



# INFORMATION COMMUNICATIONS TECHNOLOGY FOR DEVELOPMENT

**Information Communications Technology for Development** (ICT4D) involves using **Information Communications Technology** (ICT) to solve problems and improve people's quality of life, especially for those in developing countries, where appropriate technologies can accelerate stages of development. In this way, ICTs such as mobile phones, the internet, radio and other technologies that allow people to more easily connect with each other can be used as tools to share important information, helping farmers to increase agricultural productivity, aiding in the protection of the environment and facilitating the collection of vital information in disaster situations.

In 2014, the number of mobile telephone connections surpassed the world's population (*gsmaintelligence.com*). According to the United States Agency for International Development, out of the 7 billion global mobile subscriptions, **4.5 billion are found in developing countries**. People are not just using mobile and internet technologies for simple text messages, emails and calls, but also for an increasing array of activities and services, such as banking, knowledge sharing and education.

Through our core values of **Innovation** and **accompaniment**, Lutheran World Relief and our partners are equipped with the flexibility and means to adapt ICT to provide lasting solutions to poverty, injustice and human suffering.

LWR's core value of **Innovation** drives us to learn, adapt and grow, and the incorporation of ICTs into our programming flows naturally from this effort. Our field offices, working closely with our partners, have the freedom to employ a number of different ICTs that best meet a community's needs.

LWR's core value of **accompaniment**, which ensures our partnerships are based on mutual trust and respect, shared values and objectives, accountability and transparency, and a willingness to learn, adapt and grow together, makes certain that our ICT4D initiatives are easily adapted by the people we serve and are appropriate for their context, as they work with dignity to improve their lives.



**Lutheran World Relief**  
SUSTAINABLE DEVELOPMENT. LASTING PROMISE.

## TECHNOLOGY IN AGRICULTURE

LWR works with smallholder farmers who need skills, access to information and financing to participate as empowered agents in agriculture. LWR's work in ICT for agriculture focuses on creating, engaging and improving local knowledge networks to improve the lives of these farmers, so that they can feed and support their families.

### CENTRAL AMERICA: MOBILE COCOA TOOLKIT

LWR has developed an innovative and user-friendly guide designed to help cocoa farmers, cooperatives and agricultural extension workers improve their cocoa production and processing, while also promoting inclusive growth, prosperity and social justice. The Cocoa Toolkit includes 10 training modules on a variety of topics, including plant maintenance, post-harvest processing, and fermentation and drying. It is available in the farmers' primary language of Spanish.

Originally published in printed form, the Cocoa Toolkit has been used by extension workers to help train farmers and as a resource for farmers when tending to their land. Working with local mobile app creators, LWR's Cocoa Toolkit is now available in a digital version, which extends its reach, allowing farmers and extension workers who may have not been able to access the printed version the ability to download and view it on their phones.

The project aims to reach 5,000 app users in El Salvador, Honduras and Nicaragua. LWR is training *facilitadores*<sup>1</sup> and farmers participating in the project on how to use the toolkit app. The Toolkit is available for download through Google Play on Android phones and online at [cacaomovil.com](http://cacaomovil.com).



### NICARAGUA: USING POPULAR ICT TO IMPROVE KNOWLEDGE NETWORKS

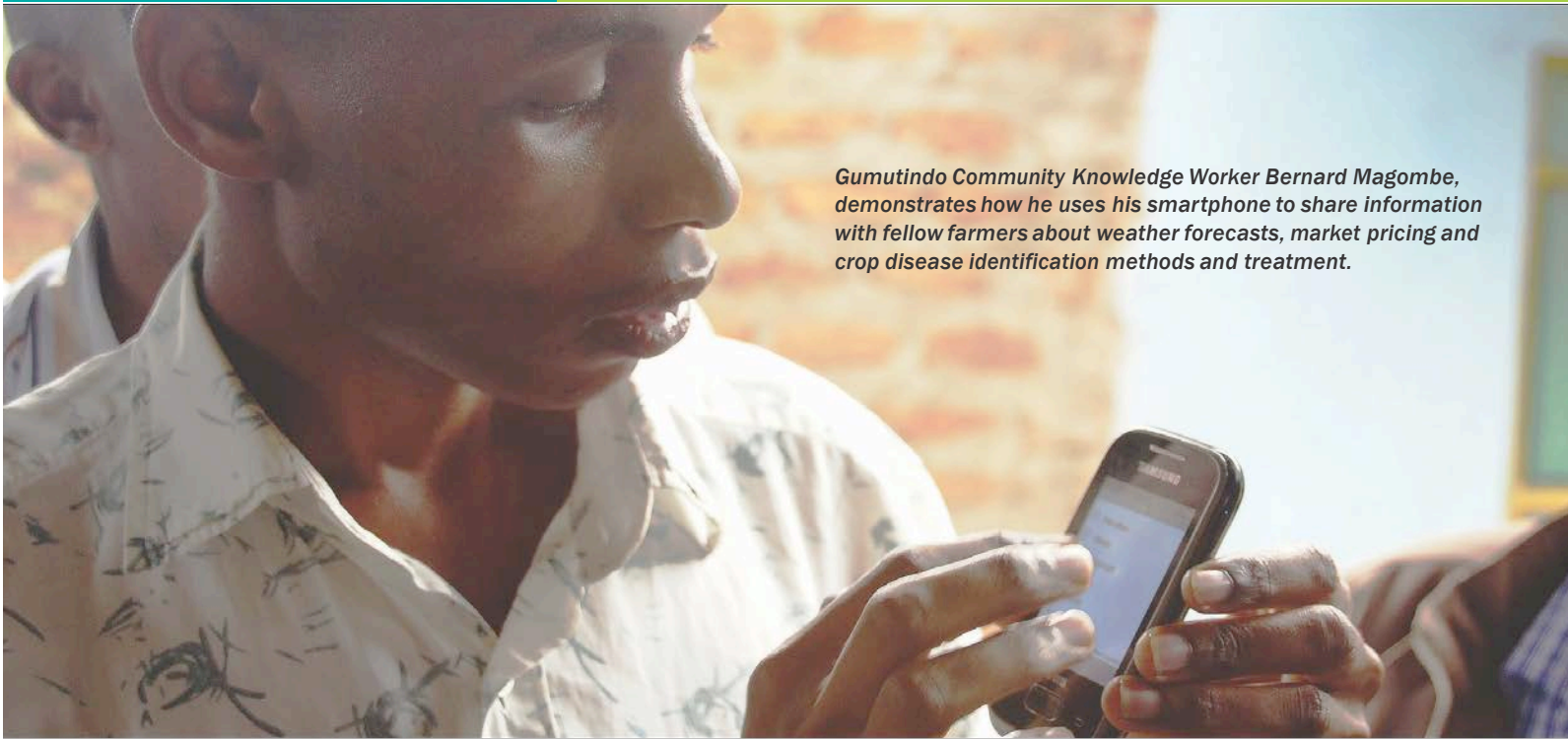
In its Climate Change Resilience in the Coffee Sector project, LWR is using the well-known instant messaging application WhatsApp. In many countries, WhatsApp is a more cost-effective way of sending text and voice messages, as it only utilizes a mobile service's data network.

With our partner, Café Nica, LWR uses the instant messaging app to support efforts to connect coffee farmers with agricultural experts. Farmers are able to easily access these local knowledge networks and can also contribute their own expertise. Farmers and extension workers are able to share videos, photos and technical information about plant diseases, crop management and climate variations, among other topics. To ensure the inclusion of as many farmers as possible, "promoters," who tend to be younger members of project participants' families, send text messages to producers who may have older mobile phones without the capacity to access the internet.

By using a highly popular communications medium, time and distance are no longer barriers to receiving agricultural extension services. The farmer who previously had to wait days for an extension worker to visit now has the ability to ask questions, and even answer other farmers' questions, via WhatsApp. Extension workers and Community Knowledge Workers<sup>2</sup> also benefit: less time spent on travel means more time available to do other work.

<sup>1</sup> *Facilitadores* are extension agents who work with communities and cooperatives, in support of farmers.

<sup>2</sup> Community Knowledge Workers (CKW) are local community members trained to use Android phones to disseminate and collect agriculture-related information, such as crop production and animal husbandry techniques, market prices, weather information, transportation and outputs.



*Gumutindo Community Knowledge Worker Bernard Magombe, demonstrates how he uses his smartphone to share information with fellow farmers about weather forecasts, market pricing and crop disease identification methods and treatment.*

## **UGANDA: SUPPORTING FARMERS AND EXTENSION WORKERS THROUGH ICT**

In the Sustaining Enterprises for Trade Engagement (SENTE) project in Uganda, LWR is using mobile phones to improve the agricultural extension services provided to farmers in rural areas. Each Village Enterprise Agent, a local farmer who assists other farmers, is trained to use an Android smartphone with a TaroWorks data collection platform installed to help them carry out their services to farmers. Farmers' profiles are saved to a database that Village Enterprise Agents can access to recall the records of their interactions with a particular farmer and the specific issues that farmer was facing. This case management tool helps Village Enterprise Agents to more effectively manage their relationships and tailor their visits to the farmer's needs. The phone's function as a data collection tool also helps project management monitor whether its targets are being met and where resources are being used effectively and efficiently.

As Village Enterprise Agents often have to work in rural areas where mobile connectivity is not readily available, the app is able to hold collected data until connectivity is restored. The app is also able to generate reports from its project-level dashboard.

## **UGANDA: MOBILE BANKING PROJECT**

In our Coffee Revival Project in Uganda, LWR is using mobile phones to modernize the traditional practice of village savings and lending groups. In many communities, a few trusted individuals manage the financial assets of a village savings and lending group, acting as gatekeepers by retaining the keys to a safe

box containing the group's funds. With the rise in popularity of mobile banking, phones can be used to build on this traditional gatekeeper model by digitizing the process. The access to the group's funds is still managed by a group of trusted community members, but transactions can be made remotely and quickly using mobile technology.

Using technology to advance the community banking model increases the security of the village and savings group's funds. Instead of keeping the money in a safe box in a community member's home, where there is always a threat of theft, mobile banking places the money in the trust and security of a bank. Additionally, there is more transparency involved in the process as savings and lending group members can check on their funds through their phones. Each group has a SIM Card holder, three PIN Keepers and three SMS Alert receivers. For each transaction to be complete, after the SIM CARD holder initiates it, the three PIN Keepers must enter their PINs in their phones. After that, each SMS Alert receiver receives a text notification.

All project participants, including LWR and partner staff, partner banks and community members have been consulted and sensitized to the special considerations related to mobile banking. As part of the project, bank accounts for participating communities were opened and handed over to the appropriate community leaders. LWR's partner staff and Community Knowledge Workers support the communities in navigating the mobile banking system.



## PHILIPPINES: EFFICIENT SURVEYS, STRONGER RESPONSE

After Typhoon Haiyan hit the Philippines, LWR employed Open Data Kit to develop and administer tablet-based surveys to collect baseline information on the affected communities. In any post-disaster setting, being able to collect and analyze data on who was affected, as well as on the scope of the damage, is crucial in formulating an effective response. Using tablets to collect data in this project increased its accuracy and helped shorten the time needed to gather information from communities affected by the typhoon, facilitating a quicker and more effective rollout of emergency relief operations.

## PHILIPPINES: EMPOWERING CACAO FARMERS ONE TEXT AT A TIME

On the Philippine island of Mindanao, LWR promotes the production of cacao as a means of increasing the productivity and income of smallholder farmers. Since many farmers in the region are unfamiliar with cacao or with its proper care, they need detailed information on its cultivation, harvesting and post-harvesting processing to supplement and trainings they receive on proper cacao farming practices. To help meet this need, LWR and its local partner, Cacao Industry Development Association of Mindanao, Inc. (CIDAMi), developed Kakao Konek, a text message-based application that allows farmers to receive quick responses to their questions about cacao and cacao nursery management.

Farmers simply text keywords or questions related to cacao to the Kakao Konek database, and they receive an automated text message with their requested information within a matter of minutes. A database administrator is available during business hours to manually respond to any questions the system cannot answer automatically.

Kakao Konek uses the open source text messaging software FrontlineSMS to house the database and facilitate the automated question-response mechanism. CIDAMi consulted farmers on which keywords and information should be included in the database, and the administrator continues to add to the database as new questions come in from farmers. When farmers sign on to use the Kakao Konek service, they receive a list of the database's keywords for their reference. The most common keywords farmers use are: prices, cacao variety, pest and diseases and their management, and planting procedures.

Since nearly all farmers in the Philippines have cell phones, but not necessarily internet access, the text messaging-based tool has the potential to significantly expand and expedite LWR's technical support to farmers wishing to begin cacao production.

*Mila V. Goc-ong, who lives in Paquibato District, selects the keywords she will text via the Kakao Konek system to find out about the current prices for dried cacao beans. From Kakao Konek's answer, she learned that she could sell dried cacao beans in Calinan District for 30 pesos more than she could in Paquibato, which she has now started to do.*



## UGANDA: BUILDING A COMMUNITY OF KNOWLEDGE WORKERS THROUGH ICT

To improve the efficiency and reach of extension services beyond a few technical specialists, LWR is leveraging ICT in two projects in Uganda in partnership with the Grameen Foundation.

The first is the Coffee Revival Project, which targeted 10,000 beneficiaries in the greater Mpigi area in central Uganda. The other is the Climate Adapted Farming on Mt. Elgon (CAFÉ) project, targeting 15,000 farmers on the slopes of Mt. Elgon on the border of Uganda and Kenya.

Both projects used ICT by first identifying trusted community members to train as Community Knowledge Workers to disseminate and collect agriculture-related information. Grameen's agricultural content database is also pre-loaded on smartphones which allows Community Knowledge Workers to access content, even when they are out of network range. This data is used to guide farmers on production and marketing decisions.

## TECHNOLOGY IN EMERGENCY OPERATIONS

With global trends showing increasing numbers of people at risk for natural and human-caused disasters, as well as related rising economic costs, LWR is committed to helping vulnerable communities prepare for as well as mitigate their disaster risks. When responding to complex natural disasters and humanitarian crises, ICTs ensure LWR's emergency programming is not only fast, but that it effectively meets the immediate needs of those affected so that they may begin their long-term recovery as soon as possible.

## THE WAY FORWARD

LWR is continually looking to improve our capacity to use ICTs in development. Already, some of the projects are contributing to organizational learning. The use of WhatsApp in Nicaragua has established knowledge networks that are likely to continue long after the end of the project. The TaroWorks platform in Uganda is also promising, giving project management a powerful tool to monitor the effectiveness and efficiency of its efforts. In future projects, LWR will explore solutions to scale up these ICT4D efforts.



*A Gumutindo Community Knowledge Worker, Frederick Sande, accesses information about coffee farming on his smartphone.*



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