

ICT Update

a current awareness bulletin for ACP agriculture



<http://ictupdate.cta.int>

Specialised software improves efficiency of farm inspections in **Mexico**

Shea butter producers in **Mali** use ICTs to market their products

An ICT cooperative develops rural connectivity in **Ethiopia**



Cooperatives

- 2** Editorial
ICTs boost farmer cooperation
- 3** Perspectives
The bridge between farm and market
Jethro Greene

Feature

- 4** A standard system
Yael Schwartzman, Tapan S. Parikh and Mario Vila

Case studies

- 7** A program to build trust
Rop Kiplagat
- 8** The market spread
François Laureys, Bénédicte Penda Marcilly and Oussen Zongo
- 10** Collaboration in communication
Mebratu Tsegaye

TechTip

- 11** Send updates via SMS

Q&A

- 12** Cooperating with farmers
Agnes Namuhisa

ICTs boost farmer cooperation

Working together in a cooperative has many advantages for farmers. Collating their harvested crops means they can sell in bulk, demand better prices and have greater bargaining powers with buyers. The cooperative can make use of the broad experience and skills of its members. Those with knowledge of marketing, for example, can promote the cooperative's products, while others can share cultivation and harvesting techniques. Pooling resources also creates the opportunity to buy expensive equipment, such as food-processing and packaging machinery. Many cooperatives now also invest in communications technology to help train farmers, find new markets, improve management processes and deliver information services to their members.

Coprokazan, a cooperative based in southern Mali, started using ICTs in 2006. Since then, production and profits have more than doubled. With

Coffee Growers Association of Oaxaca (CEPCO), in Mexico. Their inspectors use an open source application installed on cell phones to gather data from members' farms. DigitalICS replaces the old handwritten forms previously used, and makes the process of collecting information more reliable and efficient. Inspectors download the data at the main cooperative office, and the software produces automatic reports for evaluators and for external fair-trade certification agencies.

Using information gathered on previous occasions, inspectors give farmers specific advice on how to increase coffee production and improve quality in the next growing season. The inspectors also use their cell phones to take photos of the crops to check on progress, and can record audio feedback from farmers. The photos and audio can be used on the website to promote the cooperative's products to consumers, and inform them of community improvements realised from the extra income gained from the premium price paid for fair-trade goods.

In Ethiopia, a broad coalition of individuals, businesses and organisations have worked together to establish an ICT cooperative in the town of Butajira. By buying shares in the new cooperative, members raised enough money to set up a centre with 15 computers, an internet connection, printers and fax machines. The centre provides business services and computer training. Two local cooperatives, serving farmers and residents of the surrounding rural communities, are the main partners of the ICT cooperative. Combined, they have more than 7000 members, who all now have access to the centre's services.

Cooperatives have strengthened farming communities for many generations, combining the influence of many individuals to give them greater power in the marketplace, and providing support when harvests fail. ICTs are becoming increasingly indispensable to many cooperatives, enabling them to communicate with members and offer new opportunities to small-scale farmers. ■

As well as increasing their income, the women of Coprokazan saw that economic development also gave them more autonomy and greater equality

just three computers in their main office, they have built a website to promote their products, contacted new buyers using e-mail, and streamlined their administration procedures so that they can take on and effectively manage more members.

The cooperative, mostly made up of female shea butter producers, also has a video camera and a few digital photo cameras. They use these to produce training materials to help members improve production and packaging processes. As well as increasing their income, the women of Coprokazan saw that economic development gave them more autonomy and equality with men, who traditionally control household finances.

Improving quality to increase income is an important goal for the

ICT Update



ICT Update issue 55, June 2010.

ICT Update is a bimonthly printed bulletin with an accompanying web magazine (<http://ictupdate.cta.int>) and e-mail newsletter. Each issue of ICT Update focuses on a specific theme relevant to ICTs for agricultural and rural development in African, Caribbean and Pacific (ACP) countries, and includes feature articles and annotated links to related web resources and projects. The next issue will be available in August 2010.

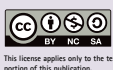
Publisher: CTA Technical Centre for Agricultural and Rural Cooperation (ACP-EU). CTA is an institution of the ACP Group of States and the EU, in the framework of the Cotonou Agreement and is financed by the EU. Postbus 380, 6700 AJ Wageningen, the Netherlands. (www.cta.int)

Production and content management: Contactivity bv, Stationsweg 28, 2312 AV Leiden, the Netherlands. (www.contactivity.com)

Coordinating editor: Rutger Engelhard / Editor: Jim Dempsey / Copyediting: Tim Woods (English), Jacques Bodichon (French) / Layout: Anita Toeboosch / Translation: Patrice Deladrier / Cover Photo: Picture Contact / Alamy / Editorial advisory committee: Peter Ballantyne, Oumy Ndiaye, Dorothy Okello, Kevin Painting

Copyright: ©2010 CTA, Wageningen, the Netherlands

<http://ictupdate.cta.int>



This license applies only to the text portion of this publication.



Jethro Greene (ectadsvg@yahoo.com) is coordinator of the Caribbean Farmers' Network (www.caribbeanfarmers.org) and chairman of the Eastern Caribbean Trading and Development Company (ECTAD)

Our experience at the Caribbean Farmers' Network (CaFAN) shows that farmers in the region benefit greatly from working in 'clusters'. Clusters are organised either geographically, where the group of farmers live close to each other, or thematically, where they share an interest. The farmers set up and maintain their own clusters, and they involve other individuals, businesses and organisations that are involved in the market chain.

Through clustering, farmers can cooperate and share technical skills

from a wide group of farmers and markets spread across a large geographical area, can smooth fluctuations in agricultural produce prices, and link production and marketing information to enable farmers to capitalise on market opportunities.

An APMIS enables farmers to capture more value through the production and sale of their goods, thereby improving access to markets for farmers, and closing that gap

The bridge between farm and market

Small-scale farmers in many ACP countries have inadequate access to markets. Their lack of access to information and market data leads to inefficiencies, both on the farm and in the marketplace. The result is large differences in what is produced and what is demanded by consumers. This, in turn, results in shortages or surpluses of produce on the market, creating instability in the prices of agricultural goods and consequently farmers' incomes.

Farmers need to know what the market demands in order to determine what, when and how much to produce. They need access to information about prices, trends in the market, and quality standards in order to capitalise on market opportunities, increase incomes and enhance food security. It is imperative that we integrate the production of agricultural commodities with marketing if the farming community is to get the best from its efforts, achieve the maximum use of scarce resources, and realise sustainable livelihoods.

and experiences. They take advantage of, and plan for, new market demands, and develop greater bargaining and lobbying power.

Group force

CaFAN's network comprises 30 member organisations that, in turn, represent over 500,000 farmers in 12 countries. Due to this geographical separation, we rely heavily on Skype (a voice internet application), e-mail, and our website to build and maintain relationships with members, and execute our projects. We use e-mail and our website extensively to post information on upcoming events, best practices and news. As many farmers in the Caribbean region have access to cell phones, we also use text messages as one of the primary ways to communicate directly with farmers. We will soon expand this service to include production information, which will further improve farmers' access to markets.

We are currently working on an agricultural production and marketing information system (APMIS). This will consist of two databases: a production information system and a marketing information system. These will be linked to each other to allow the collection, analysis, and dissemination of relevant and timely market information. The system will be kept current through the submission of data to CaFAN via text messages or e-mails from farmers and marketing representatives.

Among other things, the system will store data related to: individual farmers; farm locations; type of crop produced, quantity and date planted; marketing clients and; the crop quantity, and expected price. This system, which gathers information

between production and demand. A production planning system also allows farmers' organisations to obtain data on aggregate supply and demand, which can inform strategic decisions, particularly in the event of a surplus or shortfall of fresh produce. The system can show where appropriate action can be taken to mitigate the negative impacts of disparities between supply and demand.

Reduce risks

CaFAN and its members – farmers' associations and cooperatives – help to develop agriculture by building the skills of farmers and strengthening farmers' organisations. Fostering connections, sharing information, and training among farmers puts them in a better position to respond to the challenges facing the agricultural sector, particularly when marketing produce to domestic, regional, tourist and agro-processing markets.

We have seen that collective action in these areas results in better access to resources such as agricultural inputs, credit, transport and information. It can also reduce financial risks and help in certification processes overseen by external agencies promoting goods to specialised markets, such as fair trade or organic.

Cooperatives and similar organisations can do a lot to improve food and nutrition security, foreign exchange earnings, and foreign savings. The pooling of resources and the collective marketing of products reduces the high transaction costs that many farmers incur when acting alone. When operating as a group, farmers are able to make the marketing process more efficient and save money that would otherwise be lost along the market chain. ■



Over the last few decades, small-scale coffee farmers have struggled to increase incomes from their crop. In that time, while worldwide coffee production has increased, prices for the commodity have decreased. But small-scale producers can gain an advantage in such competitive markets by highlighting their specialised production techniques. Farmers can, for example, promote the unique features of their geographic location, or publicise the social impact of improved incomes in their community.

certified. There is often an initial training phase, where farmers learn how to meet the new standards and convert their growing practices and farms to suit the required processes. This can take up to three years for organic farming.

Many smallholders therefore form cooperatives. Closer collaboration can help farmers to reduce transaction costs, manage quality, increase market access, become engaged in policy discussions, and access the training and technical advice necessary for certification.

The Coffee Growers Association of Oaxaca (CEPCO) currently works with 33 smaller organisations across the state of Oaxaca, covering a total of 2760 producers, 90% of whom own less than two hectares of land. CEPCO's coffee is certified as organic and fair trade. To improve the efficiency of their certification and inspection processes, CEPCO introduced a new system that uses software called DigitalICS. The program, developed by researchers at University of California, Berkeley, in the USA, automates many of the procedures previously conducted

A standard system

The Coffee Growers Association of Oaxaca in Mexico uses DigitalICS, a specially developed software program, to help farmers improve the quality of their coffee. Inspectors use cell phones to gather data, which are then posted to password-protected web pages.

In order to promote the uniqueness of their product, many producers apply for certification, where a third party ensures that the farmers follow socially and environmentally beneficial practices, and offers the farmer a basic minimum price for the sale of the certified product. One example is farmers adopting new sustainable growing practices, and using certification to draw attention to the superior quality of their product.

Certification can be awarded to coffee growers who meet standards of organic production, shade-grown production (where native shade trees are retained on coffee plantations to prevent sun damage and soil erosion) and fair trade, which improves the status of marginalised producers by promoting consumer awareness.

Farmers have to meet a rigorous set of criteria before their products can be

Struggles

A cooperative often has an internal control department. This body is responsible for inspecting each member's land and equipment to ensure they meet the required standards, both for external certification processes and for the cooperative's own quality assurances. Internal inspections are carried out by trained inspectors, usually by staff of the cooperative or other experienced farmers. If the inspectors discover any problems, they can advise the farmer on how to get back up to standard or, for repeated violations, sanction or expel them.

A cooperative's internal control manager aggregates the inspection data to create a record for each farmer, and to prepare yearly reports for the external certification agencies. Data can also be used for operational purposes, such as forecasting the next harvest or providing targeted advice and feedback to farmers. Internal control is a costly, labour-intensive process, consisting of manual data collection, entry, analysis and reporting. In many cooperatives, these processes are not yet automated (or even standardised), making them error-prone and in need of significant manual effort.

manually and enables mobile data collection, evaluation and reporting.

CEPCO inspectors used to fill out forms by hand, which was inefficient and very difficult to do practically on the steep slopes of coffee plantations. Inspectors had to reach flatter ground before they could fill out the form, which meant they could forget important details. Data was also lost as dirt or rain obscured the written notes, or illegible handwriting made them difficult to read.

Evaluators reviewed paper-based inspection reports by hand, reviewing and cross-checking up to six different documents, again requiring significant manual effort. It took several hours to organise these documents before they could begin the evaluation. They commonly found discrepancies between documents that took yet more time to correct, providing the original data was even available or legible.

Equitable

DigitalICS was developed specifically for agricultural cooperatives, and is the first such open-source system to support mobile data collection. With the program installed on cell phones, CEPCO's inspectors can now complete surveys in the field by entering data

Yael Schwartzman (yaelsf@gmail.com) is country manager of Frogtek in Mexico, Tapan S. Parikh (parikh@berkeley.edu) is an assistant professor in the University of California's School of Information, United States, and Mario Vila (mfernandovila@gmail.com) is internal control manager at the Coffee Growers Association of Oaxaca, Mexico (www.cepc.org.mx)



into their phones rather than onto paper forms. The application prompts inspectors through every step of the survey process, with both text and audio. The latter option compensates for the small screen on the phone, and helps farmers with literacy problems to follow the process. The cooperative can easily customise the surveys to suit new conditions or different languages.

The survey questions usually have multiple-choice answers, but inspectors can use the phone to record an audio comment to any question, giving the farmer the opportunity to add more information. Inspectors can also capture images to visually document breaches of certification and quality requirements. This reduces the opportunity for producers to claim that they were treated unfairly.

Inspectors are required to photograph the producer on the coffee plantation, and the producer signing the inspection ledger, as proof they actually visited the farm. The inspectors are also required to make an audio recording of the recommendations they made to the farmer. And, in instances where a fair-trade premium has been paid, the inspector can record comments about

how the community is using the extra income for social improvements.

DigitalICS provides a feedback mechanism for producers and inspectors to send an audio message back to CEPCO on any related cooperative business, or even to send suggestions to the software developers on how to improve the technology.

All captured data, audio and photographs are stored on the phone's external memory card. After completing their surveys, inspectors go back to CEPCO's head office and transfer the files from the cell phone's memory card to the DigitalICS program on the office computer. Limited wireless coverage in the areas where coffee is grown means that data cannot be transmitted directly from the field.

However, such immediate data communication is not necessary; inspectors have to return to the office anyway to discuss their observations with the internal control manager. Also, sending photos and audio files over the cell phone network is more expensive than simple SMS messages and would, therefore, increase the cost.

After data is transferred to the computers, the software processes the results and posts them to a password-protected website using Wordpress, a

blog-publishing application. Each post is automatically tagged with a unique code referring to each producer. Users can log in to access the data relating to an individual farm. Evaluators, for example, log in to review the inspection data (including pictures and audio) and enter their recommendations. The software automatically generates the evaluation reports, including all data and recommendations from the completed inspection forms, which the evaluators can print out.

Each farmer receives a document that includes all inspection data, follow-up advice and evaluation results. A single spreadsheet document summarises the inputs used, evaluation outcomes and follow-up comments for the entire cooperative. The cooperative uses the reports for internal control, making supply predictions, preparing funding proposals, and for reporting to the certification agencies.

Content

CEPCO initially tested DigitalICS over a six-month pilot period, starting in June 2008, to inspect half of their producers in the course of the normal internal control cycle. The other half continued to use the previous paper-based system.

Related resources

DigitalICS

The website for the mobile application includes a video of a sample survey, sample inspection reports and a live demo.

→ <http://digitalicslatino.org>

Frogtek

A mobile applications development company involved with the development of DigitalICS.

→ <http://frogtek.org>

The application's developers trained six inspectors over a two-day period.

A comparison with the 2007 data, collected using paper forms, showed that it was 38% faster to perform one inspection using DigitalICS and 69% faster to perform one evaluation, due to the reduction in time-consuming manual paperwork. Instead, all the data was entered only once in the field, and automatically transferred and consolidated for evaluation and reporting. (The reduction in inspection time is less significant, since much of the inspectors' time is taken up with walking from one plantation to another.)

Preliminary estimates indicate that DigitalICS could save CEPCO more than US\$10,000 a year by reducing the time taken for evaluation, inspection and manual data entry, and from printing and stationary costs. Allowing for the investment in software development, the purchase of 10 cell phones (at US\$340 each), hardware, and operating expenses, including web hosting, technical support and hardware maintenance (totalling US\$600 a year), the costs of installing DigitalICS could be recouped within the first year.

Feedback

The evaluators were especially happy with the increased efficiency provided by the automated system. They had been frustrated at having to organise and sort through paper inspection reports and other related handwritten documents used in the previous system. Evaluators felt that the paper-based system led to more errors, due to the manual work required.

For the inspectors, they found that the phone was easier to carry than lots of paper forms. They complained that the phone battery ran out too quickly, but this was solved in some cases by taking a second battery. The inspectors were also concerned that they would



be held responsible for any damage to, or loss of, the phone.

Many producers felt that data collection by cell phone was more secure than on a paper form that anyone could read. Farmers also mentioned that they liked that the inspectors took pictures of them and their crops, as it made them feel more responsible and respected for their work.

Evaluators mentioned that requiring images and audio recordings of producers increased the accountability of inspectors to actually visit the farms, and of producers to follow organic practices. One evaluator commented that it is easier to determine whether the internal inspector has cheated and not visited the coffee plantations.

While the current system still cannot ensure that inspectors actually visit coffee farms, this issue could be solved in the future by using GPS technology to determine the locations of the farms and the times of the inspectors' visits. One other development would be to give inspectors access to the historical data of each of their farms directly from the cell phone. This would give them a better overview of each farms' production and allow them to tailor their advice accordingly.

Making the data available online – together with audio, video and photos – could improve product marketing by providing a direct link between producers and consumers. Solar chargers could be used to charge phone batteries in the field, while refinements to the DigitalICS software could reduce its power use.

Replication

It should be noted that CEPCO's earlier internal control system and procedures were already quite advanced, and have received significant external recognition and awards. Other cooperatives may benefit even more from the standardisation and automation provided by DigitalICS. But if the basic organisational and procedural structures are not in place, some cooperatives may not be able to introduce the system without substantial improvements to their current operations.

The cost analysis may be different for South Asia or Africa, where labour costs are much lower, reducing the financial benefit that can be obtained through efficiency gains. And, in countries where transportation between farms and the cooperatives' offices is expensive, it might be more cost-effective to transmit inspection data via the cell phone network, if possible.

While DigitalICS saves money on a yearly basis, the system still requires technical support and maintenance for it to be sustainable. A local service provider would have to be willing to provide this service for a reasonable fee.

The availability of open-source software like DigitalICS greatly increases the opportunities for other cooperatives to introduce such a system. For CEPCO, the outcomes of the trial were so persuasive that they have extended the DigitalICS system to all their producers. The 2010 inspection cycle, beginning in June, will be their second consecutive year of using the software with 100% of their members. ■

A program to build trust

Specially developed software helps Kenyan coffee cooperatives manage their business, and provide their members with accurate accounts and transparent record keeping.

Case study

Smallholder farmers operating in cooperatives contribute around 70% of Kenya's total coffee production, with the rest produced by larger plantations and estates. However, Kenya's coffee production has fallen since the glory days of the 1970s, when over 100 tonnes were produced annually; in 2009, just 54 tonnes were produced. Coffee prices have also fluctuated greatly during this time, leaving farmers with an unpredictable income.

Farmers are concerned about mismanagement in the factories which process their dried coffee beans. Most factories keep handwritten records, which many farmers find difficult to trust. Kenyan farmers often talk of 'ghost kilograms', where factory clerks are suspected of entering incorrect data, leading to lower payments. In an effort to streamline the management process in the factories, and make sure farmers get the right price for their product, the Kenya Coffee Producers Association (KCPA) looked for a more trustworthy system.

KCPA, an association working with producer groups, found several

software applications that other cooperatives were using, but the license costs to introduce these systems to all its member organisations would have been prohibitive. They then discovered CoopWorks, open-source software that had originally been developed for dairy cooperatives.

The software is available to download for free and has no licensing costs, and KCPA found funding to pay developers to adapt the system to meet their specific needs. A local company, Flametree Systems Engineering, whose engineers had been involved with the original version of CoopWorks, started customising the software in late 2009.

CoopWorks tracks all the steps of coffee collection, processing and sales. The system has a member management feature for collecting the data of individual members. It has an accounting module with cash book registers, ledgers and a payroll system. Other features include asset registration, loan management, inventory for the cooperative store and report publication.

Open accounts

When farmers arrive at the cooperative with their coffee beans, they place their delivery on a digital scales. Their name is displayed on the computer screen along with the date and time of delivery. The readings are taken directly from the scales without any human intervention. The clerk simply clicks the 'next' button to capture the data to the system and provide the farmer with a printed delivery receipt.

With the old manual data entry system, the cooperatives did not know how much coffee the milling factory would produce from their beans, and therefore, did not know what the financial return would be. The new system, however, can convert the coffee bean weight into an estimated value once it goes into the mills. The software also monitors the coffee deliveries based on each cooperative's tracking numbers. Once the coffee is sold, the payment is received into the system and credited to the appropriate cooperative's account.

If a farmer bought inputs from the cooperative store on credit, such as

Related links

Kenya Coffee Producers Association
KCPA assists coffee farmers through education, training, dissemination of information, and enhancing labour relations in the sector.

→ www.kcpa.or.ke

SourceForge

CoopWorks is available to download for free from the SourceForge website.

→ www.sourceforge.net

fertilisers or pesticides, the system books the transactions under the farmer's name. At the end of the season, the farmer's total delivery is added to their account, goods bought from the store on credit are deducted, and the final pay calculated. The member receives a statement detailing all the deliveries made against any goods taken in credit. If the member has loans, the system also tracks these and deducts the amount.

KCPA has developed its website to deliver information to members on their cell phones via SMS, including coffee and input prices. The association is looking to expand the capabilities of the software by linking it to mobile banking schemes, so that members can check their account and receive payments using their cell phones.

The system is still new, but KCPA expects that individual members will benefit from increased earnings as a result of operational efficiency and reduced overheads. The credit rating of their associated cooperatives should also rise as a result of automation. The ability to quickly produce accurate reports on cultivation, milling, marketing and sales will improve transparency and accountability. These combined features will settle many farmers' fears and, as trust is restored in the sector, should encourage more people to join their local cooperative. ■



Rop Kiplagat (ropkiplagat@gmail.com) is a software developer working on Coopworks



The market spread

A cooperative of shea butter producers in southern Mali uses ICTs to market their product, improve management systems, and train members in new processing techniques.

Case study

In southern Mali, it is women who traditionally gather nuts from the shea tree (*Butyrospermum parkii*). They use the oil for cooking, or process it into a fatty 'butter' which works well as a skin moisturiser. When women in the Zantiébougou area (approximately 200 km south of the capital, Bamako) started to work together, they saw that they could get better prices if they collected together all the shea butter they produced and sold it in larger quantities.

François Laureys (flaureys@iicd.org) is the country manager for Mali, Bénédicte Penda Marcilly (bmarcilly@iicd.org) is knowledge sharing officer, and Oussenzi Zongo (ozongo@iicd.org) is capacity development officer at the International Institute for Communication and Development (www.iicd.org)

In 1999, they formed *Coopérative des Productrices de Beurre de Karité de Zantiébougou*, or Coprokazan. As well as organising collection and transport to markets, the cooperative invested in equipment to process the shea nuts and refine the oil on a larger scale. They got support from local and international organisations that helped them improve the quality of the shea butter and find markets outside the local area, particularly in Bamako. Coprokazan also developed their packaging processes to make the product look more professional and desirable to consumers.

But the cooperative also wanted to raise their profile, and promote their organisation and products to a wider audience. In 2006, they started working with the International Institute for Communication and Development, with

a view to developing the marketing of their shea nut products.

Although the town of Zantiébougou has good road connections to markets in Bamako and Sikasso, it is not yet connected to the country's main electricity grid. The lack of a reliable power source limited the choice and amount of electrical equipment they could use. The project team decided that three computers, a small video camera, a printer, a projector and a few digital photo cameras – all powered by a solar panel system – would meet their immediate needs.

Teamwork

Because of the limited amount of equipment, and due to the distance some people would have to travel to receive training, the team decided that it was not necessary or practical to

train all the cooperative's members to use the equipment. The objective was to train a small number of people to produce training materials; they could then take these to the rest of the members, to show them how to process the shea nuts and improve the quality of the butter they produced.

The project team initially trained a group of members who lived close to the cooperative offices, and who could be available for regular training. The trainees learned to use the cameras, and how to edit photographs and videos using computer software.

One challenge in the training sessions was that the operating language of most the equipment and computer software was French, but not all the trainees were fluent in the language. The team overcame this by giving the equipment appropriate names in the spoken language of the trainees – names that could be easily understood by anyone using it for the first time. Allocating recognisable words helped to make the equipment more familiar, and be thought of as just another tool to use in their work.

The new training materials mean the team can train more farmers faster than with previous, more traditional, methods. Video and photographic materials are also useful for training members who have low literacy levels. And visual training aids are often more effective than written materials when introducing new information, especially if those images are of an area, or of people, that are recognisable to the farmer.

Previously, the women would bring their harvested shea nuts to the cooperative collection point, only to be told that many of the nuts were not suitable for processing. Now the women can quickly compare the nuts they gather to the examples shown in the photographs, saving them costly trips back and forth to the collection centre. The women who have been trained in the new techniques now produce better quality shea butter, while the quantity has also increased since the process is more efficient.

ICTs have brought many benefits beyond marketing and training. Coprokazan office staff use the computers for the routine administration and management of the cooperative's business. They record the registration and payment of membership fees, which helps members to see exactly when they paid and when they need to pay again. Staff also produce PowerPoint presentations for

the regular cooperative meetings, to give members a clear, visual overview of the yearly accounts and the cooperative's activities. This all helps to improve transparency and gain trust.

Through keeping computer records, the cooperative can see exactly how much shea oil and butter they buy from their members, and can make more accurate estimates of the amounts of products they will have available in the coming year. A sales register helps the cooperative to plan its income, to spread payments and credit schemes more evenly throughout the year, and to prevent times when the cooperative could run short of funds.

Individual farmers benefit from having a guaranteed income; they know the cooperative will buy their product if it is up to standard. The cooperative will also provide women with a better price than the local market, since it has access to more buyers and has a stronger negotiating position.

The increased revenue has given some members the opportunity to invest in other businesses, reducing their reliance on agriculture for an income. One member, for example, sells meals from her home. She was able to use the extra money from shea butter sales to build a small roof in front of her house, providing extra shelter for customers. She now sells twice as many meals.

Global

Since introducing ICTs four years ago, the cooperative's shea butter production and income has increased, and is now nearly three times greater. And the organisation continues to develop rapidly, with a doubling in production and revenue in the last two years. The computer software has improved efficiency in the organisation's management and accountancy procedures, and they can now deal with many more members. From around 370 members in 2006, they expect to have more than 1100 by the end of 2010.

The equipment Coprokazan currently has is likely to be sufficient to meet the training needs of their new members. The next step could be to sell to more specialised markets, which could offer a better price for the product. There could be interest, for example, in organically produced shea butter. This is likely to involve selling to international markets, however, many of which require strict quality and traceability standards. The cooperative

Related links

Coopérative des Productrices de Beurre de Karité de Zantiébougou

Coprokazan works to improve the livelihoods of women producing oil and butter from the seeds of the shea tree. It currently has more than 600 members from 26 villages in the Zantiébougou area of southern Mali.

→ www.coprokazan.org

would have to invest in extra equipment, such as GPS tracking technology, plus systems for monitoring and evaluation.

Packaging for their products is already more professional and attractive to consumers, while e-mail and internet access (through a dial-up connection via the existing telephone landline) has put them in touch with several new markets, with orders now coming from Senegal, Burundi, Saudi Arabia, Belgium, the United States and France.

In the four years since introducing ICTs, Coprokazan has developed many useful techniques for using the technology to train farmers and manage a growing cooperative. The organisation is now helping others in West Africa and beyond to develop and apply these skills to their local situation.

Coprokazan staff organise and attend meetings to share their experiences with other projects

Individual farmers benefit from having a guaranteed income; they know the cooperative will buy their product if it is up to standard.

involved in using ICTs for agricultural development. The cooperative has also been very active in sharing their ideas with other organisations working in gender and agriculture, and has produced a short video to demonstrate how they use ICTs in their work. The video was broadcast on national television, which helped to further raise the profile of the organisation within the country. Coprokazan's work has also received praise from government ministries and earned them several national awards. ■

Collaboration in communication

A broad partnership of individuals, businesses, NGOs, and government departments is supporting an ICT cooperative to improve rural connectivity in the Butajira area of Ethiopia.

Case study

Communications Cooperative International (CCI), a US-based not-for-profit organisation, conducted a study to improve rural connectivity in Ethiopia. The study examined ways to bring telephone and internet services to rural communities. The researchers identified the Butajira area as a good place for a pilot project; the main town is relatively close (around 130 km) to the capital, Addis Ababa, which made it easy for officials from government departments and other agencies to visit and learn from the project.

The initial study showed that Butajira town, the surrounding communities, and members of the two cooperative unions in the district would benefit greatly from better access to ICTs. CCI worked with USAID, the World Bank and the Ethiopian government, and also involved as many people, businesses and organisations as possible. This broad support encouraged the commitment to develop the infrastructure and facilities needed to bring ICTs to the area.

Together, Walta Multipurpose Cooperative Union and Netsanet Fana Union of Savings and Credit Union cooperatives represent 52 smaller associations. These are mainly agricultural cooperatives and credit unions, and serve more than 7000 members. In 2006, CCI brought them together with other local agencies, businesses and individuals to form the Butajira ICT Cooperative (BICTC) – the first ICT cooperative in Ethiopia.

ICT services require a high initial investment to buy equipment and set up a stable internet connection in a secure, accessible building. By forming a cooperative, however, BICTC raised money by selling shares to its members. Individuals could contribute small amounts of money towards their shares which entitles them, as shareholders, to participate in member meetings, be elected to the board of directors, and take decisions on how the cooperative is run. Members of the 52 associations represented by the two larger investing cooperatives are, therefore, also members and can use the ICT cooperative's services.

Mutual benefits

So far, BICTC has established a centre where people can come for ICT training or to use the services. The centre has 15 computers and provides internet services, computer training courses, fax machines, photocopiers and printers. To ensure the centre is financially sustainable, users pay for the training courses and other services. After four years, BICTC now generates sufficient funds to support the business.

Butajira has a secondary school, two elementary schools and a technical training institute. Their students are the primary beneficiaries of the training courses. Demand for training is high and the centre also runs training courses at weekends.

The centre currently provides internet services through a dial-up system via the telephone landline. Ultimately, BICTC hopes to work with the state-owned Ethiopian Telecommunications Corporation (ETC), the only telecommunications operator

in the country, to provide internet services. The cooperative could then act as a local internet service provider and deliver internet services directly to homes and businesses in Butajira and the surrounding area.

Telephones

ETC currently provides a few landline telephone connections in the town, but these do not yet extend to rural areas. BICTC therefore developed plans and sought permission to build a transmission tower, with repeater devices to extend the signal, to provide a wireless telephone service across the area. With a small antenna on the outside of their building, businesses and individuals would be able to connect to the service and have a telephone in their offices or homes.

By raising funds from its members and grants, BICTC would make the initial investment to develop the infrastructure to extend ETC services into the area, and deliver the service to more than 250,000 people. The cooperative would buy services wholesale from ETC and sell them on to local customers, making it a beneficial situation for ETC, BICTC and the people of Butajira.

BICTC has been waiting for government approval for either a provisional or permanent 'providers licence' to run the wireless telephone service. The project team recognise that there is still a lot to be done to provide connectivity to people in the Butajira area, and they are committed to making this happen.

Delivering ICT services through an organisation run on cooperative principles makes it easier to promote the project to existing agricultural, marketing and savings and credit cooperatives. These cooperatives can use the services to promote and expand their own work. Also, since a cooperative is run by the community, the members decide exactly what services they need and when they need them, rather than having to adapt to the services provided by other companies, or waiting for outside agencies to develop the communications infrastructure. ■



Mebratu Tsegaye (mtsegaye@cci.coop) is director of programs at Communications Cooperative International (www.cci.coop)

Send updates via SMS

The members of agricultural cooperatives often live far from the organisation's main offices. It can, therefore, be difficult for farmers to find out about urgent meetings, training courses, market prices and other new developments. To help keep their members up-to-date, cooperatives can use software or web-based applications to send text messages to all or selected members' cell phones at the same time.

One popular service for sending multiple messages is BulkSMS. You can download a desktop version of the application or register to use it directly from the website.

Website

From www.bulkSMS.com, click on 'international' under the section 'select your regional site here'. (Other options include: UK, South Africa, España, USA and Deutschland.) On the next page, click 'register'. You will then be asked to complete a form including username, password, name, address, e-mail address and cell phone number. Tick the box to agree with the service's terms and conditions, and click 'register'.

You will then receive an activation code to your cell phone and by e-mail. This currently entitles you to five free credits with the site. Click the 'message centre' link, and then 'claim free credits' to enter the code.

Add numbers

Next add the names and cell phone numbers of the people you want to send messages to. Click 'phone book groups' and type in a group name. You can set up several groups. For example, one might include all members and another only executive committee members. Type in the group's name and click 'add'.

To add data from an existing file, choose 'upload'. You can upload names and phone numbers from an Excel file, but first open the relevant file then click 'save as...' and save the document as 'Text (Tab delimited)'. In order to suit the format of the site, save the data in three columns: first names, surnames and cell phone numbers. If the numbers are for phones in different countries you will have to add the countries' codes at this point.

Click 'browse' on the web page to locate the data file then 'next'. You will see the list of uploaded names and numbers. At the top of the column with

names, select either 'first name' or 'surname' from the drop-down menu, then 'cellular number' from the menu above the phone numbers. Set the country code in the field at the bottom of the page if the numbers are for phones in the same country, then click 'next' to save.

Send

To start sending messages, click 'my account'. From there you can go straight to 'send messages to a group' (you may first have to buy more credits, however, which can also be done from this page). Type the message you want to send. You can also choose to have the recipient's first name or surname added automatically.

Tick the box 'reliable' if you want the recipient to be able to reply. Tick 'use tagline discount' to add the text 'via BulkSMS.com' to each message and get a 10% discount. You can also choose 'send as unicode' if the language of the text contains characters which are not usual in Latin script.

To send, choose the group you want to send the message to, then click 'send now'. You can also select 'confirm cost' first to get an idea of how much it will cost to send the message to everyone in the group.

Desktop

The desktop application is useful for organisations with a limited internet connection. You can prepare the messages and group data first, then only send when online.

Install

From the BulkSMS homepage, select 'international' from the regional options (see above), then click the link 'desktop to SMS'. Click 'download BulkSMS text messenger now' to download the application to your computer. Double click the downloaded file, and then 'run' to install.

Select 'new user' in the pop-up window that appears when you first run the program, and follow the registration process as outlined above (note: the computer should be online for this).

Add contacts

With this version you can upload member details directly from an Excel or text document, or import address book details



Related resources

FrontlineSMS

This bulk messaging system is supplied free to non-profit organisations.

→ www.frontlineSMS.com

See also the ICT Update feature on FrontlineSMS, first published in February 2009.

→ <http://ictupdate.cta.int/en/>

Feature-Articles/A-program-to-reach-many-farmers

Clickatell

This company provides a service similar to BulkSMS and is based in South Africa.

→ www.clickatell.com

mBlox

An international service providing bulk SMS services.

→ www.mblox.com

from Microsoft Outlook or Windows Address Book. Click 'groups' in the left-hand window, then 'import contacts' on the toolbar; the data will then be added to your contacts list.

Send

Click 'messenger home' and select 'send an SMS text message'. In the pop-up window that follows, choose the group you want to send the message to, then type the message. Click 'send' or, if you want to send the message later, click 'schedule' then choose a time and date. ■



Agnes Namuhisa
(anamuhisa2001@yahoo.com)
is director for cooperative development with the Tanzania Federation of Cooperatives
(<http://ushirika.coop>)

The secondary cooperative can often get a loan and make special arrangements with a bank. The farmers take receipts for their goods to the local bank branch and receive payment based on the type and amount of crop they delivered to the primary cooperative. The farmers don't have to wait until their produce is actually sold and, since the cooperative is selling in bulk and has greater negotiating power than an individual farmer, the prices are usually higher.

members, to train them in new techniques and show them how to use technology to access information.

Is internet use now widespread among cooperatives in ACP countries?

→ The use of computers and the internet is still quite limited in many of the primary cooperatives serving rural areas. Apart from the cost, there are still not enough people within the smaller cooperatives who really know how to make the best use of computers. But the main factor restricting the use of computers is the lack of access to a reliable electricity supply.

Most secondary level cooperatives do use computers. The majority are based in larger towns and cities with better electricity supplies and internet access. They regularly use e-mail to communicate with other cooperatives and umbrella organisations, such as ours. They also use the internet to find buyers and check market prices, and many are building websites to raise their profile and publish their contact details.

These larger organisations also use computers for administration and management tasks, such as keeping databases of member details, the types of crops and the amounts produced, and financial records.

It can be very expensive for small cooperatives to invest in computers, cell phones and the internet, but the benefits outweigh the disadvantages.

How have ICTs influenced your work at TFC?

→ We can now communicate much more effectively with our members. In fact, it's common for us to send an e-mail and follow that up with an SMS to the person to let them know there is an e-mail with more information waiting. We save because we do not have to make long phone calls, and the recipient benefits because they only have to take the time, and money, to check their e-mail when they know they have a message.

Just five or six years ago, it was very expensive to organise a members' meeting. We would have to mail out written invitations. Letters could take a month to reach people, who would have to write back to say whether they were coming – if they even received the invitation in the first place. Now, we just call or send an SMS. They have the message within minutes and can easily reply.

Personally, I can't see how we could work without ICTs anymore; telephones, fax machines, e-mail and the internet have become such an integral part of our everyday work. ■

Cooperating with farmers

How can small-scale farmers benefit from being involved with a cooperative?

→ The cooperative has a responsibility to offer its members certain advantages. It can offer farm inputs, such as fertilisers and pesticides, at reduced prices. These can be difficult to buy in remote areas, but the cooperative makes them more easily available to its members.

The main advantage is that farmers can get a better price for their produce without having to wait for a buyer. Cooperative members deliver their crops to their local cooperative society. This smaller, 'primary' cooperative transfers the goods to a larger, secondary cooperative for storage, processing (if necessary), and sale.

Can any group of farmers set up a cooperative?

→ There is a process to follow to become a registered cooperative, and every country has its own legislation governing this. People complain about the bureaucracy that is sometimes involved, but in Tanzania we have district cooperative officers who can guide any new group through the process.

Transport remains a major challenge for new cooperatives in rural areas. People in remote areas still have problems finding transport to their nearest cooperative officer, who often also lacks transport and financial resources. Cooperatives are also obliged to cover the costs of bringing members together for regular meetings. The lack of funds severely limits cooperatives' ability to meet members' needs; even simple things like buying enough stationary can be difficult.

How can ICTs help cooperatives?

→ ICTs help cooperatives keep in touch with similar organisations, where they can get support. If we want to contact the chairperson of a cooperative, we no longer call the office telephone; we send an SMS or call his or her cell phone.

It remains difficult for cooperatives to get in touch with all of their individual members in rural areas. Cell phones help, especially as mobile networks continue to expand into even very remote regions. But many farmers still don't know how to get the most out of their cell phone. They use it to call and send SMSs, but still don't know how to access market information or get other agricultural advice on it.

Cooperatives are well placed to help introduce new technologies to their members. Every cooperative has at least one meeting a year when all their members are brought together to discuss progress and plan for the future. These provide the perfect opportunity to give information to

