Q3 2019
QUARTERLY REPORT

FEATURED COUNTRY:
ETHIOPIA

HIGHLIGHTS

Organizational: PAD welcomed Owen Barder as Chief Executive Officer, and Amrita Ahuja as a new Board Member.

Programmatic: 314,832 farmers were added this quarter, 190,398 of whom were in Odisha, India.

Learning: In West Bengal, weekly push calls with agronomic advice doubled the likelihood of a farmer calling into and engaging with the system. Additional reminder and instructional voice messages on how to use the system increased the magnitude of these effects further. We plan to expand the trial to another location next season and continue testing ways to improve the usability of our service.

In September 2019, the Bill and Melinda Gates Foundation (BMGF) and the UK Department for International Development (DFID) approved a proposal submitted by a consortium of PAD, Digital Green, Awaaz.de, and other partners. The total grant is worth approximately $17.5 million (with a $3m sub-grant to PAD) over a five year implementation horizon and will support the creation of an open-source digital technology platform - dubbed "FarmStack" - to coordinate and improve the provision of digital agricultural advisory services (DAAS) in Ethiopia.

Farmstack will utilize open data standards and Application Programming Interfaces (APIs) to facilitate use by a diverse set of advisory system actors - including government agencies, non-profit organizations (more than 1,000 NGOs are involved in advising farmers in Ethiopia), and the private sector - to develop and enhance a range of digital delivery channels, including voice calls, SMS, interactive voice response (IVR), and video. Actors will share and interact with one another's content and user data to enable a more comprehensive, customized, and user-friendly experience for farmers and extension workers. PAD will lead the workstream focused on providing "direct-to-end-user" advice via mobile phones, with an initial focus on the dairy sector and expansion to other value chains envisaged in subsequent years.

Farmstack will endeavor to empower at least 3.5 million Ethiopian small-scale farmers over five years, with a strong emphasis on the provision of digital extension services to female farmers. These are very ambitious targets, particularly the intention to have female farmers constitute 40% of the user group. As an organization we will strive to achieve these outcomes, but recognize the contextual challenges stacked against us.

On October 31, Farmstack was officially launched in Addis Ababa at an events attended by BMGF, PAD, Digital Green, Awaaz.de, the two primary government clients - the Ministry of Agriculture (MoA), and the Agricultural Transformation Agency (ATA), members of the media, and more than 100 guests from agricultural and technology related organizations. Ato Abera Mulat, Advisor to the State Minister of the MoA, stated that "ICT-led extension delivery is a key pillar of our Agricultural Extension Strategy. The Ministry is committed to operationalize and scale the platform in partnership with [the] consortium partners. FarmStack directly supports our national strategy and vision for Ethiopian extension to transform the livelihoods of millions of smallholder farmers." Yenenesh Egu, Director of Agricultural Extension in the MoA, commented that "With farmers at the center, this project will help extension workers do their jobs better, and will help us to more effectively reach female farmers and other vulnerable farmers."

(Right) Proudly PAD: Jonathan Lehe (Director of New Programs), Habtamu Yesigat (Senior Research and Operations Manager), and Kalkidan Arega (Project Manager) at the launch of Farmstack in Addis Ababa.

(Left) Kate Kuo, Program Officer for Agricultural Development and Stewart Collins, Senior Program Officer for Digital Solutions, both of the Bill and Melinda Gates Foundation (BMGF) at the FarmStack Launch in Addis Ababa.

This quarter, in collaboration with ATA, PAD Ethiopia continued implementation of a push call service in the Amhara, Oromia and Tigray regions to disseminate agricultural advice to farmers in line with the planting season that commenced in late April. As of September, 810,110 calls had been placed to 241,700 farmers. The team also conducted an A/B test comparing user engagement with push calls using different narrators (female, male, and agronomist narrators).

Next quarter, PAD Ethiopia will commence a scoping exercise focused on Ethiopia's dairy sector to support implementation of Farmstack, while concurrently continuing the implementation of several promising A/B tests applied to push call services and the ATA IVR Farmers' Hotline. We are also assessing the feasibility of measuring the impact of these services on farmer knowledge, behavior, yields, and incomes. Based on the outcomes of this assessment, PAD intends to identify a setting and design for a rigorous impact evaluation of our work in Ethiopia.

Uganda

In Uganda, PAD is focused on delivering mobile interventions to a sample of coffee farmers as part of the Uganda Coffee Agronomy Training (UCAT) randomized control trial. Farmers attending Field Farmer School (FFS) implemented by TechnoServe and Hanns R. Neumann Stiftung (HRNS) began receiving voice messages to reinforce FFS in-person learning. PAD also began sending content to half of a control group of farmers who are not enrolled in in-person FFS.

This quarter, PAD commenced monthly feedback phone surveys that record responses such as farmer satisfaction with the mobile intervention service, recall of messages, and how actionable they find the content. To date, responses have been largely positive. For example, in response to the question "What actions have you taken based on the recommendations you received in the messages?" one respondent replied, "I now do proper pruning, only pick ripe coffee beans, [and] dry coffee beans on a tarpaulin". In this case, if other inputs and conditions are held constant, the farmer respondent should expect healthier coffee plants that in the medium term should produce more beans - due to pruning - and optimal picking practices should improve the quality of beans. These actions individually and cumulatively should have a direct and positive impact on the farmer's income.

Next quarter, PAD will launch an automated Q+A service to complement the existing push call services. Utilizing the Q&A service, farmers will be able to navigate through an IVR menu to leave a recorded question in their local language to be answered by our local agronomist.

Kenya

This quarter, PAD designed a trial to test ways to encourage One Acre Fund (OAF) members to adopt improved bean and vegetable varieties with high nutrient content. Approximately 300,000 OAF farmers received messages about the nutritional and agronomic benefits of the recommended varieties. The trial design allows us to test the relative effects of message variation within farmer groups on information sharing among farmers. PAD also designed a Repayment Calls Trial to measure the impact of calls to farmers who are behind on their loans to remind them to make payments. Analysis on both trials will commence in Q4.

For MoA-INFO, our collaboration with the Kenya Ministry of Agriculture (MOA), PAD added advisory content for three new crops (sweet potatoes, pigeon peas and bananas), and the platform gained better economy of weekly messages through an improved opt-in/opt-out process. As the platform has automated many of its features, it now requires less staff time to implement and offers better customization for the user. For example, farmers can now specify their individual planting date and have their advice scheduled around their personal cropping calendar. In Q3, we held 10 Focus Group Discussions with farmers to collect feedback on the content and framing of the messages. In Q4, we will fully automate the scheduling and sending of messages for the rest of the season, improve the monitoring and analytics processes, and begin development of content and tools for 2020. We will also launch a pilot in Q4 with CABI and their PRISE team to test Fall Armyworm alerts generated from satellite data.

![Precision Agriculture for Development logo]

Bangladesh

This quarter, in collaboration with mPower on their Agro 360 advisory service, PAD concluded two A/B tests conducted during the Rabi season, which ran from roughly January to June. These two tests were designed to assess the impact of i) supplementing SMS recommendations with voice messages and ii) sending messages in local dialect as opposed to Bangla. High attrition during the endline survey caused the results of the first experiment to be inconclusive. However, preliminary evidence of the Bangla vs. local dialect experiment shows that receiving a voice message in farmers' local dialect led to a 6% increase in listening rates and a 15% increase in the likelihood of listening to the entire voice message.

For Kharif 2019, mPower incorporated the learnings of this experiment into their advisory service so SMS messages are now supplemented with voice. Additionally, voice messages are now delivered in two local dialects. For Kharif 2019, which runs from roughly August to December, PAD is supporting a new experiment to compare the effectiveness of conversational-style and trivia-based messages in comparison with mPower's standard Agro 360 voice messages. This experiment will rely on administrative data to overcome challenges associated with previous phone-based surveys. In Q4, PAD will conclude this A/B test and present the results to mPower. PAD also hopes to secure dedicated funding for the expansion of our activities in Bangladesh, recruit local staff to support partnership development and implementation, and strengthen and develop partnerships with the government.

India

In this quarter PAD surpassed the milestone of 500,000 users registered on the Ama Krushi platform in Odisha, and pickup rates for calls administered through the service have improved to almost 70%. This quarter PAD also piloted a Live Call Centre to complement existing push voice and SMS messages and our automated Q&A service, and submitted a proposal to the Odisha Fisheries and Animal Resource Development (FARD) Department to support the expansion of the Ama Krushi service to include fisheries and livestock content. Kitchen garden messages were sent to 4,500 farmers, with the goal of refining the intervention and implementation of an A/B test.

A woman in Odisha, India during a scoping visit to understand how Self Help Groups (SHGs) work on productive activities.

Photo by Claudia Carbajal Morelos (Global Research Manager).

In Karnataka, PAD and the Coffee Board of India have agreed to scale the existing service from 15,000 to 50,000 farmers through the course of 2020. In Q4, PAD will explore ways of achieving additional customization of content leveraging agronomic research conducted by the Central Coffee Research Institute (CCRI).

In West Bengal, an additional 5,000 farmers were onboarded to PAD's two-way IVR service, Krishi Katha, to receive content on rice, vegetables and weather alerts. Farmers in West Bengal give this content an average rating of 4.4/5. PAD also rolled out messages with content on fisheries to approximately 400 farmers in three districts in West Bengal. Next quarter, PAD will conduct an endline survey and evaluate the impact of this service on farmer behavior and knowledge. PAD also plans to incorporate water management messages into our content to support existing government programs for the construction of irrigation infrastructure.

Pakistan

In Q3, PAD provided voice and SMS messages to almost 500,000 cotton farmers registered in the Punjab government's input subsidy program. We are in the process of expanding this advisory service to include content related to canola oilseed in the next quarter with a goal of reaching 700,000 farmers cumulatively in Punjab by the end of the year.

The PAD Pakistan team has supported the Punjab government's Soil Health Card (SHC) initiative since 2018, In so doing we have contributed to significantly improving the quality of the SHCs, helped to facilitate SHC distribution, and have built an interactive voice response (IVR) system to provide farmers with information to assist them in interpreting the SHCs. 500,000 SHCs have been printed, and the IVR system will go live at the end of October 2019. Since August, PAD has also supported the Agriculture Department with an audit of soil analyses conducted at 6 of the 36 labs in Punjab.

In Q4, PAD will support phased distribution of SHCs in Punjab for soil tests completed at labs that have passed the audit, continue the audit of soil sample analysis for the remaining labs, and commence rollout of canola and sugarcane advisory content. We are also in advanced stages of discussions with the Prime Minister's Reform Team (PMRT) in the national government to expand our IVR platform's reach to additional provinces.

Rwanda

This quarter, PAD Rwanda concluded our largest messaging campaign with extension agents to date, in which we messaged over 9,000 of the country's 14,000 extension agents to encourage them to increase the adoption of hybrid maize among farmers in their jurisdictions, a priority for the Ministry of Agriculture. Our partnership with One Acre Fund (OAF) frames a unique opportunity to work with extension workers and test new forms of interventions that are not possible in other settings. For example, we have launched our first voice message campaign with extension workers to support OAF's tree distribution campaign. The campaign aims to distribute 10 million trees to farmers across the country. OAF expressed interest in exploring the potential use of carbon credits to support the campaign next year. In this scenario OAF would distribute 15 million trees and PAD would be the main partner in developing an experiment to assess how the distribution of carbon credits to farmers would potentially impact tree survival.

This quarter, PAD commenced a new project in Rwanda in partnership with Root Capital. The intervention will deliver weekly SMS and voice agronomic advisory messages to farmers enrolled in two coffee cooperatives. As the project matures, weather data will be integrated into these messages. In Q3, scoping visits were conducted at the two cooperatives, convening focus groups to test content and improve understanding of the Rwandan coffee sector. SMS and voice advisory services will commence in Q4. Next quarter, PAD will complete the analysis of previous Rwanda trials conducted in partnership with OAF and develop new trials with OAF for the upcoming season (2020B).

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PAD BY THE NUMBERS

	Q2 2019	Q3 2019	Change
Farmer Reach	2.58 M	2.88 M	+.3 M
Avg. Cost/Farmer*	$1.43	$1.25	-$0.18
Active Operations	12	14	+2
PAD Team Size**	73	83	+10
Operating Costs*	$3.7 M	$3.6 M	-$.1 M

* Counted in 12 month cycles
** Includes part-time staff but excludes 110 seconded staff working for PAD in Q2 (Total staff in Q3 is 193)

FUNDER NEWS

Thank you to Sarah Miers (Mulago Foundation) and Henk J.Th. van Stokkom, (as well as Peter and Glenda from Dioraphte) for visiting our Kenya operations this quarter, and for their valued questions and suggestions.

Thank you to Kate Kuo and Nidhi Srinivas (Bill and Melinda Gates Foundation) for their visit and meetings in Odisha, India this quarter, as well as to Louise Busson and Mireya Álvarez (Montpelier Foundation) for visiting PAD's Odisha office and service users in the field.

A special thank you to all funders who have already renewed their commitment this year.

OTHER NEWS

We are thrilled at the news that Precision Agriculture for Development (PAD) co-founder and Board Member Michael Kremer has been awarded the 2019 Nobel Prize in Economic Sciences together with his colleagues Abhijit Banerjee and Esther Duflo. PAD was founded as a direct consequence of work Michael has conducted in Kenya, and exemplifies the commitment to fighting poverty through the practice and interplay of inquiry, learning, innovation and acting in the world that is at the heart of Michael's work.

PAD has been affirmed as a Vanguard Member of the Million Lives Club (MLC), in recognition of our innovation empowering over 1 million people living on less than USD $5 per day. MLC seeks to grow a community of partners (including DfID, USAID, GIZ, etc.) committed to innovation and helping innovators scale to maximize impact.

Our year to date expenses were $345K below plan ($2.8M vs. $3.1M). Revenue of $3.1M is on plan. As of 9/30 we had $3.1M in the bank, of which $2.2M is for Operating Reserves. At the end of the quarter, we have cash and commitments to cover 46% of our preliminary 2020 plan. We need to raise approximately $3.0M between now and June 2020 to cover 2020 objectives.