



USING MOBILE FINANCE TO ENHANCE AGRICULTURE IN AFRICA

INTRODUCTION

Participating in formal payments and finance systems carries many advantages for the poor, but in 2010, 60 percent of the world's population—4 billion people—did not have access to basic financial services.¹ Building bank branches is expensive, and convincing “unbanked” people to use them is difficult. Mobile finance now presents the potential for promoting financial inclusion at the base of the pyramid.

Those at the base of the pyramid, including farmers, increasingly consider mobile phones affordable and vital to their lives and livelihoods. By the end of 2011, 79 percent of the population in developing countries had mobile phone subscriptions.² In 2011, there were 500 million phones in Africa which is predicted to increase to a billion by 2016.³ The resulting vast network of mobile phone coverage provides an infrastructure that has never before existed in Africa, reaching even the most rural communities.

Because this trend holds so much promise for expanding financial security for the poor, mobile finance has become a prominent component in USAID's public-private partnerships.⁴

The development community can seize the opportunity to leverage the growing mobile phone infrastructure. This can be done by integrating mobile finance into new or existing development projects in ways that will help smallholder farmers increase their financial stability by saving,

reducing transaction costs and building credit histories while unlocking entrepreneurship and improving transparency.

MOBILE FINANCE BASICS

Mobile finance encompasses both mobile money and mobile banking. The mobile finance ecosystem includes a mix of interconnected stakeholders, including mobile network operators (MNOs), payment card firms, banks, microfinance institutions (MFIs) and application service providers.

Mobile money (m-money) is the term for using a cell phone to make or accept payments. An “m-wallet” is a mechanism for storing monetary value on a mobile device. A user loads money into his or her m-wallet by depositing money with a registered agent or by receiving a mobile money transfer from another user. The user can then send a secure electronic transfer of funds to another user's m-wallet to purchase goods or services. The user can store funds in the m-wallet for future mobile money transactions or visit an agent to convert the m-money to cash.

Mobile money reduces transaction costs and increases the sharing of risks among informal networks of households. This allows them to better withstand economic shocks.⁵ The use of m-wallets has also been shown to increase savings. In Kenya, the poor often save funds on their mobile wallets for short periods of time, which also helps them better withstand economic shocks.⁶

Mobile money is faster and more secure to use than cash and can scale to billions

of customers far more cost-effectively than traditional banking services. M-money services have been especially popular for domestic remittances (person-to-person or P2P value transfers) but are often used by individuals to pay common bills, such as utilities or school fees. M-money is also used for business-to-business (B2B), government-to-business (G2B), and social transfer payments (government-to-person or G2P). For the latter, m-money can be used with “e-vouchers,” which restrict social transfer payments to certain categories of items, such as fertilizer or other agricultural inputs.

Mobile banking (m-banking) provides the same basic services as m-money except the account is held by a bank and not an MNO. The m-wallet can be linked to the m-bank account, but additional interface to the bank account is also available by visiting a teller at a bank branch, banking over the Internet or using an ATM. Mobile banking functions may include a variety of additional services, such as verifying account balances and transferring funds between accounts.

WHY MOBILE FINANCE AND AGRICULTURE?

Donor-supported agricultural development initiatives often work via cooperatives, associations and farmer groups to help smallholder farmers improve production quality and quantity and secure higher prices. This requires donor projects to bring farmers together for trainings, workshops, field trips, demonstration farms and other gatherings that offer valuable opportunities to promote the adoption of mobile finance. For this reason, many private sector mobile finance stakeholders are interested in collaborating with donors and implementers of these projects.

Mobile finance platforms for targeted

¹ The World Bank. (2010, March). [Measuring Financial Access around the World](#).

² International Telecommunications Union. (2012). [The World in 2011: ICT Facts and Figures](#).

³ USAID. (2010). [Mobile Phones Tackling Poverty](#).

⁴ Shah, Rajiv. (2012). [2012 Annual Letter](#).

⁵ Suri, Tavneet; Jack, William. (2011, January) [Risk Sharing Benefits of Mobile Money](#). MIT and Georgetown University.

⁶ Radcliffe, Dan. (2010, November). [Expanding Customers' Financial Options Through Mobile Payment Systems: The Case of Kenya](#). BMGF, p. 2.

value chains hold the potential to do for village-based economies at the base of the pyramid what commercial banking did to provide the requisite financing of the manufacturing sector during the industrial revolution. USAID-funded projects and research have shown that mobile finance can provide an array of concrete benefits for farmers. For example, with USAID support, Zoonza-Zambia developed an m-voucher payments service for a cotton lead firm to pay 160,000 farmers that included a discounting mechanism which led to the increased sales of input supplies to farmers. Opportunity Bank Malawi uses their platform for agricultural loan disbursements and repayments. SmartMoney facilitates payments by cotton, sorghum and maize lead firms in Tanzania and Uganda. These transitions from cash transactions to electronic transactions increase safety/security, reduce costs and improve transparency while allowing farmers to spend less time traveling to receive and make payments and more time on their farms.

TARGETING AGRICULTURAL MARKETS

Some recent alliances bode well for the uptake of mobile finance in rural and agricultural areas where mobile disbursements and transfers promote more efficient and effective value chains. In June 2012, USAID announced the Connected Farmer Alliance⁷ with Vodafone and TechnoServe to grow the M-PESA mobile payments platform by enrolling 500,000 farmers in Kenya, Tanzania and Mozambique. Also in June 2012, the USAID-Citi Mobile Money Accelerator Alliance⁸ promulgated ten “accelerators” for increasing mobile finance uptake. Most recently, in September 2012, the “Better Than Cash” initiative, supported by USAID, was officially launched to promote the transition from cash to electronic/mobile transfers.⁹

These alliances are designed to take advantage of one of the key lessons learned by the mobile finance industry—the importance of market segmentation to

⁷ USAID. (2012, June 12). [New Farmer Alliance to Improve Incomes and Food Security in Africa](#). Press Release.

⁸ <http://www.citigroup.com/citi/news/data/120612a.pdf>

⁹ <http://betterthancash.org/>

achieving scale and sustainability.¹⁰ During its early development, the mobile finance industry tried to serve all consumer segments and tended to focus on urban centers. In search of more optimal uptake, many mobile money initiatives now look to target consumer segments in rural areas in partnership with development organizations.¹¹

The main barriers to mobile finance for the rural and agricultural poor are lack of awareness,¹² low literacy and financial literacy levels, and lack of trust in institutions.^{13,14} Trusted multiyear, donor-funded projects implemented by organizations with deep knowledge of the local populace present high-impact/low-effort opportunities to integrate mobile-finance consumer awareness and education into the usual menu of agriculture value chain interventions. They are also well-positioned to collaborate with MNOs, payment card firms and financial institutions to identify, develop, train and finance an independent network of cash-in/cash-out agents—for example, input suppliers, cooperatives, equipment vendors, kiosks, banks and MFIs—where farmers live and work.

Partnered with the mobile finance industry, such projects can rapidly scale up the participation of farmers on mobile finance platforms, giving them access to the formal, transparent economy.

THREE M-FINANCE MODELS

There are three typical models for implementing m-money or m-banking. An example for each is provided below.

MNO-led Model. In the first model, the MNO takes the lead with an initial rollout of m-wallets to serve the money transfer needs (P2P, B2B, G2B and G2P) of the subscribers. Eventually this platform might work with a bank that will

¹⁰ Dalberg. (2012, January). From Market Opportunity to Sustainable Business: Market Segmentation and Sustainability in Haiti. BMGF, p. 2.

¹¹ Ibid. p. 15.

¹² Vodafone. (2011, September). [Connected Agriculture: the role of mobile in driving efficiency and sustainability in the food and agriculture value chain](#). p. 17.

¹³ World Economic Forum. (2011). Mobile Financial Services Development Report.

¹⁴ The World Bank. (2012). [Maximizing Mobile](#).

link the m-wallet to an m-bank account. Regardless of whether they partner with a local bank, MNO-led models still require approval from the country's Central Bank. MNOs use m-money services to increase their market share of “voice” subscribers. In addition, the value-added service of mobile money helps to reduce customer turnover by promoting customer loyalty.

Example: Kenya's M-PESA platform, led by MNO Safaricom (40 percent-owned by Vodafone), is by far the most well-known and successful mobile money initiative. Started in March 2007, M-PESA now serves 15.5 million users and has a network of around 40,000 agents.¹⁵

MNOs are eager to repeat M-PESA's success, but so far none has come close. Hoping to recreate the M-PESA Kenya story, Vodacom launched M-PESA in Tanzania in April 2008. The service grew much more slowly than it had in Kenya: In its first 14 months, it signed up only 280,000 users and 930 agents, whereas in the first 14 months in Kenya, it signed up 2.7 million users and 3,000 agents.¹⁶ As of March 2012, M-PESA Tanzania has only 3 million users.¹⁷ In Zimbabwe, the MNO with the largest market share, Econet, is rolling out m-money simultaneously with as mobile agricultural service with advice from Mercy Corps.

Bank-led Model. The second model is led by banks that pursue mobile as another delivery channel for financial products. While bank-led there will be some collaboration with the MNO as it owns the mobile infrastructure. M-banking is one of an array of tools that financial institutions are using to extend financial services to increase customer convenience while reducing institutional costs. It is one of several approaches to “branchless banking,” which uses correspondent banking agents (kiosks, post offices, retailers, etc.) that use tools such as ATMs, POS (point of sale) terminals and electronic bank cards.

¹⁵ Michaels, L. (2011, November). [It's Better Than Cash: Kenya Mobile Money Market Assessment](#). Accenture Development Partnerships.

¹⁶ IFC. (2010, June). [M-Money Channel Distribution Case: M-PESA Tanzania](#).

¹⁷ ITU. (2012). Vodacom Tanzania to expand M-PESA. ICT Statistics NewsLog.

Example: WIZZIT is a bank without branches that relies on correspondent banking agents in seven African countries. Started in 2004, it is part of the South African Bank of Athens. Their branded WIZZkids sales agents are young, previously unemployed residents of the low-income communities that are targeted for customer acquisition. With the World Bank as a strategic shareholder, WIZZIT has processed more than 100 million transactions valued at more than \$12 billion for 4 million customers.¹⁸

Third Party Led. The final model uses a third-party service provider that also will collaborate with an MNO(s) to operate a platform.

Example: Founded in 2009, Zoono received financial, technical and market research assistance from USAID/Zambia-PROFIT. PROFIT also introduced Zoono to the cotton value chain lead firm Dunavant Zambia Limited.¹⁹ Though m-wallets are available, Zoono relies instead on B2P e-vouchers, which they expect will lead to uptake of P2P m-wallets. Dunavant now sends its payments for 160,000 contract growers to Zoono, which notifies the farmer via SMS. The farmer then visits an Zoono agent and receives cash out.²⁰

M-FINANCE AND AGRICULTURE

Mobile finance offers many benefits to smallholder farmers, who generally lack access to finance:

- It is cheaper and easier for smallholder farmers to save, receive loans and make loan payments.
- It is easier for input suppliers to collect and manage payments from smallholder farmers—and for smallholder farmers to aggregate their demand for inputs.

¹⁸ Richardson, Brian. (2012, May). Mobile Money Jo'berg Conference. WIZZIT, CEO.

¹⁹ USAID. (2010, April). [FS Series #9: Enabling Mobile Money Interventions](#).

²⁰ Statham, Chris (2012, July). Interview with MTZL. ACDI/VOCA.

- It is easier and safer for traders to manage transactions and make deposits into their bank accounts.
- Large buyers can pay thousands of producers, and manage any input supply credit they offer the producers, without incurring high costs due to side selling or shipping cash to rural areas.
- Producers and others in the value chain can more easily and cheaply receive domestic and international remittances.²¹

USG program officers considering mobile finance interventions for agricultural value chains can reference USAID's diagnostic checklist.²² There should be additional consideration of factors that might limit wide adoption of mobile finance by farmers, including technical, financial, institutional, operational, political, behavioral and regulatory constraints.²³ If appropriate after careful consideration, USAID can support mobile finance interventions in agriculture development projects by integrating farmer consumer awareness/education; identifying, developing and training agents; training financial institutions; pilot testing; conducting market research; providing technical assistance; and facilitating public-private partnerships.

LOOKING AHEAD

Mobile finance has moved beyond proof of concept and is starting to scale up in countries far beyond Kenya. Given the speed at which change in this space happens, we should now look ahead to anticipate the characteristics of the next generation of tools and business models. Version 2.0 of mobile finance will evolve to include more m-banking, and more advanced financial services, such as m-insurance, retail and e-commerce.

E-discounts and e-vouchers. Governments and development organizations

²¹ Muku.com is an international remittance company that currently serves the corridors of South Africa and Zimbabwe, Kenya (via M-PESA) and Philippines (via GCASH).

²² USAID. (2010, April). [FS Series #9: Enabling Mobile Money Interventions](#).

²³ Smith, G. (2012, March). [New Technology Enhancing Humanitarian Cash and Voucher Programming: Main Findings and Ways Forward](#). Concern Worldwide.

often support smallholder farmers by issuing vouchers for fertilizer, seeds or other inputs. Mobile finance platforms can increase the efficiency and reliability of any e-voucher system. Private companies can also provide benefit by lowering their prices if farmers aggregate their demand for the companies' products. As the number of subscribers using a platform grows, so does the network effect. The resulting exponential economies of scale present opportunities to negotiate e-discounts with input suppliers and other agribusinesses on behalf of farmers. Reference the use of e-vouchers by MTZL above and by Dahlberg's description of Zoono (previously branded as MTZL).²⁴

Legal and Regulatory Environment.

A country's bank regulator plays a key role in overseeing m-money and m-banking services. USAID and other donors have a variety of tools, documents and technical assistance options to assist bank regulators to weigh their options, assess risks and provide prudent oversight. A few key issues the regulator must address include:

- Conditions under which non-bank entities can serve as agents for mobile money
- Ensuring sufficient security for m-money transactions
- The safety of funds stored in m-wallets
- Guidelines for how fiduciary responsibilities must be met
- Compliance with KYC (know your customer) and AML (anti-money laundering) rules.

Debit accounts linked to m-wallets.

Visa and Mastercard have recently given farmers the potential to use a debit account to self-administer their own layaway plan. By periodically making small transfers from their m-wallet into their debit account, farmers can save to purchase expensive assets, such as processing equipment and other farm implements.

²⁴ Dalberg (2012, January). From Market Opportunity to Sustainable Business: Market Segmentation and Sustainability in Haiti. BMGF, p. 26.

Alternative financial identities/ biometrics. Mobile platforms gather massive amounts of data about farmer assets, inputs, yields, mobile money transactions and more. These mega-data can be used for computing credit scores, which can be linked with biometric technologies (iris scans, fingerprints, photos). Confirmed financial identities and alternative credit scoring can be used to help farmers meet criteria to receive loans or government benefits.

Weather-indexed microinsurance. Weather-indexed microinsurance allows smallholder farmers to insure the cost of their input supply purchases against the risk of bad weather.²⁵ The Kilimo Salama Plus weather index program in Kenya combines the infrastructure of the Syngenta seed company with the underwriting skills of the UAP insurance company.²⁶ At the point of sale in an input supply store, farmers can choose to add the modest cost of a microinsurance premium to the cost of supplies when making their input purchases using mobile money transfers. In the event of weather-induced losses, the insurance company can conveniently make claims payouts using the same mobile money platform.

Near Field Communication. Farther afield, but worth keeping on the radar, is near field communication (NFC). NFC is a technology that allows transactions by way of proximity to other devices. The current version of mobile money has points of transactional friction that entail manual entry of numbers and codes that NFC can remove.^{27 28}

²⁵ Tellez, C. (2012). [Emerging Practices in Mobile Microinsurance](#). GSMA Mobile Money for the Unbanked.

²⁶ Michaels, L. (2011, November). [It's Better Than Cash: Kenya Mobile Money Market Assessment](#). ADP; and Vodafone. (2011, September). [Connected Agriculture](#). p. 17.

²⁷ Jones, B. (2012, June 17). [Contactless Payments in Emerging Markets: Can Mobile Leap Frog Developed Markets Once Again?](#) Blog.

²⁸ The World Bank. (2012). [Maximizing Mobile](#).

CONCLUSION

The agricultural sector is key to unlocking the economic power of mobile finance in rural communities. M-money will continue to make agricultural value chains more effective and efficient by allowing rural citizens to make and receive payments without traveling long distances or carrying large amounts of cash. Agricultural firms, MNOs, banks and MFIs are committed to securing the benefits of mobile finance to reduce the costs and risks of their cash transactions with many thousands of farmers. We know that through m-money, smallholder farmers and agricultural services providers will increasingly benefit from time and money saved, greater safety and security, better recordkeeping and a more businesslike approach to farming. We are also seeing initial evidence that the reduced costs of farmers' m-wallets appear to explain better and more diverse production of agricultural goods as well as the purchase of more and better types of food, which improves both diet diversity and nutrition.²⁹

²⁹ Aker, J., Bounie, R., McClelland, A., & Tierney, N. (2011, September). [Zap it to Me: The Short-Term Impacts of a Mobile Cash Transfer Program](#). Center for Global Development, Working Paper 268.

RESOURCES

The literature on mobile finance has rapidly expanded and is more numerous than can be listed here. In addition to the citations in this note, compiled again below, there are numerous resources at CGAP (www.cgap.org), GSMA (www.gsma.org) and the Bill and Melinda Gates Foundation (www.gatesfoundation.org). Additional resources include:

The World Bank. (2010, March). [Measuring Financial Access around the World](#). The World Bank.

International Telecommunications Union. (2012). [The World in 2011: ICT Facts and Figures](#).

Dalberg. (2012, January). From Market Opportunity to Sustainable Business: Market Segmentation and Sustainability in Haiti. BMGF.

Suri, Tavneet; Jack, William. (2011, January) [Risk Sharing Benefits of Mobile Money](#). MIT and Georgetown University.

Radcliffe, Dan. (2010, November). [Expanding Customers' Financial Options Through Mobile Payment Systems: The Case of Kenya](#). BMGF.

World Bank (2011). [ICT in Agriculture: Connecting Smallholders to Knowledge, Networks and Institutions. Report 64605](#).

DISCLAIMER

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