the bidders according to the Pre-Qualification criteria given in this document.

## 2.2 Evaluation Process

- a. The evaluation will be 3 stages i.e., PQ, TQ with live -demo presentation of the proposed solution in ready format & Commercial of the proposal submitted by the bidders.
- b. Bidders without having a ready platform to be deployed beyond 4 weeks from contract signing will not be eligible to apply as the RFP is to leverage existing

platform and experience of partners than exploring a fresh development

- c. The bidders will be shortlisted based on the Pre-Qualification criteria as given in section 4 of this RFP document.
- d. The bidders who qualify in PQ evaluation will be eligible for opening of Technical Evaluation & also bidder should arrange for Technical demonstration on the features of the proposed software 90% of which should be available at the time of demo.
- e. Technical demonstration Date, Time & Venue will be informed as per schedule fixed by the evaluation Committee.
- f. The bidders have to score a minimum of 75 marks in Technical evaluation for treating as technically qualified. Financial bids of technically qualified bids will only be considered for further evaluation.
- g. The overall evaluation shall be 70:30 i.e. Technical evaluation scores will be evaluated to a maximum of 100 Marks as per criteria mentioned in Technical Evaluation section. Financial bids will be evaluated to a maximum score of 30 Marks. Lowest quoted bidder will get a maximum 30 marks. Remaining bidders marks will be calculated based on the formula  $\{(L1 \text{ quote}/\text{Bidder quote}) * 30\}$
- h. Technical and Financial Marks added together, the proposals will be ranked in terms of the Overall Scores obtained from Highest to Lowest. The bidder with the highest overall score will be considered for award of contract & will issue Notification of Award.

Sl no	Criteria	Score
1.	ISO 27001:2013 certificate of the technology service provider in the consortium for compliance and data security and Data Protection standards. GDPR Compliant	10
2.	Past Experience of covering more than 3 lac farmers in India under government projects to substantiate the scale of intervention.	15
3.	Past experience of working in India/Asia under this specific segment.	15
4	Past experience of deploying remote sensing web based terminal (Plot to district level insights based on selected region) for monitoring for a state of central government program with accumulated project size of at least 1 cr or above .	15
4.	Live demo of the proposed platform , various application features and alignment to the program	30
5.	Approach and Methodology	5
6..	Qualification and relevant experience of key staff supporting the project .	10
	Total	100

### 2.3 The Technical Proposal shall cover the following:

- a. Core business areas of operation, number of years in the business, ownership and organizational structure of the Firm.
- b. Client and Project brief details
- c. Bidder's / consortium Partners Platform demonstration and technical capabilities

- d. Business Requirements specifications mapping score of Bidder's Platform
- e. What is the Firm's vision for the Agriculture ecosystem and Integrated Rural Development?
- f. Project Plan anticipated time schedule with milestones.
- g. Approach and methodology of handing over technology to NAPP after completion of contract period with maintenance and system support provisions.

The partner should be ready to sign a perpetual licensing agreement for usage of the platform for Software as per the needs of the program under an Annual maintenance contract and support charges covering the 3rd party cloud infrastructure charges at cost basis if applicable. The partner should be ready to upgrade the system and add provisions as per the changing requirements of the future periods beyond 5 years to keep the platform best in class and efficient as requested by software under the AMC terms and conditions.