

iCARE Innovation Fund

Upscaling irrigation and climate advisory services through citizen science

Monthly Progress Report

Reporting period: 1-31st March, 2024

Prepared by: Bareerah Fatima, Deputy Director PCRWR

1. Project Information

Project Title:	Upscaling irrigation and climate advisory services through citizen science
Project Code:	A-05177-WBCAR
Partner Organisation:	Inara Technologies (Pvt) Ltd and Pakistan Council of Research in Water Resources (PCRWR)
Reporting Period:	1 to 31 st March 2024
Date of Submission:	5 th April 2024
Contact Name:	Bareerah Fatima
Contact Position:	Deputy Director, PCRWR
Contact Email Address:	breerahftm@gmail.com
Contact Telephone Number:	+923006757257, +92519101285
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	<input checked="" type="checkbox"/> I have reviewed all the information provided for each section including number of beneficiaries. The information provided for each section of the report is complete. Name: Faisal Waheed , Designation: Director, Inara Technologies(Pvt) Ltd

2.Key Achievements

- The project aims to increase the number of trained citizen scientists to 150 with at least 20 women. The training sessions were completed in 9 districts with 11 training sessions. Two training sessions were specialised for female citizen scientists only. During the reporting period 10 training sessions were completed;
 - o Training of Citizen Science to farmers/citizens in District Sargodha on 4th March 2024, total participants 15 (12 men and 3 women)
 - o Training of Citizen Science to farmers/citizens in District Sheikhpura on 5th March 2024, total participants 11 (10 men and 1 woman)
 - o Training of Citizen Science to farmers/citizens in District Sahiwal on 6th March 2024, total participants 16 (13 men and 3 women)
 - o Training of Citizen Science to farmers/citizens in District Toba Tek Singh on 7th March 2024, total participants 7 (6 men and 1 woman)
 - o Training of Citizen Science to farmers/citizens for Women in Sindh province on 9th March 2024, total participants 9 (women only)
 - o Training of Citizen Science to farmers/citizens in District Mirpurkhas and Tandojam districts on 10th March 2024, total participants 22 (all men)
 - o Training of Citizen Science to farmers/citizens in District Sanghar on 11th March 2024, total participants 8 (all men)
 - o Training of Citizen Science to farmers/citizens in District Sanghar on 17th March 2024, total participants 16 (all females)
 - o Training of Citizen Science to farmers/citizens in District Sanghar on 18th March 2024, total participants 16 (all males)
- The training proceeding started as per a pre-designed training agenda (Annexure I).
- During the training sessions, farmers were explained about the theoretical background of the weather gadgets provided to them. These included;
 - o Thermohygrometer for temperature and humidity data
 - o Anemometer for reading and sharing the wind speed data
 - o Barometer for reading and sharing the air pressure data
 - o Rain gauge for reading and sharing the rainfall data
- Farmers were provided with a detailed briefing regarding the use of the mobile phone App (ICAS Data) and the possible hinderances farmers may face while using this data app.
- Farmers were provided a clear, step-by-step instructional framework, enabling farmers to not only operate the gadgets but also to understand the relevance of each weather parameter they measure. These modules were written in Urdu language with screenshots of the gadgets for easy understanding.
- A WhatsApp group was also created for each district enabling farmers to have close interaction with the project team in case of any issue they may face.
- Farmers were informed about the overall objectives of measuring the aforementioned weather parameters and how it is going to improve the Irrigation and Climate Advisory Services to the farmers.
- By 19th March 2024, in total the 11 training sessions were conducted in all the 9 project districts by imparting training to 131 farmers (98 men and 33 females).
- The project team prepared a comprehensive second deliverable report to be submitted on 5th April 2024.

- After the completion of the training session for the citizen scientists, the issues related to Mobile application use and data submission were resolved by the App development team.
- All the necessary updates and information were conveyed to the farmer facilitators for further communication with farmers.
- The App development team resolved queries daily and so far 8 updates have been made on the Play stores.

3. Implementation Progress

Activity Title	Last Month Progress	Current Month Progress	Activities, and Events, planned for the subsequent month
<p>Activity 2.2.2: Shortlisting the districts facilitators for guiding the citizens</p>	<p>Selection of citizen scientists in all 9 districts is completed.</p> <p>Due to law-and-order situation Quetta district is replaced and number of farmers are increased in Bahawalpur district.</p> <p>In Sindh and Bahawalpur, a greater number of females are engaged therefore two female facilitators are also involved.</p>	<p>Selection of farmers and facilitators in all 9 project districts is completed. 6 facilitators are also finalized;</p> <ul style="list-style-type: none"> • PCRWR's field and research team (02 Nos) • Farmer facilitator from the pilot phase of the project in Bahawalpur (1 male and 1 female) • Farmer facilitator for three districts of Sindh (01 male and 01 female) <p>In conclusion, farmer selection in 9 districts is completed and 6 farmer facilitators are engaged. The agreement with facilitators is attached (Annexure II)</p>	<p>Activity is completed.</p>
<p>Activity 2.1.1: Upgradation of citizen science App and its availability for general public</p> <p>Activity 2.1.2: Upgradation of citizen science database and development of a web dashboard allowing the interaction of citizens with data.</p>	<p>ICAS data app is available for download from the Google and Apple play stores. Farmers are now able to download the App and login to start sending the data as citizen scientists.</p> <p>Farmers can see forecast satellite data through the App.</p>	<p>After the training of citizen scientists' updates are made from the initial feedback.</p> <p>The reports of data submission by the citizens/farmers are being shared with them on a regular basis for them to view their data submitted through ICAS data App.</p>	<p>Activity is completed however, a continuous feedback system through WhatsApp groups will be maintained for any emerging issue with ICAS Data App and the reporting.</p>

Activity Title	Last Month Progress	Current Month Progress	Activities, and Events, planed for the subsequent month
Activity 2.2.1: Development of training models for the citizen scientist	In response to the floated RFQ, bids were received and PO was issued for the procurement of gadgets. All the gadgets are mobile phones that are procured as well as tested. Faulty gadgets were replaced. Total material procured; Smart phones: 150 Temperature/Humidity Sensors: 60 Rain gauges: 30 Barometer: 30 Anemometer: 30	So far no technical issue is emerged the gadgets procured, however, one thermohydrometer was found faulty which was replaced.	Activity is completed.
Activity 2.2.3: Training and gadget distribution to the citizens.	Printed the training modules. Prepared training agenda Developed a short documentary for the citizens to use ICAS data app Developed following documents; Pre and post training questionnaires Gadgets handing over and taking over forms Agreement form for citizens to become the part of the project.	Training Session completed in all 9 districts.	Activity is completed. Farmers/citizens are sending data on daily basis and being received at the back end for further processing.

4. Results Framework Indicators Progress

PDO Indicator Description: Government agencies and Citizens who have access to climate-resilient solutions tested under the project.				
	Baseline	Actual (Previous)	Actual (Current)	End Target
Value	Govt agencies (02) Citizen Scientists 45	Govt agencies (02) Citizen Scientists 45	Govt. Agency (01)	Govt. Agencies (05) Citizen scientists 150 and private entities (02)
Date	August 2022	August 2023	March 2024	October 2024
Comments	<p>Currently, 45 farmers in the pilot districts are benefiting from the impact of ICAS since the pilot phase. Work is going on to bring all the 150 participating citizens in the data assess umbrella.</p> <p>Methodology for PDO</p> <p>The solution will be tested using the following stepwise approach</p> <ol style="list-style-type: none"> 1. Development of a Citizen Science data app supported by the backend to visualize and analyse the citizen's data. 2. Train and evaluate the citizen's data according to the districts. 3. Run computations on the data submitted by citizens to calculate reference evapotranspiration values. 4. Once these values are generated, it will help eliminate satellite data errors to disseminate better Irrigation and Climate Advisory Services to Farmers. 5. This is how the data will be disseminated to the farmers and other stakeholders. 			
Outcome 1 Indicator Description: Dissemination of Irrigation and climate advisory service to more crop zones (districts)				
Value	3	3	3	11
Date	August 2022	August 2023	February 2024	October 2024
Comments	Farmers from the pilot phase are the existing beneficiaries of the ICAS. In the upscaling phase, the initial climate advisory is embedded in the ICAS Data App. Therefore, farmers who joined as citizen scientists in 11 districts are likely to receive the improved irrigation and climate advisory services soon.			
Output 1.1 Indicator Description: Number of platforms where promotion material is developed and disseminated.				
Value	2	2	2	5

Date	August 2022	August 2023	March 2024	December 2024
Comments	In the pilot phase, the project concept was promoted in only two major forums, i.e. Agricultural Departments of Khyber Pakhtunkhwa and Punjab. This number is likely to rise to 5 by December 2024 once the concept is finalized on ground.			
OUTPUT 1.2 Impact assessment of upgraded ICAS use by the farmers in the target districts.				
Value	45	45	45	150
Date	August 2022	August 2023	March 2024	October 2024
Comments	In the pilot phase, the ICAS was improved based on feedback from the 45 farmers. So far only half of the ICAS service has been launched, i.e. data submission through ICAS data app and weather data information on the same app. For this half, about 131 more farmers are added into ICAS service.			
Output 1.3 Number of people participating in supported events (by participant category, sex, year, theme, country)				
Value	50	18	0	200
Date	August 2022	August 2023	March 2024	December 2024
Comments	Development of upscaling governance plan is a new activity added in this phase of the project, however, efforts were started just at the conclusion of pilot phase in August 2022. The first consultative workshop was held inviting 50 participants from public and private sector organizations to plan upscaling on the concept. The second effort was made in May 2023 by inviting 18 different participants for a consultative meeting to discuss on the upscaling of ICAS as a concept. In this project, so far, no new consultation has been initiated. The activity will be started with the feedback from the participating citizen scientists in May 2024.			
OUTCOME 2 Popularizing the concept of "citizen science" for climate change adaptation Indicator description: Number of events supported by type, year, theme and country.				
Value	4	4	11	18
Date	August 2022	August 2023	March 2024	December 2024
Comments	In the pilot phase of the project, 3 training workshops for citizen scientists and 1 national workshop was conducted. In this phase, 11 training sessions have been conducted and remaining will be completed by the close of year 2024. So far all of these events are planned for Pakistan only. The types of these events include, citizens training and consultative meetings with the stakeholder organizations.			
Output 2.1: Number of citizens using citizen science data collection app				
Value	45	40	131	200
Date	August 2022	August 2023	March 2024	December 2024

Comments	In the pilot phase ICAS data app was initiated with 45 citizen scientists. After the improvement in the App and its availability at App store the number is like to rise by in post popularization scenario. So far 131 new app users are added into the list of frequent users of ICAS data app.			
Output 2.2: Number of people trained (in person) (by sex, country, topic, year, participant category)				
Value	45 (01 female, 44 males)	45 (01 female, 44 males)	131 (33 females, 98 males)	150 (130 male and 20 females)
Date	August 2022	August 2023	March 2024	July 2024
Comment	In the pilot phase of this project 45 citizen scientists were trained (01 female and 44 males). In this phase so far 131 citizen scientists have been trained including 98 males member and 33 females.			
Output 2.3: Number of (in-person) and virtual meetings held with the representatives of government agencies.				
Value	2	3	0	6
Date	August 2022	August 2023	March 2024	December 2024
Comment	In the pilot phase two consultative meetings were held, one among the participating farmers/citizens from all sites and second one was organized among the key stakeholders. In this connection, another meeting was organized in May 2023 to discuss opportunities to upscale this innovation further.			
Output 2.4a: Number of people/organizations provided with knowledge products (by recipient category, type of knowledge product, country, theme)				
Value	2	2	1	5
Date	August 2022	August 2023	March 2024	December 2024
Comments	In the pilot phase two types of knowledge products were developed; a short documentary on the findings of project and training materials for the citizen scientists. So far training material for the citizen scientists is completed whereas 4 knowledge products remain, i.e. one report on the compilation of farmer's feedback, one report on the governance plan to be developed after thorough consultation process, one shot documentaries and 1 document containing the compilation of case studies.			
Output 2.4b: Number of people/organizations provided with knowledge products (by recipient category, type of knowledge product, country, theme)				
Value	60	60	131	200
Date	August 2022	August 2022	March 2024	December 2024
Comments	So far only training material is distributed to 131 farmers who are trained for becoming the citizen scientists. Citizen will also become the users of short documentary developed on the project. Whereas the technical reports			

	and case studies will be more useful for stakeholder organizations and academia.

5. Challenges, Lessons Learned and Way Forward

Challenges	Lessons learned	Way forward
<p>In the rural areas of the selected districts, literacy rate is a common issue. Low literacy rate and ability to upload data using a smart phone App was a challenge</p>	<p>The lesson learnt was that despite low literacy rate some of the farmers adapted themselves to the use the modern technologies. Therefore, they were able to use the mobile phones.</p>	<p>As a way forward, two step farmer verification process was opted. Farmers were required to fill the pre-training form and a citizen scientist agreement form. This led to screening out 19 farmers from total 150 selected farmers to participate in the project.</p>
<p>Internet issue remained the most common issue during the initial training sessions. Due to which downloading the App from the App store and then submitting the data was consuming much time.</p>	<p>Lesson learnt was the farmer may be shared with the App download link well before the training session allowing them to check whether the App is operable in the internet data band width of these districts.</p>	<p>The App is modified to operate at 2G internet signals.</p>
<p>Delay in receipt of funds and collision of training activities with Holy Month of Ramadan.</p>	<p>The entire project is based on the timely completion of this deliverable. The lesson learnt is that easy deliverable targets may be kept keeping in view the events and activities.</p>	<p>Training sessions are completed with two training sessions organized during the Holy month of Ramadan.</p>

Annexures:

Annexure I

Upscaling of Irrigation and Climate Advisory Services through Citizen Science Citizen Scientist's training

Agenda

Time	Item	Responsibility
9:30-10:00 am	Arrival of farmers	PCRWR regional office
10:00-10:30 am	Registration of citizens and signing of agreement forms	Project team
10:30-10:35 am	Recitation from the Holy Quran	Anyone from the Audience
10:35-10:45 am	Introduction of the participants and project	Bareerah Fatima, Deputy Director, PCRWR
10:45- 11:00 am	An Introduction to ICAS in the context of climate change	Bareerah Fatima, Deputy Director, PCRWR
11:00-11:30 am	Introduction to ICAS and its components	Bareerah Fatima, Deputy Director, PCRWR
11:30-12:00 noon	Introduction to weather gadgets (Rain gauge, Temperature and Humidity meters, Anemometer and Barometer)	Engr. Luqman Ashraf, Field Engineer, ICAS
12:00-1:30 pm	Hands on exercise on weather gadgets by the citizens under training.	Bareerah Fatima, Deputy Director, PCRWR Engr. Luqman Ashraf, Field Engineer, ICAS
1:30-1:40 pm	Conclusion and Farmer Feedback	PCRWR regional office
2:00 pm	Lunch and wrap up	Project Team

Sample Agreement with the Facilitators

(on the letter head of project and the company)

This agreement (the "Agreement") is made between **Inara Technologies Pvt. Limited** (the "Company") and _____ (the "Facilitator") on _____.

I s/o, d/o, w/o CNIC agree to join the project "Upscaling irrigation and climate advisory services through citizen science" as facilitator in the district.....ofprovince as per following terms and conditions;

1. Services:

The Facilitator agrees to provide irrigation and climate advisory services to farmers on behalf of the Company. The services may include but are not limited to:

- a) Responding to farmers on call and WhatsApp group.
- b) Maintaining a log of farmers' issues and reporting to Mr. Luqman Ashraf, Field Engineer, Inara Technologies (Pvt) Ltd.
- c) Timely inform to the Mr. Luqman Ashraf, in case of any problem in the Weather Gadget/ Cell Phone.
- d) Plan for meetings with the project team.
- e) Facilitating surveys with farmers/citizen scientists if and when required.
- f) Providing guidance on irrigation techniques and practices to fellow farmers.
- g) Keep farmers motivated and engaged during the process of ICAS improvement.
- h) Convey any issues faced by farmers during the agreement period with project.
- i) Participate in the consultative meetings with stakeholders organized by the project team.
- j) Any other request made by the project team in relation to streamline the citizen's engagement during the project.

2. Payment Terms:

The Company agrees to compensate the Facilitator for their services at an agreed-upon Rs. 25,000/- per month.

3. Duration of Agreement:

This Agreement shall commence on March 01, 2024 and shall continue until December 30th, 2024.

4. Confidentiality:

Both parties agree to maintain the confidentiality of any proprietary or sensitive information shared during the course of this Agreement.

5. Termination:

Either party may terminate this Agreement with written notice if either party fails to fulfill their obligations as outlined in this Agreement. In such cases, any outstanding payments or reimbursements shall be settled according to the terms of this Agreement.

Party 1: On behalf of Inara Technologies (Pvt) Ltd	Party 2: Facilitator Name:
Signature:	Signature:
Date: Cell phone#	Date: Cell phone#

Annexure III

Glimpses of 11 training sessions held for citizen scientists



Peshawar



Sargodha



Sheikhpura



Sahiwal



Toba Tek Singh



Female Farmers of Sindh



Tandojam



Mirpur Khas



Sanghar



Bahawalpur



Female Farmers of Bahawalpur

Glossary

Project Title	means	Exact and full name of the project as defined in the Sub Grant Agreement
Project Code	means	A five-digit code assigned by ADPC
Partner Organization	means	The lead agency(ies) responsible for the implementation of the project
Key Achievements	means	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	means	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	means	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	means	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.



Asian Disaster Preparedness Center

SM Tower, 24th Floor, 979/66-70 Paholyothin Road,
Phayathai, Bangkok 10400 Thailand

Tel: +66 2 298 0681-92

Fax: +66 2 298 0012

Email: adpc@adpc.net



www.adpc.net



Asian Disaster Preparedness Center - ADPC



@ADPCnet



Asian Disaster Preparedness Center (ADPC)