



Community Knowledge Workers: Improving Rural Farmer Productivity and Livelihoods

by [Cathy Yi](#) on 04/26/2013 01:04 PM CDT

Networking Services Used: SMS or MMS

1. What problems are you hoping to solve?

[Grameen Foundation](#) has long recognized the important role mobile phones can play in the fight against global poverty. Starting with our Village Phone program in 2003, we have sought to leverage the potential of mobile phones in emerging markets to provide access to affordable and reliable two-way communication to the poor. Today, we are developing mobile phone solutions and using



them in tandem with trusted intermediaries to both disseminate and collect information that addresses the unique needs of the poor and poorest populations. Globally, we focus our efforts in the areas of health, agriculture, financial services, livelihoods and job creation.

In Uganda, 80% of the population lives in rural areas and most people earn their livelihoods and feed their families through agriculture. However, these farmers do not have access to critical

information – like which crops to plant and when to plant them, how to prevent and treat crop diseases and where they can earn the most from selling their produce. At the same time, organizations that seek to improve agricultural productivity are handicapped by the lack of an efficient way to understand farmer needs and challenges, or provide them timely information about proven agricultural techniques.

Grameen Foundation launched its Community Knowledge Worker (CKW) program and corresponding technology platform development in Uganda in 2010. Through the program, we identify and train trusted community members – who are also farmers – to disseminate to and collect agriculture-related information from their farmer neighbours via smart phones. CKWs are nominated by peers within their communities based on their reputation as trusted community leaders with a spirit of service. The CKWs are trained and leased a “CKW Kit” through a micro loan as part of a business-in-a-box which includes an off-grid charging solution, smartphone, training/support and marketing materials. On average, each CKW serves 4-6 neighboring villages, between 500-700 total households.

Over the last three years, we have deployed more than 1,200 CKWs in Uganda who have served their neighbours in over 18,000 villages, while also increasing their own incomes by virtue of their phone charging businesses as well as monthly performance-based remuneration for serving farmers. The program reaches over 238,000 farming households (34% women headed) across 36 Districts in Uganda.

2. How has technology helped to solve this problem? What devices does your solution run on?"

One of the unique and innovative aspects of the CKW model is the CKW technology platform, (built in the cloud on Salesforce.com) which can support and extend to farmers a plethora of information, including information in the context of specific agricultural value chains. Through partnerships with expert organizations and subject matter specialists, we have developed a database of agricultural information that is packaged in a simple and actionable format for rural farmers and transmitted over the Android mobile phone with the follow requirements and features:

- Android OS, v2.2 (Froyo)
- CPU of 528 MHz ARM 11
- Messaging: SMS, MMS, Email, Push Mail, IM
- Browser: HTML, Adobe flash
- Radio: Stereo FM radio with RDS
- GPS with A-GPS support
- Java via java MIDP emulator
- Predictive text input (swype)
- Camera: 3.15 MP, 2048 x 1536 pixels +; geo tagging; video
- Display: Capacitive touch screen, 256 colors;240 x 320 pixels, 2.8 inches; Accept vibrations, MP3 ringtones
- Open Source Mobile Applications (e.g. Open Data Kit)

Today, we have content available on 35 organic crops, 27 non-organic crops, 10 animals, service provider information (from veterinarians to input suppliers), weather and market prices. We also work with other organizations to customize the content made available through our mobile information dissemination tools based on their needs. This agricultural content database is pre-loaded onto a CKWs' Android phone, and updated regularly when they are within network range, so that they can still have access to content even when they are in remote areas without mobile service.

All farmers served by CKWs are profiled to determine their relative poverty level, using Grameen Foundation's [Progress out of Poverty Index](#), a country-specific scorecard of 10 indicators that are most correlated with poverty in that country. Farmers owning mobile phones are also added to our SMS platform and call center database. We use farmer profiles in a CRM database to send targeted farming-related tips and reminders during the agriculture growth cycle or provide reminders of upcoming training events and meetings.

Our current suite of mobile applications for agricultural extension services in Uganda includes:

- E-extension agent-assisted information applications, such as a "Search Application" which carries expert agronomy information on over 35 crops and 8 livestock – complete with images for disease diagnosis and video on farming as a business – along with weather information and market prices;
- Mobile data collection, analysis and reporting services;
- Real-time field visibility – M&E dashboard using mobile data collection;
- Direct-to-farmer applications, including SMS broadcasting capabilities and a USSD channel that allows detailed agricultural information to be accessible using any type of phone;
- Farmer Voice Radio with CKWs linked to community radio stations; and
- An agricultural call center staffed with highly skilled agricultural experts on call who provide solutions on a broad spectrum of agricultural topics (crops, livestock, weather, market information, etc.).
- An acreage mapping tool that uses GPS to determine the production potential of small holding.

Farmers benefit in two ways from the services of their trusted CKW:

1. they immediately get access to up-to-date and relevant information on weather, agronomy practices, crop disease prevention, farming service providers and markets; and
2. by answering the CKW's survey questions on their farming habits and challenges, they provide critical al data that organizations serving them can analyze to improve services and better meet their needs.

CKWs themselves benefit from operating the service:

1. increased income from \$1.25 USD per day to up to \$3 USD per day from providing extension services and through conducting surveys for data customers; and becoming an off-grid energy entrepreneur; and
2. human capital development through in-service and remote training.

Grameen Foundation has also engaged independent consultants to rigorously evaluate the impact of our work in Uganda. From their analysis, these consultants have concluded that CKWs:

- Increased access to agricultural extension services by 34%;
- Increased farmers' agricultural knowledge by 17%;
- Increased knowledge of market prices by 20-35% leading, for example, to a 37% increase in average maize sale price;
- Of those that use our services, 92% have reported taking action based on the information they received from CKWs, even on information that requires the farmer to make expenditures in order to implement the recommendations.

In sum, Grameen Foundation is proving that the combination of a network of human intermediaries equipped with mobile technology can reach poor and remote farmers with the services they need to improve their farming businesses. It has the power to transform agricultural extension by increasing the frequency of on-farm visits, promoting community-based peer learning and providing on-demand access to actionable information. At the same time, this network can serve as a platform for delivering other value-added products like financial services and promoting new business opportunities.



3. Where is this solution being used? What company provides the networking service in your area?

The CKW mobile suite of tools is currently being used in Uganda and Grameen Foundation is in the process of replicating it in Colombia and Kenya. In Uganda, Grameen Foundation works with MTN as our primary mobile telecommunications operator. MTN Uganda is part of the MTN Group which operates in 21 countries across the Africa region.

Grameen Foundation has developed a real-time monitoring and evaluation dashboard with data visualization to transparently track CKW Uganda operational progress and impact proxies. It can be viewed at <http://grameenfoundation.force.com/ckw/Dashboard>.

4. Describe the current and future reach of your program. How can it be scaled to reach a wider audience?

For over 10 years, Grameen Foundation has successfully developed business models and mobile solutions across four sectors (health, agriculture, financial services, livelihoods) and three continents (Sub-Saharan Africa, Asia and Latin America) enabling micro-entrepreneurs to use the mobile phone as an asset, poor individuals to access actionable information, and private and public sector actors to better understand and meet the needs of the poor.

The mobile phone provides a means for exponentially expanding the reach and frequency of communication with the poor while at the same time reducing costs to development initiatives. However, many mobile solutions struggle to achieve scale, either because they have not placed enough attention on the human aspect of technology adoption or because an underlying business model was lacking. Our approach is unique in that we combine a network of human intermediaries with mobile phones, supply chain partnerships, access to credit and a compelling business model for deep rural reach, long-term sustainability, and quick adoption of new technologies and techniques.

While other services exist to meet specific farmer information needs (e.g., market prices), none in sub-Saharan Africa deliver the entire suite of services that CKW offers, at the last mile, and at no cost to farmers, since the CKW model has been designed to subsidize farmer services by offering tools and services to other organizations for a fee.

Grameen Foundation's CKW model accelerates the impact of existing extension models by extending services to the hardest to reach, poorest farmers. It increases the relevance, timeliness, and actionability of content and provides a reinforcement mechanism in the community: the CKW him/herself. We are demonstrating an increase in knowledge and adoption of techniques known to improve yields and incomes, and ultimately to seek to prove a highly cost-effective model that can be scaled to reach millions of smallholders throughout Sub-Saharan Africa.

In addition to working in Uganda, Grameen Foundation launched its agricultural financing and mobile technology initiative in Colombia in 2011 to reduce rural agrarian poverty by addressing identified market gaps in reaching and understanding farmer needs. A key strategy component is expanding our proven CKW model and project learnings in Uganda and adapting our approach to the Colombian context to improve smallholder farmers' access to markets and information, as well as create a channel to collect information from the poor on a real-time basis to increase the efficacy of projects and the design of appropriate products and services that result in an improvement in their livelihoods.

5. If you are one of the winning entries, how will you use the award money?

If selected as a winning entry, Grameen Foundation would use the award money to support the organization's global operations. The greater value of being selected as a winner would be the opportunity for our initiative to be publicly recognized by Cisco Systems, a leading global technology company. To leverage the public visibility from the award, we would develop a series of targeted public communication activities to advance understanding our "human networks + technology" programs among the general public, government leaders and the philanthropic community.