FEED THE FUTURE
The U.S. Government's Global Hunger & Food Security Initiative

FTF ADVANCE II PROJECT

ICT DEPLOYED FOR SUSTAINABLE IMPACT

April 2020

USAID
FROM THE AMERICAN PEOPLE

ACDI VOCA
Expanding Opportunities Worldwide

BACKGROUND

Digital technology provides opportunities for developing countries to accelerate economic development. Farmers, especially smallholder farmers, require information on new technologies and market requirements to improve productivity and competitiveness. Many countries in Africa and elsewhere have increased investments in digital technology infrastructure to boost access to information and services.

Ghana is recognized as a leading country in mobile connectivity and mobile phone penetration. A publication by Gregory Omondi[1] citing a presentation made by Kenechi Okeleke, of GSMA Intelligence in Ghana, indicates that, at the end of 2019, 55 percent of Ghanaians were using mobile phones compared to the West Africa regional average of 44 percent. It also indicates that, as of the Q3 in 2019, Ghana had 16.7 million unique mobile subscribers, 15.1 million smartphone devices, and 10.7 million mobile internet users. However, total mobile phone subscription is over 100% and penetration by service providers (2G/3G) is almost 95%. The same GSMA publication indicates there are 13.1 million active mobile money accounts (out of 25 million registered), compared to 12 million registered bank accounts, indicating the key role that mobile technology plays in supporting financial inclusion across the country. The agricultural sector has also experienced increasing deployment of digital technology. Ghana's Ministry of Food and Agriculture operates the e-Agriculture center, which provides farmers with agricultural information. Other public and private sector actors have also deployed digital tools in the agricultural sector such as short message service (SMS) text, digital voice messages, interactive voice response systems, Internet, mobile apps, and digital finance tools through their development projects. This brief describes the integration of digital technology by the Feed the Future Ghana Agricultural Development and Value Chain Enhancement project (FTF ADVANCE II) during its implementation.

APPROACH

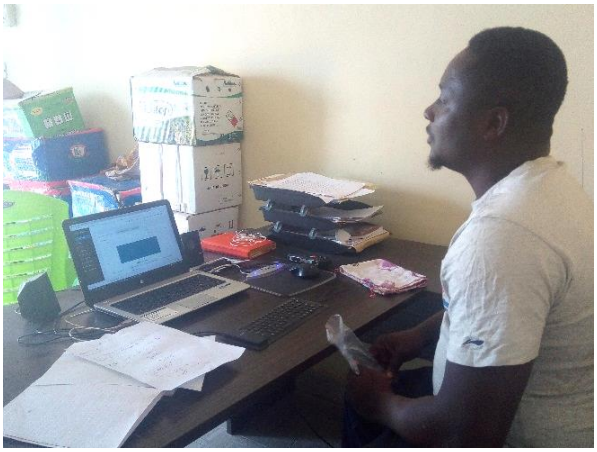
The project integrated digital technology in six areas of implementation:

1. Support efficient management of outgrower businesses (OBs)
2. Promote inclusive financial services
3. Promote technology adoption and behavior change
4. Promote community radio for behavior change and action
5. Digitize for efficient data management

[1] The state of mobile in Ghana's tech ecosystem.(dated February 2020) https://www.gsma.com/mobilefordevelopment/blog/the-state-of-mobile-in-ghanas-tech-ecosystem/

1. ICT tools for efficient management of outgrower businesses

The project reaches its main beneficiaries, smallholder farmers, through outgrower businesses or OBs. Outgrower businesses rely on smallholder farmers for the supply of produce to meet market demand and contractual obligations, and the OBs secure this supply by providing inputs and services (mostly on credit) to smallholder farmers. The project supported 60 OBs to digitize their operational records and enhance computer-assisted data recording and analysis by providing information and communications technology (ICT) equipment through its grant program. Each of the 60 OBs received a laptop, a multifunction printer/scanner/photocopier, and a power surge protector. The laptop included business software (TRACKER) which helped the OBs to record and maintain records. After this provision, the project collaborated with the University for Development Studies, Kwame Nkrumah University of Science and Technology, and the University of Energy and Natural Resources and trained more than 220 student interns to support the OBs. The interns helped the OBs analyze service records provided on credit to smallholder farmers and to track repayments, which improved business record keeping among OBs. A study conducted in 2019 showed that 249 OBs (representing 94 percent of those interviewed) reported keeping records compared to only 22 OBs (11 percent of those interviewed) in 2016.



Teddy Addah, an OB and owner of Kolada Farms and Trading Company Ltd. in Navrongo in the Upper East Region, observing data on his laptop.

Field agent explaining a point to the facilitator at the training in Techiman.

OBs employ field agents who manage the smallholder outgrowers through guidance and supervision. The project collaborated with Grameen Foundation to deploy AgroTech SmartEx application, a mobile/tablet-based offline application, to enable OB field agents to capture outgrower information and provide agronomic information to outgrowers in the field. The information captured from the outgrowers included biodata, farm plans, crop budgets, and activities conducted during the season. The application also provided tailored extension advisory services based on the outgrower's profile and end of season performance. The project trained 158 OB field agents to provide ICT-based extension advisory services to their outgrowers using tablets with the AgroTech SmartEx application[2], portable "Pico" projectors, portable speakers, and memory cards containing visuals and videos of extension messages on maize, soybean, and rice. Using these tools, the field agents provided direct training to more than 8,800 smallholder farmers, resulting in increased adoption of improved technologies and higher yields.

[2] The AgroTech SmartEx is a mobile application that provides a field agent of an agribusiness establishment with tools for closer supervision, tailored coaching, and efficient farm record management to improve farm performance, profitability, credit repayment, and assessment of credit worthiness.

2. Digital Financial Transactions

Most of the project's beneficiaries are in remote communities in northern Ghana with limited or no access to formal financial services. To mitigate this situation, the project collaborated with financial institutions and telecommunications companies to provide digital financial services (DFS) through mobile money to promote cashless transactions among value chain actors to enhance business efficiency, reduce risk associated with cash payments, and promote inclusion in the digital economy. Adopting DFS has improved smallholder farmers access to finance, credit, business transactions, and recovery processes. Most input dealers have established agents (usually lead farmers) in the communities to provide services to smallholder farmers and receive payments through mobile money. Additionally, mobile money has become a savings platform for most smallholder farmers because it provides a secure way to keep money.

Smallholder farmers registering for mobile services.

Between FY17 and FY18, the project trained more than 3,000 beneficiaries, including 692 women, on digital finance and linked more than 4,700 actors to mobile money. The actors include OBs, input dealers, and smallholder farmers who use the service for business transactions. Additionally, during FY19, 119 village saving and loan groups with an estimated 3,000 members (mostly women) benefited from DFS and 18 groups started using the service in FY19.

3. Direct-to-Farmer Voice Messaging and Short Messaging Service (SMS)

The project partnered with several digital platform agriculture information service providers, including Esoko, Viamo (formerly VOTO Mobile), Ignitia, and Farmerline, to provide daily information on weather forecasts, market prices, and good agronomic practices to farmers. The information provided and received has supported the adoption of technology and improved yields. From 2014, about 20,000 farmers benefitted from this service each year. Between June 2014 and March 2017 for example, Esoko delivered 1,583,051 text/voice-based messages to beneficiary farmers across all operational zones. Viamo also supported OBs to send voice messages to outgrowers on their available services, and in collaboration with AFGRI (former representatives of John Deere in Ghana), tractor operators received voice messages on tractor maintenance in local dialects. Viamo (formerly VOTO Mobile), in partnership with Vodafone Ghana, expanded their services to offer a free voice messaging service (3-2-1 Service) to farmers and the general public. This service provided information on agriculture, weather, democracy and governance, health, water, sanitation and hygiene in six languages (English and five Ghanaian languages). The project encouraged smallholder farmers who have telecommunication coverage in their communities to acquire Vodafone sim cards to take advantage of the agriculture-related features of the 3-2-1 Service.

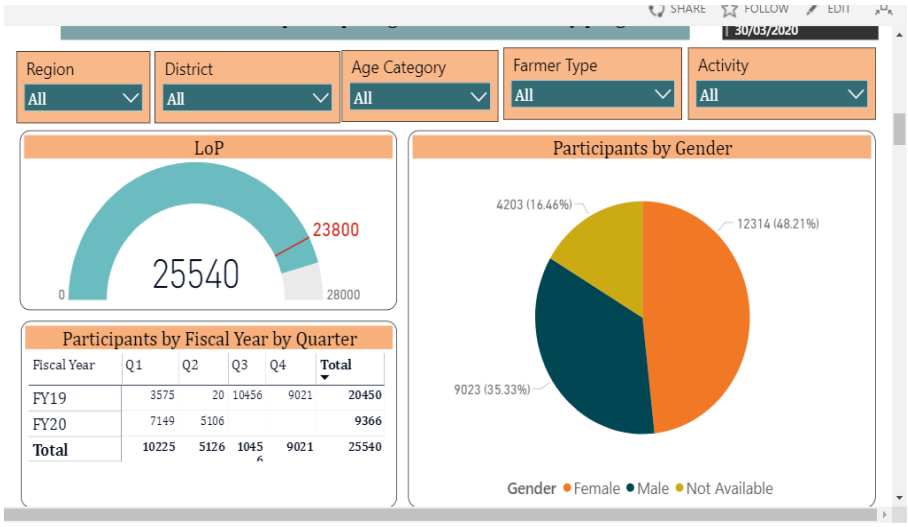
4. Community Radio for Behavior Change and Action

ADARS radio's presenter in Kintampo delivering FTF ADVANCE's fall armyworm message

The project collaborated with 31 radio stations to disseminate messages on good agronomic practices, gender inclusion, weather forecasts, market demand and prices, environmental issues (anti-bushfires and safe use of pesticide), and on the management of the fall armyworm outbreak. Radio broadcasts were part of the behavior change communication strategy directed at improved knowledge and increased adoption of improved technologies and sound environmental management. Since 2015, the project delivered educational messages to more than 4,1 million community members across 87 districts in northern Ghana. The messages were in English and 10 local languages (Twi, Dagbani, Gonja, Likpakpa, Dagaree, Wali, Sissali, Gurune, Kusal, and Buli). Working with partner radio stations, the project established and supported more than 1,000 radio listenership clubs. Each club had 25 smallholder members at a minimum and received solar radio sets provided as in-kind grants by the project. The club members meet, listen to, and learn from broadcast programs. They are also able to discuss and contribute during live phone-in sessions. Both radio stations and listenership clubs benefitted from this initiative. The radio stations used the feedback to improve their programs and club members improved their knowledge.

"Our collaboration with ADVANCE in delivering agricultural program to farmers in the region has given us an edge over other radio stations. It has made us popular and we have started receiving radio awards nomination" James Kuunsaana Donkor, General Manager W 93.5 FM in Wa.

5. Digitizing for Efficient Data Management



The project counts a multitude of participants whose activities, outputs and impact are tracked and captured on a timely basis. On average, the project worked with 21 categories of actors in addition to consultants and local NGOs engaged in project activity implementation. To adequately capture the actions and data associated with these actors, the project design dashboards in the Learning, Evaluation, and Analysis Platform (LEAP), which integrates data capture, management and visualization technologies into a streamlined monitoring and evaluation and learning (MEL) system to provide efficiency and traceability, as well as to facilitate data-driven decision making for project managers. The data-capture component includes mobile-based applications (Magpie, Datawinners and Open Data Kit used at various time of project's life) that ensure real-time data received from remote locations. At the center

of LEAP is the data visualization component supported by Microsoft Power BI, a business intelligence software programmed to display project indicators' reached targets; thus providing project managers with up to date progress on implementation.

In addition, the project introduced a data capture interface (DCI) application using a card reader system "SmartCard" and gave unique magnetic cards to all project participants, which capture their biodata information and agricultural activities such as training, services received from OBs and other project's participants. This eliminated the risk of double counting project's participants.

In 2019, the project established a knowledge management system that is designed to cultivate information, learning and innovation. The system uses captured data to support OBs' business linkages with various value chain actors and development of their networks to meet their business and advocacy needs. The system combines a quick response code (QR Code), a uniquely assigned scannable code, with an open data kit (ODK) software that allows for offline and online mobile data collection and analysis. The system enables individual OBs to have access to their service data and analyze them through dashboards. Through this system, each outgrower is identified by a farm service card containing its QR code, which a field agent scans with a mobile device housing the ODK software. The information is analyzed through a central server and each OB can view its service provision records and aggregate information such as outgrowers per service, services' revenues, total cash payments, credit recovery, etc.

Sample farm service card showing unique QR Code (left) and landing page for ODK Collect, mobile app (right) used to scan the code and record service provision

SUMMARY OF RESULTS

The project achieved the expected results and impact. At the core of its activities was enhanced access to quality and actionable information to improve agricultural productivity. The use of ICT in ensuring enhanced access to information significantly contributed to impact such as improved yields, productivity, and profits. Through ICT, the project was able to provide more people, especially smallholder farmers, with more educational messages and improve information consistency.

www.feedthefuture.gov