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Exploring the Promise of Information and Communication Technologies for Women Farmers in Kenya

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Introduction

Access to information and the creation of knowledge are key drivers of social and economic transformation. In agriculture, new information and knowledge fuel innovation and increase productivity and competitiveness. The ability of farmers to participate in and benefit from growth in the sector is linked to their ability to adopt new practices, solve problems and embed themselves dynamically in agricultural value chains. Farmers, both men and women, need to be connected to the communication channels through which appropriate information is flowing. Farmers currently access information through a complex web of social networks that include other farmers, family members, extension agents and input supply dealers. Yet for many farmers, these networks lack the type of information that can help them to move confidently into more productive strategies.

The explosion of new information and communication technologies (ICTs) onto the agricultural development scene offers an opportunity to extend the reach of current information systems. ICTs can amplify the efforts of extension and advisory services (EAS) providers in disseminating various kinds of information to large, dispersed audiences. ICTs offer the opportunity for rapid and cost-effective dissemination of agricultural information to remote locations and to diverse populations. They make it possible to deliver near real-time information on weather, market prices, disease and pest outbreaks, and the availability of services, allowing farmers to make more informed decisions on what to grow and how to improve their agricultural practices. Content can be delivered in audio, visual and written formats to reach farmers with varying levels of education and literacy.

The possibility that ICTs can extend the reach of existing information channels also means that they can be used to overcome barriers that currently limit women farmers' access to information. Research has long documented how women's lack of access to land, information, credit and other productive resources has limited their potential as farmers, thereby reducing overall gains in agriculture (FAO, 2011).

The Research

Research for this case study was conducted over two weeks in November 2012 and in Nairobi, the Rift Valley and Central Province. Interviews were conducted with a total of 17 farmers (nine men and eight women), extension officers and project officers working with ICT-enabled extension initiatives. Interviews in Nakuru North District were held with 13 people (seven men and six women). The remaining farmers (two men and two women) lived near Thika and were working under contract to Wilmar Flowers, Ltd., in the Athi River CBO, an activity of the USAID-funded Kenya Horticulture Competitiveness Project (KHCP).

The research was inspired by the growing number of initiatives in the mobile agriculture space that are attempting to enhance and extend the reach of extension services through the use of ICTs and mobile technology. The research tools were guided by previous assessments conducted by the authors on gender integration in value chains and extension systems, and through the adaptation of the principles laid out in the GSMA Agricultural Value Added Services toolkit (Jadhav et al., 2011).

Like men's, women farmers' information channels are also built on social networks. Their networks are often smaller than men's, so they offer fewer opportunities for learning about new productive and commercial opportunities (Sebstad and Manfre, 2011). Using ICTs to reach women farmers could contribute to improving farming practices and close gender gaps in yields and productivity if they are designed and used to overcome gender-specific constraints. Paying more attention to the differences in how men and women farmers currently access information may provide insight into how ICTs can be used to more efficiently deliver agricultural messages. Understanding the deficiencies in

these networks will illuminate how ICTs can more effectively align the content of information with both men and women farmers' needs. This case study examines the information channels and use of ICTs by men and women farmers around Nakuru and Thika in Kenya (Box). It contributes to a growing body of literature that aims to understand how ICTs can close gender gaps in agriculture and lead to more equitable opportunities for farmers.

Meet the Farmers in Nakuru

The farmers in Nakuru consulted for this case study live in the Nakuru North district near Bahati. They each cultivate roughly 1.5 acres of land, which men and women farmers received during post-independence settlements schemes. On this land, they grow a variety of crops including beans, maize and a range of horticultural crops -- e.g., cabbages, carrots, zucchini, potatoes, and peppers. Surplus production of these crops is marketed locally or in Nakuru town, which is located only 20 kilometers away. It is considered a high-potential area because of the amount of rain it receives over the course of the year. None of the men interviewed were full-time farmers. Among those interviewed were a local chief, a government services contractor, shop owners and an agricultural wage worker. About half of the women farmers worked on land for which they held the title in their own names. Several of the women were widows; others had husbands who held jobs in Nakuru town or Nairobi. In contrast to the men, the women farmers interviewed were dedicated to the daily maintenance of the farm alongside their household responsibilities.

Meet the Farmers in Thika

The farmers in Thika were part of the Athi Gravity community-based organization. This group began in 2001 as a self-help group and evolved into a community-based organization (CBO) in 2011. It has 23 members -- eight women and 15 men. Together they produce flowers for Wilmar International. Many of the farmers also grow maize, beans and vegetables, which are sold in Thika town. Men and a few women in the group have also taken up fish farming. Many of these farmers work on a portion of family land, with individual landholding sizes ranging from 1.5 to 5 acres. Women in the group were responsible for the planting, weeding, harvesting and selling on their land, and also made decisions about what to produce and sell. Husbands of some of the women in the group worked in Nairobi.

Agriculture and Extension Services in Kenya

The agriculture sector in Kenya provides a livelihood for 80 percent of the population and directly contributes to 24 percent of the GDP, with an additional 27 percent flowing indirectly through other sectors (GOK, 2012). Horticultural and industrial crops -- e.g., tea, coffee, sugar cane, and cotton -- are the greatest contributors to the agricultural GDP and to agricultural exports (GOK, 2010). Growth in the national economy has been shown to be highly correlated with growth and development in agriculture (GOK, 2010).

Kenya's Agriculture Sector Development Strategy (2010-2020) sets a goal of achieving a growth rate of 7 percent per year by developing agriculture into a modern, innovative and competitive sector. The main focus of the strategy -- increased production and marketing efficiencies -- is likely to come from small-scale farmers, whose production accounts for 75 percent of the total agricultural output and 70 percent of marketed agricultural produce (GOK, 2010). These farmers produce on land between 0.2 and 3 hectares and are characterized by low use of inputs, fertilizers and other new technologies (ibid). These farmers need information about new practices, inputs and technologies, as well as the risks and opportunities associated with new modern technologies, to increase productivity on their farms.

Women's participation in the sector spans most agricultural value chains. Women are estimated to make up about half (48.6 percent) of the economically active population in agriculture (FAO, 2011). They often manage farms on their own or with other household members, and they are employed as wage workers in the production and processing of horticultural and industrial crops. Few women own land in Kenya[1] but many cultivate crops on small plots of land under their control or alongside their spouses on larger plots, and manage farms in the absence of their spouses. It is widely acknowledged that women farmers have less access to information and productive resources than men and lack the authority to adopt new practices that could increase productivity and profitability of their farms (FAO, 2011; Quisumbing and Pandolfelli, 2009). Globally, only an estimated 5 percent of agricultural extension resources are directed toward women (FAO, 2011), though both men and women require access to the knowledge and tools that can help them make productive decisions about their farms.

In 2012, the Ministry of Agriculture issued a new National Agricultural Sector Extension Policy (NASEP) (GOK, 2012). The policy outlines how EAS in Kenya will meet the current and future challenges of enabling farmers to receive the services they require to become more productive agricultural actors. Currently, the extension system in Kenya is dominated by the public sector. The government service, however, is increasingly using hybrid models of service delivery involving

[1] Data on women's land ownership in Kenya is scarce. The most often cited data is that women hold only 1 percent of registered land in their own name and between 5 and 6 percent in joint names. This appears in multiple sources, including J. Cutura, "Voice of Women Entrepreneurs in Kenya," IFC, Washington, DC., 2006; and A. Ellis et al. , "Gender and Economic Growth in Kenya: Unleashing the Power of Women," The World Bank, Washington, D.C., 2007. The FAO Gender and Land Database does not have any available data on women's land ownership.

private-sector entities and farmer-to-farmer extension. Like many extension systems, the Kenyan extension system is constrained by declining human and financial resources (ibid.). The ratio of frontline extension workers to farmers, at 1:1000, is well below the FAO-recommended ratio of one officer for every 400 farmers. The government is moving toward a system that encourages farmers to "demand and access appropriate quality extension services from the best providers and attain higher productivity, increased incomes, and improved standard of living" (ibid). This shift away from providing top-down, supply-driven assistance requires strengthening the ability of farmers to communicate, share and demand the information they need. Part of Kenya's vision for this more responsive and demand-driven extension system is to harness ICTs and other mass media to enhance coverage and improve information sharing.

ICTs for Agriculture in Kenya

> *"Access to information is crucial to economic growth. Information and communications technology offer a powerful tool that, if deployed equitably, can ensure citizens are empowered and Government can deliver services more effectively."*
>
> Connected Kenya 2017, National ICT Master Plan

Kenya is fertile ground for ICT-enabled information services. Radio, television, mobile telephones and the Internet are all popular among men and women in urban and rural areas, although their accessibility differs (KNBS and ICF Macro, 2010). Though radio, mobile phones and television are the three most popular forms of ICT, in all three cases, women's access to those technologies is slightly less than men's. Demographic and health surveys data reveal that 89 percent of men and 75 percent of women listen to the radio at least once a week, with more men and women in Central province than in Rift Valley listening to the radio: 95 percent of men and 91 percent of women in Central versus 87 percent of men and 77 percent of women in Rift Valley (KNBS and ICF Macro, 2010). Mobile phones are the most rapidly increasing form of ICT. They're becoming almost as accessible as radio, with mobile penetration levels estimated at roughly 77.2 percent (CCK, 2012). In Africa, Kenya is one of the leaders in expanding mobile technology services with, for example, the popular and well-known mobile money service mPesa.

Men and women are using a range of ICTs, at times in a complementary fashion, for their farming business and personal communications. The type of information and how it can be communicated create differences in how farmers and service providers use ICTs. Some ICTs, such as radio and short message services (SMS), tend to "push" information out to farmers; others (e.g., mobile phones) can be used by farmers to "pull" information from extension agents and other sources. Mobile phones have some storage capacity, making certain kinds of information available for future access. Most other ICTs do not.

Kenya's ICT and EAS Priorities

The government of Kenya, in collaboration with partners, plans to develop enhanced EAS efforts with ICT by:

- Establishing an integrated and dynamic database for the sector and improving access to and use of information and experiences generated.
- Increasing the investment in agricultural information and knowledge systems, which will include capacity building in ICT and establishing information points in rural areas.
- Harmonizing standards for packaging user-friendly extension messages.
- Encouraging use of participatory learning approaches and improving the reliability of information exchanged through farmer-to-farmer interaction and use of existing informal channels for enhancing the two-way flow of information between advisory services and farmers.
- Motivating the private sector to set up and operate ICT-based rural information centers and establish community-based radio through interventions such as rural electrification and lowering tariffs on solar power.

Source: GOK, 2012.

Integrating new ICT tools such as mobile-phone SMS with old ICTs such as radio or TV can extend the reach of EAS (Asenso-Okyero, 2012). Combining new and unfamiliar ICTs with older, more trusted ICTs may increase the adoption and use of newer ICT tools and may ultimately build trust and buy-in for new services. Furthermore, using ICTs to complement face-to-face extension services has the potential to overcome the human and financial constraints on the public extension system. The NASEP outlines several key priorities for integrating ICT into Kenya's extension system for this reason. Already a number of private- and public-sector ICT-based initiatives are being implemented in Kenya to test their ability to provide agricultural information services and products to smallholder farmers. A sample of these is described in the table in appendix 1.

Key Observations

How Men and Women Farmers Access Agricultural Information

Farmers seek information at various points in the agricultural cycle from different sources. Farmers need different kinds of information at different points in the agricultural cycle, such as information about planning,

planting, storage, marketing and selling (Jadhav, et al., 2011). Farmers consult various actors along that cycle.

> *"I don't plant anything that I haven't seen."*
>
> Man farmer, Nakuru

Extension officers and input or agro-vet dealers remain the primary and most trusted sources for information related to new farming practices, disease and pest management and other planting inquiries. Other farmers are also cited as key informants for information early on in the agricultural cycle because farmers can easily see the successes and failures of neighboring farmers. Information gathering at these stages is often focused on learning through experimentation with new seeds, fertilizers and techniques. Farmers observe other farmers' activities or participate in demonstration plots organized by extension officers or input supply dealers. Men farmers most often mentioned their preference for participating in farmer field days and agricultural shows because this provides them with the opportunity to see the product. A survey of the TV reality show "Shamba Shape Up" estimated that 36 percent of its viewers had changed their farming practices after watching an episode (USAID, 2013).

At later stages of the production cycle, farmers obtain information about prices for certain crops by consulting various buyers and middlemen in the local market. Many share a concern that middlemen will cheat them, so farmers conduct their own market surveys. Some check the prices posted at the local Ministry of Agriculture office; others consult trusted neighbors. All of them contact different buyers in the marketplace.

Men's and women's information channels differ slightly in size and composition. Women's information channels are located close to home and are made up of individuals known to both them and their husbands. In many ways, women's networks overlap men's networks. Women consult with local extension officers, neighboring farmers, input dealers and buyers. Women also cited their husbands as important sources of information. Women interact with these individuals most often from their homes or their plots. They reach the extension agent by mobile phone. They sell their goods to buyers who come to the farm gate. They also listen to the radio or watch TV, both located in the house and available while they're doing household chores. Sebstad and Manfre (2011) found similar trends in their research on behavior change in agricultural value chains in Ghana and Kenya. Women were more likely to use and develop stronger relationships with value chain actors who were accessible in places women frequented the most: the farm, the house and the local market.

Men's sources of information, though including all the individuals that women mentioned, were broader, reflecting men's greater mobility and interaction with a wider range of agricultural actors. Men farmers attend seminars and field days and interact with vendors at agricultural shows. They mentioned receiving and consulting literature such as magazines and brochures about products. A few consulted the Internet. For men, lack of access to information was not an issue. Instead, several hinted at a greater challenge -- sifting through the vast quantity of information to find what is useful.

Farmers participating in consolidated value chains rely heavily on a single source of information in that value chain. The farmers in Thika described two processes for accessing agricultural information. For crops that are destined for the local market or the household, their practices were similar to those practices described by the farmers in Nakuru: they sought or received information from extension officers, agro-vets or other farmers. They also listened to the radio and conducted a market survey of prices for local vegetables. These activities were the same for both men and women farmers.

These farmers were also growing and selling flowers destined for export markets. One of the defining characteristics of participation in an export-oriented agricultural value chain, such as flowers, is the control over information flowing through the value chain. Export markets are demanding -- products must meet specific production and processing requirements. Buyers keep a tight control over the information communicated to farmers, often embedding services in the contractual relationship to maintain quantity and quality of the product.

For the farmers producing flowers in Thika, a predictable and reliable arrangement was established between them and the field agronomist provided by the company buying the farmers' flowers. Weekly visits allow the farmers and the field agronomist to share information about planning, pest management and planting. The field agronomist became a trusted and reliable source of information for more than flower production -- she also became a resource for information about other crops on their farms. Though farmers expressed satisfaction with the relationship with the flower buyer at early stages of the agricultural cycle, some felt that they had no option but to trust the buyer when negotiating prices. They do not sell their flowers in the local market, so farmers go along with the price negotiated in the contract. They indicated that they are not dissatisfied with the price or the relationship. The buyer comes regularly, collects their produce and pays weekly.

Neither men nor women farmers appeared to see the relevance of better information about the weather for their activities. Weather-related information helps farmers plan their planting, growing and harvesting activities. A combination of both long-term and short-term forecasts can help farmers decide what crops to plant and when. Yet most of the farmers interviewed explained that they did nothing more than look at the sky. Several acknowledged that they could learn about the weather by watching TV, listening to the radio or purchasing a newspaper, but most farmers felt weather forecasts were unreliable and did not feel that better information about understanding weather forecasting might help them plan.

Women and men farmers consider agricultural information reliable when:

- **It comes from perceived experts.** Farmers go to extension officers and input suppliers because they are considered knowledgeable. Farmers also consult other farmers who are trustworthy and whose farms demonstrate success. Information from anonymous sources is viewed skeptically.
- **It comes from individuals in their social network.** Women farmers in particular mentioned getting information from their husbands, friends and people they meet at church.
- **They can see that it is useful.** Farmers are constantly experimenting with new varieties, seeds and new technologies. They are more likely to trust information when they can apply the advice themselves or see others applying it.
- **They can assess the quality of it for themselves.** There is no single trusted source of information about buyers and market prices. At this stage of the agricultural cycle, farmers mostly take things into their own hands and conduct a mini market survey to gather and triangulate information from various sources. This is true for men and women farmers.

How Farmers Use ICTs for their Farming Activities

Men and women farmers had access to mobile phones, radios and TV, which they used for both farming and personal activities. All of the men and women farmers interviewed had mobile phones. Some men reported having more than one -- one for business and the other for personal use. In several instances, men mentioned that if they lost or damaged their phones, they would take their wives' phones. The primary use of the mobile phone for men and women farmers was to communicate with other individuals. Men also cited using the phone for games, accessing the Internet and listening to the radio, indicating that their familiarity with add-on features of the technology is higher than women's.

> *"Because it's [the radio] in the house, I can keep 30 minutes to listen before I go out. I can still listen if I am near [the house]."*
>
> Woman farmer, Nakuru

Though some men and women farmers said that they owned the radio in their home, it was often shared with other members of the household. Women farmers explained that they listened to the radio because it was in the house; many of the men farmers said that the radio was the best means of getting information because it was portable and accessible through the mobile phone. The advantage of having a radio-enabled mobile phone is that it allows for the actual radio to be left in the house, where women can listen, instead of it being taken to the field or elsewhere.

Men and women farmers use mobile phones to connect with known actors to gain timely and actionable information, facilitate communication on business transactions and access information to improve their farming businesses. Mobile phones are used to call extension agents and inquire about general information on new practices or varieties. Both men and women farmers mentioned using mPesa to send and receive payments from buyers, but fewer women than men mentioned using it for their farming business. Farmers also use mobile phones to gain specific information, such as how to treat a plant disease. The farmer will call the extension agent and describe the symptoms and receive advice over the phone. In some cases, the extension agent will then visit the farm and recommend a treatment. Calls are also made to middlemen to inquire about market prices and to others including customers, buyers or transporters. By calling people within their networks, farmers can connect with buyers and other actors to sell their products in a timely manner and gain specific or general information to improve their farming business.

Farmers prefer making calls with their mobile phones over sending or receiving SMS. Men and women farmers used SMS in Nakuru and Thika, though it was often cited as the

second option after calling. Men farmers in some cases described using SMS to follow up with someone who did not pick up the phone immediately. If SMS was used, it facilitated communication with other farmers already within their social network to arrange meetings.

These findings on SMS use are consistent with previous research in Kenya that found farmers prefer to call extension officers, agro-vets and buyers rather than use SMS services (Crandall, 2011; GSMA, 2012). The reasons for this are numerous. Hellstrom (2010) found that SMS is not widely as used in East Africa as in some other regions and attributed the lack of use in Kenya to per-second billing, which makes it cheaper to call and hang up quickly than to send an SMS. More specifically, Crandall (2011) found that farmers viewed SMS as an "abstract communication channel." SMS messages from unknown sources were not trusted and considered unsafe and difficult to act upon.

Nonetheless, service providers are moving toward integrated uses of ICTs; many are incorporating SMS and interactive voice response (IVR) into their extension programs. Radio programs, such as Mali Shambani, are using SMS to engage farmers. Farm Radio International estimated that listenership increased by up to 20 percent when SMS messages were sent out 30 minutes prior to a broadcast (Sullivan, 2011). Kilimo Media International (KiMI, formerly known as Farmers Voice Radio) is adding an SMS service that would provide key messages to farmers after radio shows and so allow users to store information for future reference. These add-on features increase interaction between the viewer/listener and the program and allows for an off-air connection between the program and farmers.

> *"Before I had a phone [to contact extension officer], I would just do what my mind told me to do."*
>
> Woman farmer, Nakuru

Radio was cited as men and women farmers' preferred way of acquiring agricultural information from an ICT source. In addition to radios being easily accessible, men and women farmers mentioned their preference to listen to programs in their vernacular. For example, many of the farmers interviewed mentioned the local radio program "Voice of the Farmer." Many of the agricultural radio programs are delivered at convenient times generally in the morning or the evening.

Popular radio programs will give advice on a myriad of topics, such as new practices, ways to produce higher quality crops, new varieties, seeds, fertilizers, diseases, technologies, and weather and market information. Despite the perceived trustworthiness of information from the radio, both men and women farmers explained that they seek advice from other sources, such as extension officers or field day demonstrations, to validate what they hear. In several instances, women reported taking specific information learned from listening, applying those practices and receiving favorable results.

The TV was also popular among farmers but not the Internet. Several farmers cited watching TV for agricultural or weather-related information. Shamba Shape Up was cited by many farmers as a useful way to get actionable information on new farming techniques because it allows viewers to request information via SMS about the practices and products showcased during each episode. The Internet was not widely used by men and women farmers. Two men cited using it through their phones for their farming business, but none of the women had used the Internet. Women in Thika saw the benefits of using the Internet to learn about market prices in the Netherlands, where their group's flowers were exported to, and said they would use the Internet if given access to it.

Radio was viewed as the most reliable ICT because it is readily accessible and the information was perceived as valuable. Mobile phones were also mentioned as the most reliable because they allow farmers to confirm forgotten information. Mobile phones also help farmers make contact with middlemen, which can reduce cheating. Though radio was considered the most reliable, farmers cited using a combination of complementary ICTs with non-ICT extension and advisory services to improve their farming businesses.

Lessons Learned

As technology-enabled service provision integrates more fully with mobile phones, women's ownership of and control over mobile phones becomes increasingly necessary if they are to access information. In the densely populated and commercial agricultural areas where the interviews were conducted, all of the women interviewed were in possession of mobile phones. This is not surprising, given how pervasive mobile phones have become in Kenya. Even though Kenya is at the higher end of mobile phone ownership, many women still lack access to mobile phones. Globally, it is estimated that women in low- and middle-income countries are 21 percent less likely to own a mobile phone than men, and that 26 percent of women who are not currently mobile phone subscribers have the potential to benefit from mobile phone services (GSMA, 2010). With agricultural information services increasingly using mobile technology as a dissemination tool, the stakes become higher for reducing the gap between men's and women's access to mobile phones.

In addition to improving women's ownership of phones, it will be necessary to understand how to secure control over those phones or seek alternative methods for accessing mobile phone services. Among the women interviewed, several had effectively lost control over those phones because their husbands' phones had been stolen or they lost them, and they were borrowing their wives 'phones.

The most successful services are likely to be those that combine human and technology-enabled features. Each of the ICTs discussed with farmers had drawbacks for them. Though the radio is popular, farmers cannot see what is being discussed. Farmers still do not consider the Internet a potential source of information. Mobile phones are being used mostly for connecting with individuals in immediate circles, and farmers are not taking advantage of the full range of SMS and other mobile technology-enabled services. One of the most salient aspects of the interviews was the way in which farmers continued to rely on members of their social and commercial networks.

Farmers' existing information channels are built on both social and commercial networks. The individuals in these networks are in contact with farmers regularly. Though farmers do not share the same amount of trust with all of these actors, what they have in common is that the farmers know who they are. So the mobile phone is not viewed as a source of information but instead as a vehicle for connecting farmers with trusted individuals for information. Because farmers rely heavily on their social and commercial networks to access and validate information, services that build on these networks have the potential for being more quickly adopted. Examples of programs that are building on these networks in Kenya include Kilimo Salama and Plantwise (see Table 1 in Appendix 1).

Equipping extension officers with ICT tools and the knowledge to use them will contribute to enhancing trust in and use of mobile technologies. Our interviews with extension officers revealed that they lack knowledge about ICT initiatives that could complement and enhance their efforts. Given their role as trusted information intermediaries, building their knowledge of various ICT-enabled services can enhance both their role and their knowledge, as well as promote the use of ICTs by farmers. A Farm Radio International survey found that 61 percent of extension agents said that radio can improve their reach and extension when they participate in the radio programs (Sullivan, 2011).

> *"I am a farmer because I support him."*
>
> Woman farmer, Nakuru

Women's information networks include their spouses. One of the reasons that EAS has been criticized for failing women farmers is that it has relied too heavily on a "trickle across" assumption that husbands share information with their wives. Targeting women more directly as farmers in their own right is a common recommendation. Yet women consistently mentioned their spouses as transferring knowledge to them. Though this does not mean that EAS should continue to operate on a trickle across assumption, it suggests that women view their husbands as legitimate sources of information and that EAS should engage men and women in the same household directly and to encourage more collaborative learning and decision making.

References Cited

Asenso-Okyere, K., and D. Ayalew Mekonnon. 2012. The Importance of ICTs in the provision of Information for Improving Agricultural Productivity and Rural Incomes in Africa. Working Paper 2012-015. United Nations Development Programme, New York, NY, USA. Available at http://web.undp.org/africa/knowledge/WP-2012-015-okyere-mekonnen-ict-productivity.pdf.

Communications Commission of Kenya (CCK). 2012. Quarterly Sector Statistics Report: First Quarter of the Financial Year 2012/2013, Kenya: CCK. Available at www.cck.go.ke/resc/statcs.html.

Crandall, A. 2012. Kenya farmers' Use of Cell Phones: Calling preferred over SMS." Pages 119-129 in V. Kumar, and J. Svensson (eds.), Proceedings of M4D 2012, Feb. 28-29, 2012, New Delhi, India.

Food and Agriculture Organization (FAO). 2011. The state of food and agriculture 2010-2011: Women in Agriculture -- closing the gender gap for development. Rome: FAO.

Forrest,S. 2011. Increasing Food Security and Empowering Women. Plantwise blog, Aug. 18. Available at http://blog.plantwise.org/2011/08/18/increasing-food-security-and-empowering-women.

Government of Kenya (GOK). 2012. National Agriculture Sector Extension Policy (NASEP). Nairobi, Kenya: Agricultural Sector Coordination Unit.

--.2010. Agricultural Sector Development Strategy 2010-2020. Nairobi, Kenya: Ministry of Agriculture. Available at www.kilimo.go.ke/kilimo_docs/pdf/ASDS_Final.pdf.

GSMA Development Fund and Cherie Blair Foundation for Women. 2010. Women and Mobile: A Global Opportunity. London, UK: GSMA. Available at www.cherieblairfoundation.org/our-work/women-and-mobile-a-global-opportunity.

--. 2012. Striving and Surviving: Exploring the Lives of Women at the Base of the Pyramid. London, UK: GSMA.

Hellström, J. 2010. The Innovative Use of Mobile Applications in East Africa. SIDA Review 2010:12. SIDA. Available at www.sida.se/publications.

Jadhav, A., N. Pshenichnaya, and F. Smith. 2011 Agricultural Value Added Services (Agri VAS): Market Entry Toolkit. GSMA. Available at www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/04/agrivasmarketentrytoolkitgsmafinal-2.pdf.

Johnson, L. Personal communication, Nov. 20, 2012

Kamau, R. Personal communication, Nov. 20, 2012

Kenya National Bureau of Statistics (KNBS) and ICF Macro. 2010. Kenya Demographic and Health Survey 2008-09. Calverton, Maryland: KNBS and ICF Macro. Available at http://www.measuredhs.com.

Ministry of Information and Communication. 2012. Connected Kenya 2017: National ICT Master Plan. : Kenya: Kenya ICT Board. Available at www.ict.go.ke/docs/MasterPlan2017.pdf.

Pshenichnaya, N. 2011. mAgri Programme Case Study: M-Kilimo, Kenya. London, UK: GSMA Development Fund. Available at www.gsma.com/mobilefordevelopment/wp-content/uploads/2012/04/mkilimocasestudyfinal-1.pdf.

Quisumbing, A.R., and L. Pandolfelli. 2009. Promising Approaches to Address the Needs of Poor Female Farmers. IFPRI Discussion Paper 00882. Washington, D.C.: International Food Policy Research Institute.

Sebstad, J., and C. Manfre. 2011. FIELD Report 12: Behavior change Perspectives on Gender and Value Chain Development: a Framework for Analysis and Implementation. Field-Support LWA. Washington, D.C.: ACDI/VOCA and FHI 360.

Sullivan, B. 2011. The new age of radio: how ICTs are changing rural radio in Africa. Ottawa, Canada: Farm Radio International. Available at www.farmradio.org/publications/our-research/.

USAID. 2013. "Shamba Shape Up" ICT and AG Profile. USAID Fostering Agriculture Competitiveness Employment Information Communication Technologies (FACET). Washington, DC: USAID. Available at https://communities.usaidallnet.gov/ictforag/node/382.

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Table 1. Samples of ICT-Enabled Extension and Advisory Services in Kenya.

Name of program	General description	Information on gender-related activities or impacts
Kilimo Salama	Implemented by Syngenta, this initiative aims to increase farmers' access to micro-insurance in the event of drought or excessive rains. Agro dealers act as distributors of the service. Farmers use their phones to purchase the service (by scanning a QR code) and also to receive payouts via mobile money.	Roughly 46 percent of their clients in the regions where the program is active are women (L. Johnson, personal interview, Nov. 20, 2012).
Kilimo Media International (KiMI), formerly Farmer Voice Radio	KiMI, with funding from Airtel, was established in 2012 to continue the efforts of the Bill and Melinda Gates Foundation-funded Farmer Voice Radio in Kenya. The pilot project worked with two national radio stations and six community stations. , Extension agents and farmers worked with radio stations to develop and broadcast agricultural radio shows. Working with Airtel, KiMI is incorporating complementary SMS features to deliver tips and additional information to farmers.	KiMI establishes a gender advisory panel at each of the local radio stations where it broadcasts to ensure that shows address issues that are important to men and to women. Broadcasting schedules are organized to identify peak listening periods for men and for women. Listening groups are also organized by KiMI for women to encourage discussion, learning and exchange of information. Extension officers working with KiMI are trained in ways to include women in their work. For example, both men and women lead farmers are interviewed during shows.
M-Kilimo	Kenya's largest call center and business processing operator, KenCall, launched "M-Kilimo" (www.m-kilimo.com/), an agriculture hotline providing smallholder farmers with access to advice from agricultural experts with a minimum of a bachelor's degree in agriculture and two years of field experience (Pshenichnaya, 2011). Farmers receive information in English, Swahili and other local languages.	Although the program was not designed specifically to reach women farmers, an estimated 43 percent of callers are women farmers, and they make up 31 percent of subscription users (GSMA, 2010),
National Farmer Information Service (NAFIS)	Developed by the National Agriculture and Livestock Extension Program (NALEP) in 2007, this information service provides farmers with agricultural extension information via the Web or a hotline. Information is available for roughly 23 crops and livestock products.	The Agriculture Sector Development Strategy is targeting women by selecting value chains where women farmers are concentrated. Much of the work with women occurs via community interest groups. The ICT-enabled services are not designed to address any specific constraints that women may face. The expectation is that the expansion of Pasha Centres (public ICT centers) will enable women and other groups now to have access to computers from which they can search for Web-based agricultural information.

Name of program	General description	Information on gender-related activities or impacts
Plantwise	Plantwise, an initiative of Commonwealth Agricultural Bureaux International, CABI, establishes plant health clinics at local markets to help farmers address disease and pest issues through contact with a "plant doctor." Plant doctors provide farmers with prescriptions that can be filled with local "pharmacists" (agro-vets). Plant doctors have access to an online knowledge bank for consultation and also for uploading information about diseases and pests that can help in early detection of plant and pest problems.	The location of health clinics in market places is meant to provide men and women farmers equal access to plant doctors. Women are also recruited as plant doctors. In Bangladesh, up to a quarter of plant doctors are women (Forrest, 2011). In Nakuru North in Kenya, 75 percent of farmers who go to the clinic are men. An impact evaluation of Plantwise's activities in Kenya is planned for 2013. The evaluation is expected to quantify gender-differentiated impacts (R. Kamau, personal communication, Nov. 20, 2012).
Shamba Shape Up	This popular reality TV farm-makeover show profiles the efforts of farmers around the country as they adopt new practices that improve their farms. Episodes are aired on Citizen TV in English and Swahili and can also be viewed online.	An estimated 18 percent of rural households in Kenya have television (KNBS and ICF Macro, 2010). Also in rural areas, 22 percent of rural women and 39 percent of men report watching television at least once a week (ibid). It is possible for women and others to watch the show, though the reach is somewhat limited. Some of the men and women farmers interviewed mentioned watching the show. One of the presenters of the show is a woman, and both men and women farmers have participated as guests in the show.

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