

iCARE Innovation Fund

Hyper-local medium-range weather forecasts to improve the climate resilience of smallholder coffee farmers in India

Monthly Progress Report

Reporting period: August 01, 2024, to August 31, 2024

Prepared by Precision Development (PxD)

1. Project Information

Project Title:	Hyper-local medium-range weather forecasts to improve the climate resilience of smallholder coffee farmers in India
Project Code:	WBCAR
Partner Organisation:	Precision Development (PxD), Coffee Board of India, and Climate Forecast Applications Network (CFAN)
Reporting Period:	August 01, 2024 to August 31, 2024
Date of Submission:	September 06, 2024
Contact Name:	Sannihit
Contact Position:	Program Associate
Contact Email Address:	sannihit@precisiondev.org
Contact Telephone Number:	+91 8190875722
Status of project progress in this reporting period	<input type="checkbox"/> Significant delay <input type="checkbox"/> Delay <input checked="" type="checkbox"/> On Track
Report sign Off	<p>I have reviewed all the information provided for each section, including the number of beneficiaries. The information provided for each section of the report is complete.</p> <p>Name: Sannihit Designation: Program Associate</p>

2. Key Achievements

1. Since upgrading the audio-stitching technology to attach advisory information and the forecast, PxD has shared forecast-based advisories on leaf spot, berry borer, rot, and leaf rust management.

3. Implementation Progress (Revised Work Plan)

Activity Title	Last month progress (July, 2024)	Current month progress (August, 2024)	Activities planned for subsequent months
Activity 1.1.1: Analysis of the current seasonal cycle (Dec 2023)	Completed	Completed	NA
Activity 1.1.2: Incorporating findings from the lab-in-the-field (conducted before and outside of the scope of this project) to generate an advisory calendar Deliverable: Finalized Coffee Crop Calendar (Dec 2023)	Completed	Completed	NA
Activity 2.1.1: Commencing receipt of forecasts from CFAN. Sample of the CFAN data (Dec 2023)	Completed	Completed	NA
Activity 2.1.2: Finalize set of probability triggers and alert frequencies for non-monsoon and monsoon periods. (Dec 2023 - Feb 2024)	Completed	Completed	NA
Activity 2.1.3: In-depth analysis of skill for each alert template to arrive at accuracy scores (Dec 2023 - Feb 2024)	Completed	Completed	NA
Activity 3.1.1: Translation of forecast templates to Kannada (Jan 2024)	Completed	Completed	NA
Activity 3.1.2: Recording of audio snippets for testing (Jan 2024)	Completed	Completed	NA
Activity 3.1.3: Final recording of voice snippets & quality checks Deliverable: Link to the library of audio files	Completed	Completed	NA

(Jan - Feb 2024)			
Activity 3.2.1: Audio stitching technology is developed, configured, and integrated with PxD's in-house IVR system. (Jan 2024)	Completed	Completed	NA
Activity 3.2.2: Audio stitching of recorded voice snippets is conducted for sample participants for a 5-day forecast period. (Feb 2024)	Completed	Completed	NA
Activity 3.2.3: Audio-stitched recordings are tested in-house, refined, and adapted (Mar 2024)	Completed	Completed	NA
Activity 4.1.1: Finalize a set of KPIs and metrics critical for monitoring needs. (Dec 2023 - Jan 2024)	Completed	Completed	NA
Activity 4.1.2: Raw forecast data is integrated into a data warehouse that the dashboard can access. (Dec 2023 - Jan 2024)	Completed	Completed	NA
Activity 4.1.3: Collected data, cleaned, transformed, and processed into a format suitable for visualisation. (Jan - Feb2024)	Completed	Completed	NA
Activity 4.2.1: Finalise UI and UX that is user-friendly, efficient and intuitive (Jan - April 2024)	Completed	Completed.	NA
Activity 4.2.2: Finalise front-end and back-end components that include creating interactive elements, integrating data sources, and implementing user authentication and authorization (Jan - April 2024)	Completed	Completed	NA

Activity 4.2.3: Implement mechanisms for forecast real-time updates (Jan - Mar 2024)	Completed	Completed	NA
Activity 4.2.4: Thorough dashboard testing to ensure accurate data representation, responsive design, and functionality. Address any bugs, inconsistencies, or performance issues. (Feb - April 2024)	Completed	Completed	
Activity 4.2.5: Conduct user testing to gather feedback on the dashboard's usability and functionality and make necessary adjustments. (Mar - April 2024)	Completed	Completed	
Activity 4.2.6: Deploy the dashboard on a suitable hosting environment, ensuring it is accessible and secure. (April 2024)	Completed	Completed	
Activity 5.1.1: Prepare sample for a pilot based on stratification parameters (Feb 2024)	Completed	Completed	
Activity 5.1.2: Agronomists and agromet design advisory based on upcoming forecasts (Feb 2024)	Completed	Completed	
Activity 5.2.1: Relevant advisories are audio-recorded. (Feb 2024)	Completed	Completed	
Activity 5.2.2: Tech team audio stitches advisory snippets (Mar 2024)	Completed	Completed	

Activity 5.3.1: Disseminate forecast + advisory with 1000 sample farmers (Mar - April 2024)	Completed	Completed.	
Activity 6.1.1: Identify parameters for data collection (Mar 2024)	Completed	Completed	
Activity 6.1.2: Prepare questionnaire (Mar-May 2024)	Completed	Completed	
Activity 6.1.3: Survey translation to local language, coding on SurveyJS and surveyor training (Mar-May 2024)	Completed	Completed	
Activity 6.2.1: Phone-based survey data collection (April-June 2024)	Completed	Completed	
Activity 6.2.2: Testimonial collection on the field (April-June 2024)	Completed	Completed	
Activity 6.3.1: Clean and analyze collected data (April-June 2024)	Completed	Completed	
Activity 6.3.2: Summarize findings in a report (May - June 2024)	Completed	Completed	
Activity 7.1.1: Scaling to 25,000 farmers (May - June 2024)	Completed	Completed	
Activity 7.1.2: Incorporate findings from farmer feedback survey	Completed	Completed	

(July 2024)			
Activity 7.1.3: Scaling to 50,000 registered coffee farmers (August to October 2024)	NA	In progress Service expanded to ~27,000 farmers	By the end of October, service will be scaled to 50,000
Activity 7.1.4: Ongoing Field Testing (August to October 2024)	NA	In progress	
Activity 7.2.1: Identify and finalize engagement tracking indicators (April 2024)	Completed	Completed	
Activity 7.2.2: Set up a dedicated weather service engagement table within PxD's inhouse server (April 2024)	Completed	Completed	
Activity 7.3.1: Automate generation of biweekly engagement statistics (May 2024)	Completed	Completed	
Activity 8.1.1: Prepare a monitoring plan highlighting key metrics of interest (June 2024)	Completed	Completed	
Activity 8.1.2 Prepare instruments for data collection; finalize survey samples. (July 2024)	Completed	Completed	
Activity 8.1.3 Finalize analysis plan. (July 2024)	Completed	Completed	
Activity 8.1.4 Field-based qualitative feedback collection. (July 2024) Revised to (August to October 2024). The Work Plan has been revised accordingly	Adjusted	In progress Since the service was expanded to more farmers in July, collecting feedback will be more valuable once they have had time to become familiar with it.	To continue until the end of November.
Activity 8.2.1 Implement monitoring.	NA	In progress	To continue until the end

(August 2024) Revised to (August to October 2024). The Work Plan has been revised accordingly			of November.
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4. Results Framework Indicators Progress

PDO Indicator Description: Government agencies and Citizens who have access to climate-resilient solutions tested under the project (Number)				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	NA	Citizens (Farmers): 27247 + 1 government agency	Citizens (Farmers): 27247 + 1 government agency	50,000 Citizens: 50,000 Government agency: 1
Date	NA	July 31, 2024	August 31, 2024	October, 2024
Comments	The service was launched on April 21, 2024			
Output Indicator Description: Number of people trained (in person) (by sex, country, topic, year, participant category)				
Value	NA	NA	NA	NA
Date	NA	NA	NA	NA
Comments	PxD is arranging only online training. With over 4 years of experience in remote training farmers, PxD finds that online training helps reach a wider audience across different geographies.			
Output Indicator Description: Number of people trained (online) (by sex, country, topic, year, participant category)				
Value	NA	1212	1212	1500
Date	NA	July 31, 2024	August 31, 2024	January 2025
Comments	A total of 1,212 farmers underwent online training to interpret probabilistic forecasts . Among them, 309 were women , and 903 were men . The training was conducted in August 2023 in Karnataka, India . The service has been pilot-launched with all the trained farmers.			
Output Indicator Description: Number of knowledge products provided (by type of product, theme, country)				
Value	NA	1	1	3
Date	NA	July 31, 2024	August 31, 2024	January 2025
Comments	A video has been developed to train farmers on the concept of ‘probability’, including the interpretation of probabilistic forecasts. This will be used for future training.			

Output Indicator Description: Number of people/organizations provided with knowledge products (by recipient category, type of knowledge product, country, theme)				
Value	NA	1212	1212	1500
Date	December, 2023	July 31, 2024	August 31, 2024	January 2025
Comments	The audio-visual material was used for training the farmers.			
Output Indicator Description: Number of events supported (by type, year, theme, country)				
Value	NA	1	0	3
Date	December, 2023	July 31, 2024	August 31, 2024	January 2025
Comments	A social media post announcing the service's launch has been published after iCare's approval			
Output Indicator Description: Number of people participating in supported events (by participant category, sex, year, theme, country)				
Value	NA	0	0	150
Date	December, 2023	July 31, 2024	August 31, 2024	January 2025
Comments	The above-mentioned social media post received 1,458 impressions, 104 engagements, 70 clicks, 30 reactions, and 4 reposts. However, to report on this outcome, PxD will consider participants in upcoming events, such as webinars and meetings.			
Output indicator: Pickup rate (percentage of the scheduled calls answered by farmers)				
Value	NA	61.51%	50.26%	55%
Date	December, 2023	July 31, 2024	August 31, 2024	January 2025
Comments	PxD has expanded the service to approximately 26,000 additional farmers. To accommodate the increased number of farmers, PxD has reduced the number of call attempts per farmer from 3 to 2, and shortened the interval between each call attempt from 2 hours to 30 minutes. While these changes have enabled PxD to reach more farmers, they have also impacted the call pickup rates.			
Output indicator: Listening rate (percentage of the average length of the forecast listened to)				

Value	NA	77.24%	77%	60%
Date	December, 2023	July 31, 2024	August 31, 2024	January 2025
Comments				
Output indicator: Comprehension of forecast - Interpretation of rainfall chance (percentage of farmers who interpreted the rainfall chance correctly)				
Value	NA	30%	NA	80%
Date	December, 2023	July 31, 2024	NA	
Comments	<p>This metric has been tracked as part of the pilot study. Here, we asked farmers to interpret the probability figure indicating rainfall chance rather than asking to identify the rainfall chance.</p> <p>The low numbers here could be due to the complexity of the options offered, and as a result, not many could interpret them correctly. PxD will investigate the causes of the low rates and take corrective actions.</p> <p>This metric was tracked during the pilot study in June-July. The next round of in-depth surveys will be conducted between August and October.</p>			
Output indicator: Rainfall expectation (Percentage of farmers accurately expecting weather events out of those who engaged with the forecast)				
Value	NA	51.9%	NA	35%
Date	December, 2023	July 31, 2024	NA	
Comments	<p>Over half of the surveyed farmers anticipated rainfall quantities to deviate within 25% of the forecast. Specifically, when the forecast predicted 2 inches, 51.9% of farmers expected rainfall between 1.5 to 2.5 inches.</p> <p>This metric was tracked during the pilot study in June-July. The next round of in-depth surveys will be conducted between August and October.</p>			
Output indicator: Trust in the forecast (Percentage of farmers expressing trust in forecast information out of those who engaged with the forecast)				
Value	NA	76%	NA	55%
Date	December, 2023	July 31, 2024	NA	
Comments	76% of the surveyed farmers either 'mostly trusted' or 'completely trusted' the CKT weather forecast service.			

	This metric was tracked as part of the pilot study from June to July. The next round of in-depth surveys will be conducted between August and October.			
Output indicator: Adoption rate (Percentage of farmers who report to have taken decisions based on forecast information out of those who engaged with the forecast)				
Value	NA	79%	NA	25%
Date	December, 2023	July 31, 2024	NA	
Comments	79% of the farmers reported that they relied on the forecasts to decide the timing of agricultural activities. The pilot involved sharing forecasts only. Going forward, PxD will share actionable advisories along with the forecasts.			
	This metric was tracked during the pilot study in June-July. The next round of in-depth surveys will be conducted between August and October.			

5. Challenges, Lessons Learned and Way Forward

Challenge	Lessons Learned	Way Forward
Expansion of service to more farmers will require careful allocation of time between forecasts and regular advisories, given the limited phone lines	PxD is considering replacing regular long-form advisories with short-form, forecast-based advisories, which can be integrated with the forecast in the same call.	PxD will coordinate with the Coffee Board to expand the phone lines in the long run and focus on transitioning farmers to receiving only forecast-based advisories in the short run.

Annexure

[Block-wise, village-wise distribution of farmers accessing the weather service](#) (Please note, villages have been grouped under the blocks, so to expand the list, click on the + button on the side)

Glossary

Project Title	Exact and full name of the project as defined in the Sub Grant Agreement
Project Code	A five-digit code assigned by ADPC
Partner Organization	The lead agency(ies) responsible for the implementation of the project
Key Achievements	The actual outcome or impact of your work, such as reaching a PDO, or outcome or output defined in the final and agreed Results Framework.
Implementation Progress	Implementation progress means the steps or actions taken to achieve the PDO or outcomes or outputs. In this case it would be the list of activities defined in the final and approved work plan
Challenges	The most significant and persistent areas of risk that affect the project's ability to achieve its objectives. Challenges could be related to managing the Sub Grant, sustaining development gains, coordinating with stakeholders, and implementing core management functions. Please also discuss the solutions to mitigate these risks.
Lessons Learned	Lessons learned are contextual or operational information that may affect planning and future performance. They highlight the insights gained from the activity's implementation practices and progress, such as staff feedback, stakeholder interviews, data analysis, and success stories. They also include any changes required by or support requested from ADPC or partners.



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