

PAD Q4 2020

QUARTERLY REPORT

Programmatic Updates

INDIA

Ama Krushi

On 4th November 2020, Ama Krushi - our service delivered in partnership with the Government of Odisha and the Bill & Melinda Gates Foundation - surpassed our targeted milestone of 1 million farmers. The team continues to scale activities ahead of schedule, despite the challenging impacts of COVID on the way in which we work.

PAD's Technology Practice finalized plans to integrate our in-house tech stack, PADDY, across our Odisha programming and we have commenced the work of standardizing databases across our different tools. Towards the end of the quarter, our Live Call Center system was integrated into the IVR menu via a temporary call forwarding solution. The feature is thus far proving to be popular with both registered and unregistered farmers.

The Ama Krushi team's internal actions for transitioning the service to government management and operational oversight (target June 2021) are on track. Uncertainty regarding aspects of what form the transition will take has

proven to be more complex than anticipated and has slowed overall progress.

The team is working on several projects to improve engagement with content, and to ensure that content is relevant. The team recently implemented an A/B test to determine whether sending fewer recommendations, with a focus on priority practices and informed by behavioral economics principles, is more likely to influence farmer practices. This experiment was motivated by an earlier test, which found that providing farmers with a single recommendation about the risk-reducing benefits of flood-tolerant seeds increased their knowledge and adoption of the seeds by 2.0 and 1.6 percentage points respectively. There was some evidence of heterogeneity by land size, suggesting that treatment effects were greater for farmers with larger farms. We are running a short follow-up survey to collect land size data from farmers with missing data to verify this result.

Coffee Board of India

We have surpassed 50,000 farmers onboarded to our Coffee Krishi Taranga initiative across India's three primary coffee-growing states (Karnataka,

Kerala, and Tamil Nadu). In Karnataka, we have profiled close to 42,000 farmers, while in Kerala and Tamil Nadu - where our service is new - we have reached just under 10,000 and just over 1,500 farmers respectively.

Q4 polling surveys of a representative sample of farmers indicate that 80 percent (N=196) of farmers who picked up advisory in the last 3 months self-report that they are following recommendations from the service. Moreover, 78 percent of farmers (N=157) from the same group reported changing their cultivation practices in response to the service.

COVID continues to challenge aspects of our work, particularly with regard to farmer outreach: In West Bengal we had to adjust our target for the last quarter of 2020 because data collection continued to be tempered by limitations to field operations for our government partner induced by the pandemic. Similarly in Punjab and Haryana, we had hoped to complete 20,000 farmer profiles for the HARIT initiative, but were only able to reach 18,681 farmers. This is largely accounted for by the suspension of field operations due to the pandemic.

PAKISTAN

It has been a busy quarter for the Pakistan team, and again the team has expanded in size (see organizational updates). Under the auspices of the International Fund for Agricultural Development (IFAD) and its Rural Poor Stimulus Facility (RPSF), we surpassed our objective of empowering 1.1 million farmers with advisory to support agricultural productivity and livelihoods and to assist in insulating smallholder households from the impacts of the COVID-19 pandemic. The PAD Pakistan team leveraged its existing voice and SMS-based platform, designed on behalf of the Agriculture Department Government of Punjab (AD GoP) and a new partnership with Telenor, one of the largest telecom providers in Pakistan, to disseminate digital agricultural advisory content to 1,215,995 cotton, wheat, and oilseed farmers. The average



farmer listening rate for voice-based messages was 73 percent for subsidy advisory delivered under the auspices of the IFAD collaboration, and 76 percent for HarvestPlus-related advisory.

The service delivery partnership with Telenor was informed in part by continued challenges in deploying the IVR platform we are developing with the Government of Punjab. Through improvisation and collaboration with Telenor, a company with significant penetration in rural Punjab, we were able to continuously provide advisory services without any interruption. The team was able to “mask” the IVR in the same way as the government system, which meant that farmers were unaware of, and unaffected by the change in service provision. PAD is using data provided by Telenor to monitor and measure the efficacy of the system and service delivery.

In Q4 we also reached 100,000 farmers in partnership with IFPRI/HarvestPlus to promote the adoption of zinc biofortified wheat seeds. Details of this initiative were shared in the Q3 report. A narrative update of the initiative, authored by Project Lead, Hassan Ammar, was recently [posted](#)



[to our blog](#). The team is currently conducting a profiling and feedback survey with several thousand farmers who received the service to determine if the advisory increased farmer knowledge about the wheat seed varieties and zinc-related nutrition. We expect the survey will be completed by April.

KENYA

MoA-INFO

In Q4 we collaborated with the [Pest Risk Information Service \(PRISE\)](#), an initiative of CABI. The focus of the PRISE is to develop an early warning system to mitigate the impacts of major pests and diseases on critical crops in sub-Saharan Africa. PRISE develops early warnings based on a prediction of species population development relative to crop planting cycles. Data from a variety of sources – satellite observations, weather data, geographic data, and details about the spread and biology of pests – are combined into a “data cube” which is then subject to analysis to produce pest risk forecasts. PRISE uses these forecasts to develop early warnings and alerts for farmers, to inform the timing of advice to help manage local pest outbreaks, and to prevent the pest feeding stages from reaching levels that result in significant yield losses.

In Q4, we worked with CABI during the Short Rain (SR) season, which runs approximately from October to December. At the beginning of the PRISE SR 2020 project, a sample was developed from among MoA-INFO users, constituted by late and very late planters who had opted in to receive maize, bean, or tomato advisory through the SR 2020 cropping cycle. Thereafter, farmers were randomly assigned to treatment (these farmers received messages based on the PRISE model) and control groups (standard cropping series messages of the MoA-INFO program).

Our collaboration with CABI in Kenya focused on three main pests and crops: Fall Armyworm (maize), Bean fly (beans), and tomato leaf miner (tomato). In total, 29,554 farmers were allocated to the treatment group: 18,431 (maize), 10,001 (bean), 10,005 (tomato). Some farmers had opted into more than one cropping series - hence the sum of the sub-groups is larger than the total treatment group.

PRISE model forecasts are available at the constituency level and are updated monthly. Before sending messages (SMS frequency was weekly at the beginning of the season, bi-weekly later in the season) we would obtain the latest “data cube”, upload the PRISE model’s values on the platform, and send tailored messages to farmers based on



their constituency and crop choice. Messages were sent between September 29 and January 12.

Treatment farmers received messages about the best time to take preventative action (e.g. spray with pesticides) based on the PRISE model forecasts, but were also told that spraying too early or too late was ineffective. Moreover, messages nudged farmers to advisory messages about the relevant pests on the MoA-INFO platform and the availability of PAD's Fall Armyworm monitoring tool.

Four rounds of monitoring surveys were deployed between October and December: Rounds 1 and 3 targeted late planters, while rounds 2 and 4 targeted very late planters. The goal of these surveys was to a) compare the PRISE treatment and control farmers on pest preventative measures, pest monitoring, pest management measures (with a special focus on pesticide application), and b) to gather general feedback for the PRISE model. Analysis of information reported by farmers through the surveys is currently being analysed. The preliminary success of the project is informing conversations with CABI to collaborate further during the Long Rains 2021 planting season.

During Q4, the MoA-INFO team ran a campaign to advertise the service to Safaricom subscribers and acquire new users. The campaign increased the number of MoA-INFO users by over 100k. The team is engaged with Safaricom to run another campaign ahead of the next planting season.

We conducted a randomized controlled trial to test the impact of maize cropping series on practice adoption and yields. The results did not reveal any significant effects on practice adoption. Due to these findings, we are currently reviewing our content to improve its quality and reduce the volume pushed to farmers. There are concerns that we push too many messages to farmers per cropping series and season. We are working on how to reduce the number of push messages to farmers to address this challenge in the next quarter.

COVID survey

In December 2020, PAD interviewed 509 crop farmers and 274 agro-dealers registered on the MoA-INFO SMS platform in Kenya to monitor and analyze the impacts of COVID-19. Analysis of the data is being concluded and will be posted to PAD's website shortly.

Dairy

We have formalized functional partnerships with several dairies, including Lessos DFCS, Sirikwa Dairies and General Limited, and Katheri DFCS. In Q4 we conducted two pilots with dairy members and are working with our partners to evaluate their administrative data. Two pilots are planned for Q1 2021, including the launch of an interactive feed & fodder decision support tool, as well as an IVR trial. We are simultaneously exploring a number of ways to promote awareness and trust regarding

the new service. While continuing to pilot with dairy members, we also plan to pilot dairy services with MoA-INFO users as they are more likely to be familiar with, and trust advisory associated with, a shortcode. At the same time, we are exploring other avenues (e.g. partnering with extension workers, developing and distributing fliers and other advertising content) to promote recognition and awareness of the service among members of our partnership cooperatives. Considerable delays in obtaining IRB approval has delayed the launch of a survey to assess gender roles in the dairy sector (see QR3.20).

ElimuLeo

Precision Development (PxD) formally launched our first education service, ElimuLeo in December. The service is informed by the education pilot detailed in QR3.20. To date 2,008 students have used this service to complete 48,697 math practice problems. We are working with students who were recruited from MoA-INFO as well as students who were invited by their teachers, whom we contacted via lists shared with us by our partner the Kenya Institute for Curriculum Development (KICD). Currently, the adaptive two-way SMS service includes addition, subtraction, multiplication, and division problems that become harder and easier based on students' responses, and we hope to add new primary school mathematics topics in the coming weeks. Analysis of engagement and user data is ongoing.

NIGERIA

In Q4, Country Launch Manager, Uzoamaka Ugochukwu successfully onboarded a new team (see organizational developments). Our partnership with IFAD and Nigeria's Federal Ministry of Agriculture and Rural Development (FMARD) was formally launched at an inception workshop on 12 November, 2020.

This program is designed to mitigate the impact of COVID-19 on smallholder farmers and to insulate

domestic food supply by supporting access to high quality agricultural advisory information to sustain production. PAD is working with IFAD and the implementation unit in the Federal Ministry to build and scale mobile phone-based agricultural extension to smallholder farmers in seven northern states - Borno, Jigawa, Katsina, Kebbi, Sokoto, Yobe, Zamfara - with support for the cultivation of rice, maize, onion, pepper, and tomato. Ambitiously, 30% of all beneficiaries will be women and a quarter will be youth (18-35 y/o).

PAD has developed a strong working relationship with the FMARD and IFAD project teams of the IFAD-funded Climate Change Adaptation and Agribusiness Support Programme (CASP). PAD's initial service offering will target beneficiaries of this project as the first users of our services in the country. However, reaching the target of 100,000 smallholder farmers in the CASP project alone is likely to be challenging due to the project's size (160,000 total beneficiaries) and the large number of farmers without valid phone numbers. So far, PAD has been able to reach 5,730 validated phone numbers from the CASP project. To address this challenge, we are seeking to collaborate with other IFAD projects in Nigeria to identify validated phone numbers for qualifying farmers to assist us in reaching the target of 100,000 farmers in Nigeria by September 2021. IFAD is supporting this approach and will grant PAD access to an additional 150,000 beneficiaries in CASP.

Organizational Updates

The following new hires joined our teams in Q4: Crystal Aghadi (Research Associate, Nigeria), Leonard Njungo (Research Associate, Kenya), Godfrey Petgrave (Agronomist, Nigeria), John Babadara (Project Associate, Nigeria), Wafa Tahir (Research Associate, Pakistan), Maham Bokhari (Research Associate, Pakistan), Alexander G Ramirez (Software Engineer, Global), and Samantha Carter (Global Research and Operations Manager, Global).

We are very pleased to share that Habtamu Yesigat, Director of Programs and co-lead of our team in Ethiopia, has been awarded the prestigious [Aspen New Voices Fellowship](#).

AWARDS AND RECOGNITION



GiveWell

[GiveWell](#) - the highly regarded research organization that rigorously assesses non-profit cost-effectiveness - designated Precision Agriculture for Development as a “[standout charity](#)” in November 2020. PAD was the only new organization designated as a ‘standout charity’ in 2020, and joins eight other organizations in sharing this accolade. Taken together with the nine organizations on GiveWell’s list of ‘top charities’, PAD now ranks among the eighteen most cost-effective not-for-profit development entities assessed by GiveWell.

GiveWell’s endorsement of PAD is premised on a thorough evaluation of our work, and many hours of interaction with PAD’s development and leadership teams. GiveWell concluded, based on their [cost-effectiveness analysis](#), that their “best guess is that PAD’s program is approximately 6 times as cost-effective as GiveDirectly’s program, which provides unconditional cash transfers to poor households in low-income countries.” Moreover, the [summary of their evaluation](#) cites PAD’s “Unusually strong self-analysis, particularly in supporting RCTs on its program” and “Standout transparency. It has shared significant, detailed information about its program with us”.

GiveWell also highlighted that PAD needs to do more to demonstrate impact with rigorous evidence. The citation states that “New information

could plausibly lead us [GiveWell] to believe that this program is as cost-effective as our top charities [the strongest designation GiveWell makes].” We are confident that the investments we are currently making in expanding the evidence base underpinning our work will further demonstrate our impact and cost-effectiveness.



UK PACT

In December, PAD, in consortium with [RARE](#) and [The Nature Conservancy](#), was awarded a one-year grant by UK PACT to support “Adopting New Technology, Mindsets, and Practices to Transform Colombia’s Agriculture Sector.” Intensive preparations will unfold in Q1 2021 to meet a target for PAD to send the first SMS message to farmers in May 2021. The project will focus on sustainable agriculture, expanding our environment and sustainability portfolio, and will be our first project to break ground in Latin America.

Food Planet Prize Finalists

PAD and RARE were selected as one of the nine finalists for the inaugural edition of the [Food Planet Prize](#). The *Curt Bergfors Food Planet Prize* aims to identify, recognize and reward important initiatives that reinvent food chains and help establish a sustainable food system that supports the resilience of the biosphere and the stability of our planet. Unfortunately, our candidacy did not advance beyond the final shortlist of nine initiatives, but we are honored to have been selected and proud of the work of our staff in advancing our candidacy.



FINANCIALS

- A. Our Q4 2020 unaudited actual expenses were \$1.5M vs. a Q4 budget of \$1.1M. Our full year actual of \$5.1M was also \$400K (or 7.3%) higher than our \$4.7M budget for 2020. The large variance in Q4 (and the year) is associated with two large un-budgeted programs that started in Q4. These additional programs are fully funded by IFAD and an anonymous donor.
- B. Current cash on hand (programmatic and unrestricted) for 2021 is \$3.3M, equivalent to 44% of current 2021 budget
- C. Commitments for 2021 are \$2.7M, leaving a \$1.4M minimum gap for the current year

FUNDER UPDATES

- Renewed unrestricted support from the Mulago Foundation
- Renewed unrestricted support from the Goldsmith Foundation
- A new grant from Swiss RE to support efforts to build partnerships with the private sector in Gujarat, India.
- A new grant from Endevo to support the piloting of agricultural insurance products to farmers in Odisha, India.
- Anonymous grant to support digital education initiatives.

**Q4
2020**



**3.8 Million Farmers
SERVED BY PAD'S
DIGITAL SERVICES**

**\$1.38 AVERAGE ANNUAL
COST PER FARMER REACHED**