



A PUBLIC-PRIVATE MODEL FOR DIGITAL AGRICULTURE IN PAKISTAN

This innovative pilot implemented in a rural part of the Swat Valley in Pakistan was designed to leverage technologies to provide farmers with low literacy rates with up-to-date market and training information, digitally disseminated through their mobile phones, in their local language, and helping them to increase the quality and quantity of their produce.

Introduction

For many rural communities in Pakistan, mobile phones are a lifeline. USAID Pakistan partnered with the Provincial Government in Khyber Pakhtunkhwa and Telenor, an international mobile network operator in Pakistan, to create and deliver tailored mobile solutions to disseminate better and timelier information to peach and potato growers as well as fisheries in Swat Valley. By delivering real-time information about market prices and new techniques, weather forecasting, and diversified financial services via mobile technology, the

service helps Pakistani small and medium farmers and hatchery managers improve productivity and get better returns on their investments. As their incomes increase through more informed decision making, they are able to invest in better quality inputs and equipment. Around 1,500 small and medium enterprises were included in the pilot project, which was focused on testing and scaling up what works to ensure that the program's digital development tools meet business needs.

Background

There is a dearth of business information in the Swat region of Pakistan's Khyber Pakhtunkhwa province. This means buyers and sellers are forced to operate with limited market linkages, lack of retail information, and suffer from financial exclusion. It is also a region plagued with extreme weather conditions. In 2012, for instance, one of the potato producing clusters had its crop completely destroyed due to an early frost. Similarly, the floods of 2010 completely or partially destroyed all trout fish farms in Swat. In June 2013, Swat suffered severe damage to its peach orchards due to heavy rains and strong winds.

In addition, many farmers are constrained by a lack of visibility into competitive pricing, as updated current market prices are not available. There is no formal mechanism for buyers and sellers to identify each other and once the transaction is completed, there is no safe method of transferring money from

buyer to seller and seller to supplier. Thus, too often trout farms and peach and potato farmers are unable to sell their produce at competitive prices, losing out to the middleman who is exploiting their lack of information. Across the board, sufficient access to financial services remains a key challenge with more than 80 percent of the population of Pakistan not having access to formal financial services, a constraint that is particularly potent in remote locations such as Swat valley.

Market Opportunities

There are a number of recent trends in Pakistan that allow technology-enabled opportunities to innovate, take hold, and scale up. In 2005, deregulation of the telecommunications sector in Pakistan opened the door for increased private-sector competition for service delivery. By 2008, Pakistan was the world's third fastest growing telecommunications market and continues to see large annual growth. According to the Pakistan telecommunications authority, the number of mobile phone subscribers in Pakistan has grown from about 5 million in 2003 to about 136 million in 2014. The mobile phone subscription rate now stands at about 73 percent. According to a 2011 review, approximately 90 percent of Pakistanis lived within areas that have cell phone coverage and more than half of all Pakistanis had access to a cell phone.¹

Although only a small percentage of Pakistan's adult population was formally banked, there was extensive use of informal financial services, with an estimated 35 percent of the population using other means to transfer and save money.² With over 180 million people in the country, that means possibly more than 60 million people seeking more efficient means of non-bank-based financial services.

There has also been an increasing shift in both the public and private sectors to increase telecom penetration in rural areas. The Universal Service Fund³ was established by the Ministry of Information Technology to promote the development of telecommunication services in unserved and under-served areas throughout the country. The Fund consists of contributions (1.5 percent of adjusted revenues) by the telecom operators with no government funding involved.

In addition, regulations issued by the State Bank of Pakistan (SBP) led to increased alliances between the telecom and banking sectors to bring services to the masses. In 2008, SBP issued Branchless Banking Regulations that called for a bank-led model so that only commercial and microfinance institutions with an existing banking license were eligible to apply for a branchless banking license. A mobile network operator (MNO) could not obtain a license but could operate as a "super-agent" on behalf of a bank while using their own marketing and distribution networks and participating in product development.

As a prime example in Pakistan, the second largest MNO Telenor Pakistan acquired the majority shares of Tameer Microfinance Bank Limited in 2009. Together they launched the easypaisa mobile money service soon after. In 2014, a similar alliance between Bank Alfalah and Warid Telecom launched Mobile Paisa;⁴ two recent examples that have the potential to make a significant impact on digital financial services in Pakistan. Telenor easypaisa is the dominant product in the Pakistan mobile money market; 89 percent of households with mobile money users use Telenor easypaisa exclusively and an additional 3 percent use it in combination with other mobile money products.⁵

¹ "Pakistan Country Report", The World Factbook, Central Intelligence Agency, United States, June 14, 2011

² World Bank, 2009. "Bringing Finance to Pakistan's Poor."

³ <http://www.usf.org.pk>

⁴ GSMA, 2013, "Easypaisa: Mobile Money Innovation in Pakistan"

⁵ Intermedia, The Financial Inclusion Tracker Surveys Project, 2013, "Mobile Money in Pakistan: Use, Barriers and Opportunities"

A Timely Pilot

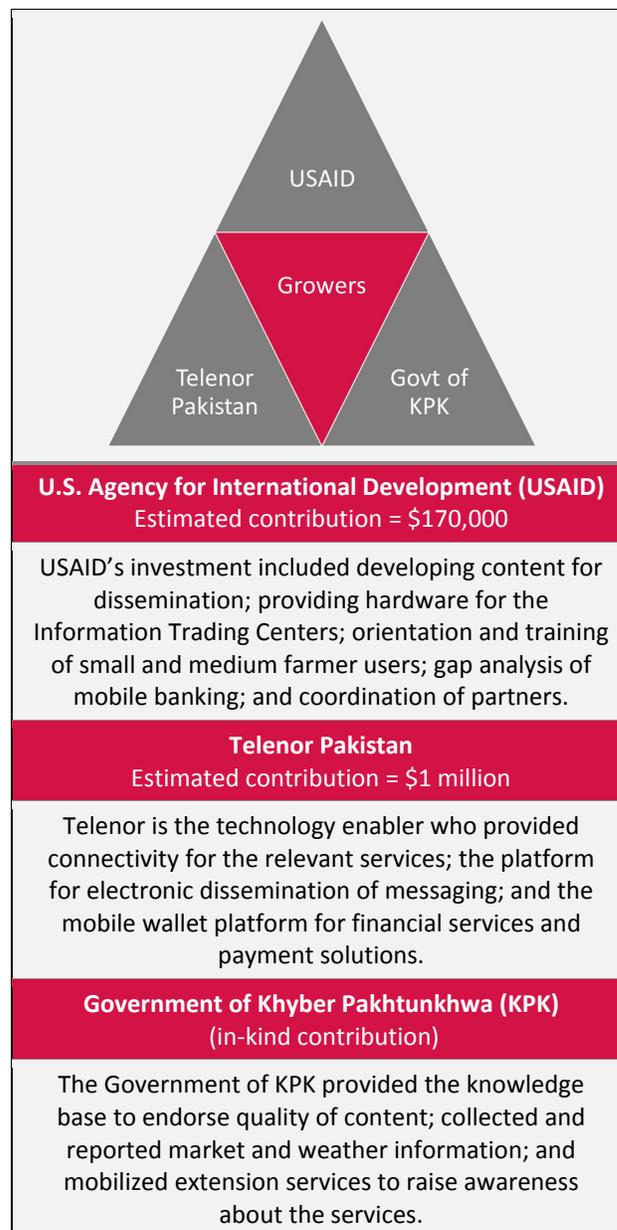
In 2013, the U.S. Agency for International Development (USAID) through its Pakistan Project⁶ seized on these opportunities to design and launch a pilot project to test and scale information and digital financial solutions to support rural farmers in Pakistan's Khyber Pakhtunkhwa province (KPK) and in the Swat Valley.

With an overall goal to develop dynamic, internationally competitive small- and medium sized enterprises (SMEs) in Pakistan's most vulnerable areas, USAID/Pakistan, through its Firms project, brokered a **tripartite partnership** with the Provincial Government of Khyber Pakhtunkhwa (KPK) and Telenor Pakistan to introduce a complementary set of services intended to introduce digital information and financial solutions as a means of developing sustainable and resilient business models in Swat's vulnerable environments.

A Tripartite Partnership

Under a tripartite partnership, as described further in Figure 1, the Government of KPK formed an advisory committee with the Secretary of the Agriculture Department as committee chair and representatives from across the relevant provincial government departments USAID and Telenor in Pakistan. The MNO partner Telenor would disseminate agricultural information through the promotion of Information and Trading Centers/Farm Service Centers and through the introduction of financial services using easypaisa mobile accounts that permit farmers to collect payments and conduct other transactions anywhere in Pakistan where there is mobile coverage.

Figure 1: A Tripartite Partnership to Serve Growers



Elements of the Pilot

The suite of services included four key components as summarized in the Figure 2. At the core of the intervention is an information **repository** of information and best practices for the targeted

⁶ The Pilot for Information and Financial Digital Solutions (PIFDS) was implemented under the USAID/Pakistan's Firms Project from 2013 to 2014.

growers dissemination through **SMS (Short Messaging Services)** and **IVR (Interactive Voice Response)**. The repository includes weather updates transmitted through the Telenor network that are provided by the Pakistan Meteorological Department and market prices gathered by the Agriculture Department of KPK. In addition the pilot established protocols to allow growers and buyers to make sales via mobile money.

1) Pushing out Information through SMS messaging with crop-related information

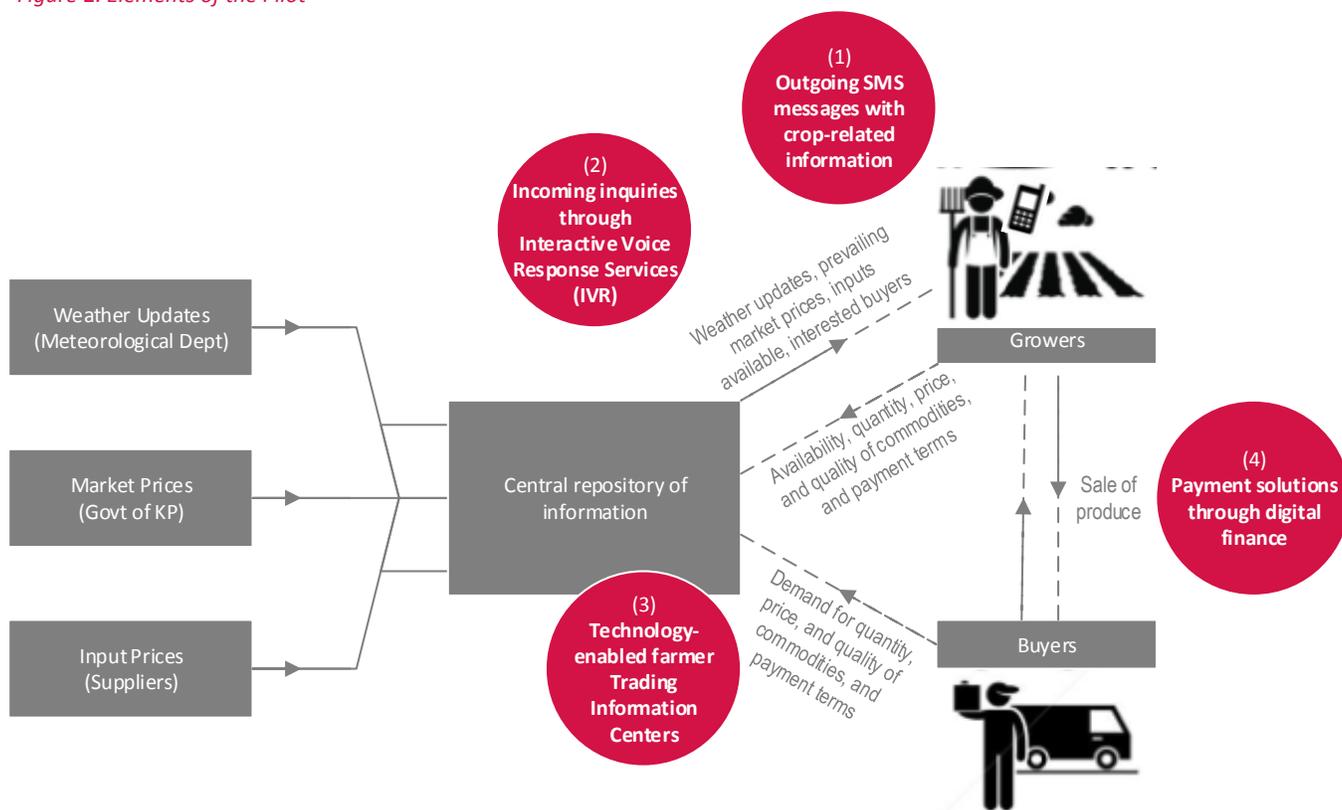
The SMS Advisory services were designed to push out information relevant to the targeted potato, peach, and trout sectors to farming and fishery SMEs. The content was developed in collaboration with the Government of KP's Agriculture Department and digitized for electronic dissemination in Urdu so as to be most accessible to the targeted audience.

Feedback from the Farmers

A representative sample of 126 farmers was contacted regarding the SMS service. The feedback collected showed great success:

- Out of which 98 percent had received the messages.
- 83 percent of the farmers that had received these SMS said that they were well-timed.
- 98 percent found the messages useful and adopted the practices.
- 73 percent shared the information with others who were not subscribed to this service
- 14 percent used these advisories for other crops as well, and 12 percent recommended others to subscribe.
- Since this service started, information sent through the SMS has been shared with more than 6,650 people not subscribed to this service.

Figure 2: Elements of the Pilot

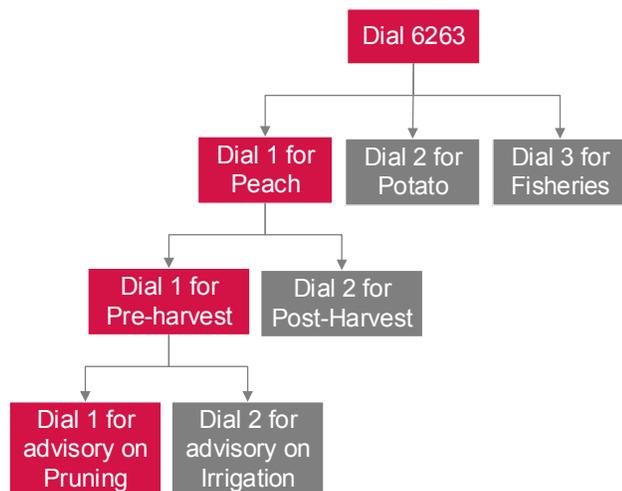


2) Pulling in Growers through Interactive Voice Response Services (IVR)

The activity also established IVR, an automated system that is typically used to enable high call volumes, reduce costs, and improve customer experience. Like the SMS service which pushed out short tidbits of information to growers directly to their mobile phones, IVR invited growers to call a phone number and listen to pre-recorded messages about a range of information: weather forecasts to help them decide when to plant, irrigate, and harvest; information on market prices and consumer trends to help them understand which products will yield the highest returns for their efforts; and technical advice on how to fight pests or diseases, improve farming practices for more sustainable agriculture, and apply processing techniques that reduce food wastage.

Through IVR they could also access information about regulations, available subsidies, and local fairs. The voice recordings were more accessible to those with literacy limitations. (See sample IVR tree in Figure 3).

Figure 3: Sample IVR Tree



Feedback from the farmers

"USAID's method of communicating information to peach clusters through Telenor is very good. The messages are easy to understand and concise. Whenever the farmers sit together, we discuss these messages. One suggestion would be to include the market rates for various produce, for cities like Islamabad, Lahore and Karachi; this would greatly help us in the correct pricing of our fruit."

—Farmer Mutasaraf Khan

3) Technology-Enabled Trading Information Centers (TIC)

One of the key interventions of the pilot was to establish five Trading Information Centers (TIC) value chains. As both a physical and virtual hub, the centers would give actors access to crop care management information, marketing information, information on inputs, market rates across Pakistan and relevant weather related information. These Centers are equipped to provide live communication with all stakeholders through SMS and mobile data which would ensure quality and timely information sharing.

The Centers were originally conceptualized as public locations where members of a community already tend to gather for group activities, such as sharing agricultural, livestock, and marketing information, selling crops and buying pesticides/fertilizers and other purposes. In addition to providing in-person networking opportunities, and technology-enabled access to up-to-date information relevant to the growers, these Centers also work as easypaisa agents that can provide basic financial services, savings and insurance products, bill payment services, money transfers, and easypaisa mobile account activations, etc. With success, in the longer run the Centers will work as a trading hub for the agricultural sector.



A farmer is shown how to access mobile services

To allow for ongoing support beyond USAID's initial investment of technical assistance, and equipment, the project competitively selected local partners to maintain center operations and provided start-up assistance by arranging for the procurement of furniture and hardware equipment.

The initial five Centers established in the Swat Valley are well-received and proved to be a successful model. While the Centers were initially envisioned to all be in the Swat Valley, the project soon realized the benefits of establishing additional Centers outside the Swat Valley where the regional buyers of the target farmers are. These five centers are located in Mingora, Kabal, Barikot, Khawazakhela and Miandam.

As of now, hundreds of farming SMEs have registered with these centers for services and mobile wallets with Agri inputs seed and fertilizers. Over PKR 10 million was traded through these centers. In addition, these centers are providing credit services to farming SMEs, and so far approximately PKR 20 million have been disbursed. In addition to the potato and peach sectors that were part of the pilot, other crops like onion, peas, tomato, maize, persimmon and plum are the main crops also being traded at these centers.

Feedback from the farmers

"The test SMS service by USAID in collaboration with Telenor were received by us and we have benefited greatly as they talked about pruning irrigation and harvesting, etc. We even shared these SMS with other farmers who are not part of our clusters, and they have also benefited. One great advantage of this service is that once the message (on best practices) is saved we do not need to go anywhere for advice. When we are working in the fields, we open the SMS and work according to that; there is no cost for this, and our time is not wasted."

—Farmer Wahid Karam

4) Payment solutions through digital finance

The pilot included a gap analysis of mobile banking in Pakistan to see how it can be complemented by using the available ICT tools. Mobile money services are recognized as a means for those farmers or SMEs, who either have no bank accounts or are reliant on cash transactions, to get better access to financing. Mobile finance holds particular promise for agricultural value chain development to help small and medium farm holders and service providers save time and money saved, gain greater safety and security, maintain better recordkeeping, and apply more businesslike approach to farming.

The electronic platform and easypaisa are therefore linked to the TICs. These have been established by partner Connecting Agro Value Chains (Private) Limited (CAVC) under USAID's Firm's Project. By the end of the pilot, five Centers are up and running. TICs are offering an alternate and direct linkage with the market to the farmers both for input supplies and sales of their produce. Telenor and CAVC have opened mobile wallets and are providing money transfer services so that farmers in Swat can be paid electronically for their crops.

Key to the design of the program was a commitment to joint monitoring and evaluation (M&E). The M&E plan of this pilot initiative was

focused on outreach, user-friendliness, usefulness, adoption, scalability, reduction in cost of production, overall impacts in terms of contribution of these services in improved production, and subsequently sales and jobs. The M&E efforts also strive to establish the readiness of subscribers to start doing financial transactions through easypaisa and/or similar services.

Sustainability and Scalability

The pilot was designed to test the introduction of digital services in Swat, including analyzing financial services across the country. Through implementing partner CAVC Trading, the services provided in Swat will continue through the TICs, connecting peach and potato growers with buyers, such as PepsiCo. Building on the pilot's platform, CAVC is expanding into other regions of KPK and working directly with buyers across the country—a much needed expansion for Swat growers. They have also entered into additional sectors such as watermelon, onion, peas, tomato, maize, persimmon and plum. CAVC has successfully replicated TICs in 11 districts of KPK and Punjab provinces. These centers are located in Manshera, Abbotabad, Haripur, Hassanabdal, Swabi, Mardan, Nowshera, Swat, Khushab, Faisalabad, and Okara. Apart from selling of produce to large processors like PepsiCo and Metro, CAVC has establish marketing outlets in 3 main whole sale markets in Lahore, Faisalabad, and Islamabad.

With a plan to roll out e-payment solutions to more farmers, SE Trading has signed an agreement with easypaisa and has taken the leading role of the service provider in Swat. They signed an agreement with Telenor for financial services and to use their platform for the SMS/IVR services. They continue to work with KPK Agriculture Department to keep the advisory database updated and aim to include advisories for new crops in the database.

Telenor is planning to expand its operations to other areas and other telecom companies have started replicating and entering into this area.

The analysis done on the mobile financial services sector has brought in key players in the industry. The findings proposed ways in which the stakeholders can contribute to the growth of financial services across Pakistan; specifically supporting the growth of mobile wallets and graduating users from “over the counter” (OTC) to mobile wallets. The regulators have also received this effort very well as the analysis also proposes the policy reforms required to help growth. The State Bank of Pakistan April - June 2014 newsletter, in fact, mentioned the gap analysis initiative and the benefits it could bring to the industry. To further support momentum of the outcomes, USAID/Pakistan will be setting up a Pakistan Challenge Fund focusing on technology and innovation for solving development problems.

Key Results

- Improved market linkages, management practices, access to inputs, and financial services including m-wallets for **15,300 farming SMEs and individuals** that did not have bank accounts and are reliant on cash transactions.
- Contributed to **41 percent decrease** in wastage and cost.
- Contributed to **121 percent increase** in sales revenue.
- **Enhanced Scalability**
 - Entry of private sector actors taking on USAID's role.
 - Current services are being scaled-up for other sectors such as peach, potato, and fishery SMEs and other sectors in Swat.
 - USAID/Pakistan planning to extending digital inclusion in other sectors and regions of Pakistan.
 - Telenor extending in other sectors.
 - Other Telco's and banks entering the space.

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