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# ICT Update

a current awareness bulletin for ACP agriculture

http://ictupdate.cta.int

A voice-based system delivers market information for farmers in West Africa

Radio and web 2.0 tools connect Caribbean farmers and agribusinesses

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**ICT Update**

**ICT Update issue 64, February 2012.**

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# Editorial

# The importance of producers

ICTs are helping small-scale farmers along every step of the value chain. Computer software enables groups of farmers to manage their combined stock and organise into cooperatives. Internet access offers marketing opportunities and puts smallholder organisations in touch with new buyers. Cell phones deliver market data and aid efficient communication along the supply chain. Using technology, millions of small-scale farmers can participate, influence regional and global markets, and bring food security and economic development to their communities.

*ICTs have proven to be very useful for helping small-scale producers in ACP countries to become part of larger value chains*

An ambitious project being piloted in three West African countries is developing a voice-based system to deliver market prices and agricultural information to radio stations and cell phones. A partnership of organisations, which includes the World Wide Web Foundation has developed software that automatically converts details from a database into an audio file that radio stations can access and rebroadcast, and which is available to farmers from their cell phones. The audio is constructed to give the information in an accent that is familiar to the people of the area, and will soon be available in local languages.

The system, developed as part of the Web Alliance for Regreening in Africa project, is currently operating in Burkina Faso, Ghana and Mali and encouraging environmental development in the region. The hope is that farmers will use new techniques to preserve the soil and water resources on their land, enabling them to grow more, and better-quality, products. The market information can link them to new and profitable markets. The eventual aim of the project is to develop a voice-based web of information services that farmers can call from their cell phones to find the exact information they require.

## Foundations

Spoken information is also an essential element of the Eat Caribbean project, where a weekly radio programme discusses value chain issues with people involved in producing and supplying agricultural products. The programmes are broadcast live online and are available for download afterwards. The project also has a blog, which acts as a resource portal and offers the listeners the opportunity to continue discussing the issues raised on air.

As part of the FAO special programme for food security, the project also offers training courses to farmers in the Caribbean Farmers Network (CaFAN). The radio programmes continue to deliver relevant information long after the courses have finished, and the project is now experimenting with social networking, including Facebook, to help connect farmers with other businesses that operate in agricultural value chains.

Meanwhile in the Caribbean, the fisheries sector is using a suite of cell phone applications called mFisheries to get up-to-date market prices, find new buyers and even get safety tips. In Trinidad and Tobago, where the apps where tested, fishing boats used to have to to sell their fish to the first willing buyer when they reached the shore so that the catch was sold while still fresh. Using mFisheries, which was developed by the Department of Electrical and Computer Engineering at the University of the West Indies, small fishing enterprises are able to make new connections, become part of new value chains and escape their reliance on the first prices they are offered.

ICTs have proven to be very useful for helping small-scale producers in ACP countries to become part of larger value chains. In doing so, they become part of a network of businesses that work together for the benefit of everyone involved. A well-structured value chain provides stability and security to every link in the chain. That is why it is essential that small-scale producers – without whom there would be no product and therefore no value chain – have the tools to strengthen their position, provide the best possible products and get a fair return for their efforts. ◀

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# Creating stronger links

**Value chains**

At the heart of the value chain concept is the idea of farmers, traders, processors and distributors working to produce and deliver goods and services to consumers, adding value at each stage. The difference between this and a traditional marketing chain is that value chain activities are coordinated, with considerable collaboration throughout the process.

Farmers who sell their vegetables at the side of the road are not part of a value chain. Farmers who grow vegetables using seed supplied by a buyer, and harvest their produce at the time and in the quantities requested by the buyer are, on the other hand, very much part of a value chain. Similarly, traders who buy at the side of the road and sell at a wholesale market are not part of a coordinated chain. But buyers who work with farmers to meet the needs of supermarkets, processors or overseas importers are. It is the coordination that differentiates value chains from traditional marketing practices.

*ICTs are only as good as the information they communicate*

In ACP countries, many improvements are being introduced to chains by small and medium-sized enterprises (SMEs), often in coordination with all those in the chain. Such improvements include strengthening links with farmers, working with overseas buyers to better meet their requirements, promoting product innovation, improving logistics and developing new markets.

Analysing value chains requires the consideration of all factors that affect the ability of farmers and fishers to access markets profitably. In the past, a donor may have decided to support just one stage. For example, post-harvest problems may have been diagnosed because losses were high, when the real problem was the lack of a market. Many 'white elephant' processing facilities were built as a result of a failure to consider in detail the capacity and willingness of farmers to produce the quantities required, or to fully consider the market potential of the processed products.

## Expectations

Improving chains is all about coordination. And coordination requires communication. While working at FAO 25 years ago, I was involved in publishing a manual on horticultural marketing. The author, Grahame Dixie, insisted that the cover photo should be of a farmer standing in a vegetable plot talking into a phone. Many FAO colleagues thought that to be a strange idea for a cover photo. But both Grahame and the farmer were ahead of their time. Nowadays, it is almost essential for farmers who are involved in value chains to have phones. They can liaise with buyers, check prices, find out when inputs will be delivered, receive extension advice and even check if payments have been made to their bank accounts.

ICT developments are moving so fast that it is difficult to predict how value chains will be using them in the coming years. What seemed ridiculous to some people 25 years ago is now commonplace. What may seem ridiculous now may be commonplace in less than a decade. In 2020, will value chains all be coordinated through Twitter or Facebook? Will a carton of flowers packed in Kenya be traced by GPS all the way to a buyer here at the headquarters of CTA in Wageningen, in the Netherlands?

However, we must be wary of being totally seduced by what technology has to offer. ICTs are only as good as the information they communicate. Cell phones can be used to transmit market prices to farmers very quickly, but that achieves nothing if the information being sent is inaccurate. Rural internet access can be improved, but we must make sure that the information that is available to farmers over the internet is accurate, useful and relevant to their location. That, perhaps, is the bigger problem. ◄

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## CTA loses a beloved friend and great colleague

Our dear colleague and friend, Aboubacar Koda Traoré passed away suddenly on 1 January 2012. He was 47 years old. He is survived by his wife, Nana, and his two children, Malik and Ismael. Our deepest thoughts are with them at this time.

Born and raised in Niger, Koda studied Information Science at the University of Benin and ICT and Development at the University of Limoges. He joined CTA in 1994 following a successful career at the Ministry of Agriculture in Niger.

Koda sought to bring ICTs, information and knowledge closer to small farmers and other agricultural stakeholders and rural communities through community informatics initiatives. He was a firm believer in building a knowledge economy from the grassroots.

His skills and dedication to advancing agriculture and rural development, and improving the lives of those in rural communities, was apparent in all his work. The passion he had for development work was contagious, and felt by colleagues and partners alike.

A true gentleman, Koda's kindness, warmth and generosity of spirit will be greatly missed. We have lost an outstanding colleague and friend.

# A new voice on the market

A project to improve environmental conditions for farmers in West Africa is developing a voice-based market information system. The Web Alliance for Regreening in Africa intends to develop the system further to create a speech-operated world wide web.

Sibiri Sawadogo is a farmer in Burkina Faso. Over the past few years, using very simple farming techniques, he has managed to fight desertification by 're-greening' the degraded and barren soil in his fields. He protected young trees and seedlings against grazing animals, used manure to improve the land, and aligned stones along his fields to prevent the rain from flushing away the topsoil.

Conditions have never been easy in this part of Africa. Water is scarce and soil is poor in the Sahel. Farmers who manage to apply re-greening techniques have more trees on their land and better soil conditions, which leads to better crops. The trees provide additional produce, such as honey and shea butter. The total increase in food production makes them less vulnerable in periods of drought, and leaves the farmers with a surplus that they can sell in the local markets. Higher productivity also offers opportunities to access new value chains.

Sibiri Sawadogo does not have sophisticated tools to cultivate his land. He holds a hoe in one hand, a cell phone in the other. His farming knowledge is of great value to others in the Sahel. If more producers in the region could take advantage of these methods of re-greening the land, their living conditions and livelihoods could greatly improve.

Many farmers in remote rural areas in the region like to share information about the produce they want to sell on the local markets, about vaccinating their herds and other topics. Many farmers are not able to read or write. They rely on voice communication, talking mainly in local African languages. Any useful method for sharing information would, therefore, have to use voice communication.

Development specialist, Jeffrey Sachs, said that mobile telephony had become 'the single most transformative technology of economic development of our time'. The widespread availability of cell phones is creating opportunities to bring the benefits of the world wide web within the reach of many poor people in developing countries.

However, even if it is possible for farmers to access and exchange information about re-greening on the web, and even supposing that the web could be accessed simply by speaking through a cell phone, farmers in the Sahel do not have smartphones that can host a mobile browser. Many are not able to send or read an SMS.

The problems they face in terms of communication and lack of information are common. Creating, searching for and sharing information are very basic human needs. Unfortunately, the web was designed in the context of rich, industrialised countries. Adaptations are needed to make it accessible to and relevant for the other 4.5 billion people in the world.

## Powerful voice

With this in mind, the Network Institute from VU University Amsterdam, together with the World Wide Web Foundation and Sahel Eco, an NGO from Mali, initiated a project called the Web Alliance for Regreening in Africa (W4RA). Since 2010, the work of W4RA has been part of VOICES (VOIce-based Community–cEntric mobile Services), a research project investigating generic voice-based web access and its application in agriculture and health.

The project team began with a visit to three countries in West Africa – Mali, Burkina Faso and Ghana – where they met with many rural communities, farmers, nomadic pastoralists, local NGOs, farmer organisations, local ICT entrepreneurs and local community radio stations. The team talked with the various groups to learn more about their lives and work, and about how they share information.

During the trip, the team spoke with farmers and shepherds and visited several small radio stations in the three countries. Community radio and cell phones are, apart from word-of-mouth, the main communication channels. In the remote villages, there is no electricity, television or internet.

Every day, radio programmes are broadcast in the local languages to a wide audience. People often walk several miles to have a handwritten message for their friends or family read out on the radio. They are ready to pay a broadcasting fee of 500 CFA francs (just under one euro), which is a considerable amount for many people in this region.

The team asked the farmers, herders and radio professionals to share their thoughts on voice-based services that might be of use to them. The concept gave rise to a vivid discussion with many original ideas for innovative services. The farmers have a lot of information to share with their peers and they indicated that they were prepared to pay a small amount for a service if it was useful to them. One

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EDDIE GERALD / ALAMY

As well as hearing the automatically generated voice messages on radio, farmers will be able to listen to updated market information on their cell phones.

farmer envisioned some sort of directory service, which could put him in touch with an expert who could teach him how to prune shea trees.

That first visit to Mali, Burkina Faso and Ghana provided enough data to develop plans for the creation of voice services based on simple cell phones and involving community radio stations.

## Collective input

The work done by the W4RA is based on the 'living labs' concept. Following this approach, all stakeholders, especially the end-users, are involved in the development of a new system. Accordingly, stakeholders in Mali, Burkina Faso and Ghana were explicitly involved in various stages of the project's development.

The first system built by W4RA-VOICES is known as Radio Marché (or 'market radio'). It supports agricultural value chains by delivering market information and simplifying the trading of goods in the region. Radio Marché is based on a combination of cell phone, voice and web technologies, and has been designed to automatically generate voice messages containing market information that can be broadcast over the radio.

There is the web-based form, for example, for Sahel Eco staff to enter and store the market data, a voice-generating module that creates speech with a Malian French accent. This system can be connected to the computer or a phone network, so that the radio stations can access the speech messages by phone. In this way, it becomes easier for farmers to have their details entered into the Radio Marché system and have the availability of their products promoted on the radio.

Sahel Eco specifically requested the development of the system, and provided suggestions for the initial design. The organisation is already working to improve trading conditions for 20 rural communities in the Tominian area of Mali. Farmers here sell honey, nuts from the shea tree, a moisturising cream made from the oil of the nuts (shea butter) and other products.

The communities already use radio advertisements to reach new customers. And, every week, the farmers send SMS messages to Sahel Eco with information on the types and amounts of goods they have available for market. Previously, a staff member from Sahel Eco would manually enter the information into a computer text file, then print the data on paper and send it to the radio station by bicycle.

Now, the Sahel Eco employee enters the market information into a form on a dedicated Radio Marché website. With the data stored on a database, the system can automatically convert the information into a speech message. The radio station then receives an SMS notification when a new speech message is ready. The programme presenter can dial a number to hear it, and can either broadcast the information directly from the phone or record it for broadcast later.

*Radio Marché supports agricultural value chains by delivering market information and simplifying the trading of goods in the region*

The station often plays the messages several times a day. A presenter no longer has to read out the long list of details, which saves time and ensures that the data are broadcast accurately. If the radio station has an internet connection (not all of them do), they can receive the voice message as an audio-file attached to an e-mail.

**Related links**

Web Alliance for Regreening in Africa
➜ www.w4ra.org

VOICES project
➜ www.mvoices.eu

Radio Marché video
➜ www.youtube.com/watch?v=YcJ6oAlFr18


ERNST SCHADE / HH

To create the automatic speech messages, the W4RA project team recorded and processed the voices of two radio journalists from Radio Moutian and ORTM Segou. Although the voice message is computer generated, recording human voices gives it a very natural sound. In 2012, the Radio Marché system will be extended to generate voice messages in the local Bambara language, and there are also plans to make it available in the Bomu languages.

## Local support

When the W4RA team next visited the region they met radio journalists and farmers and talked to them about the Radio Marché system. The radio journalists were keen to use the new technologies, and the farmers were pleased with the fact that the system helped to connect them with new customers for their products.

The main objective of the W4RA project is to improve value chains for farmers by setting up mobile web services that are useful in the local context. Making the world wide web available on simple cell phones through voice access, however, is a great challenge. Speech is a very different medium from written text. A speech-operated web would therefore need a very different design from a text-based one, and would have to be adaptable to be able to recognise spoken words in every language, and ideally every dialect within that language.

The current Radio Marché system, for example, is only equipped to produce audio messages in French. An important step is to record the required audio fragments in other regional languages, and to adapt the audio message construction methods to be able to deal with these languages.

W4RA hopes to overcome these issues by listening carefully to the needs of users, and by developing and deploying innovative technologies that provide access to knowledge-sharing systems that really suit the local context.

To ensure the system is as robust as possible, Radio Marché has been extensively tested in the environment where it will be used. The software developed by W4RA and VOICES projects will be made available as open source products so that anyone can use, or further develop, the voice services without paying a subscription fee or licence. Anyone who wants to support and help build these services is welcome to join the W4RA networked community. Meanwhile, W4RA will train local ICT entrepreneurs (initially in the three project countries and later in others) to set up and maintain voice services similar to Radio Marché.

In November 2011, Radio Marché began operating in Mali with the backing of a group of local radio stations and staff members from Sahel Eco. Since then, W4RA has been developing other voice-based systems that can benefit more organisations and rural communities. They will do this by introducing facilities such as voice-based social networking, voice information services related to value chain development and other rural and regreening matters.

Over the coming years, W4RA plans to focus on developing local communities by organising events, workshops, and training activities, and by creating a group of individuals, businesses and institutions that want to build on the success of innovative voice services in the areas of re-greening and in support of poor communities.

The project also plans to make the information from the system available to non-radio users, providing any potential buyer or seller with the latest market messages. The project will further investigate the economic sustainability of the system too. Radio Marché is designed to be a low-cost, easy-maintenance system, and early market analysis results suggest that it can be economically sustainable even with a small number of users. Moreover, the system can be easily replicated in other regions and can cover a wide variety of uses.

W4RA is not just any other project. It is a global networked community involving computer scientists, farmers, local radio stations and ICT entrepreneurs in Mali, Burkina Faso and Ghana. It aims to expand the world wide web by creating a communications system where people can create, access and share their knowledge – even if they cannot read or write, and even if they only speak a single language. The philosophy of W4RA is to build an open web platform – based on voice services – that will empower men and women in remote rural areas of Africa.

Voice-based services may bring new opportunities for people to exchange information about regreening activities, or about prices at the local market, about health or legal issues, local news or about music and entertainment. Just about anything you can imagine. Just like the world wide web. ◀

# Talk about shared experience

The Eat Caribbean project uses radio, podcasts, blogs and social networks to provide information on agricultural value chains to farmers and related businesses in the region.

**Value chains**

'Farmers do not always have time to read booklets and guides, however useful they are. But they can listen to the radio while they work and hear from people just like them, experiencing, and solving, the same problems.'

Roderick St Clair is the host of the Eat Caribbean radio programme, part of a project of the same name, run by the Caribbean Farmers Network (CaFAN). Eat Caribbean is part of a larger FAO initiative to improve food security with specific aims to develop and strengthen food security and agricultural value chains throughout the region.

On the Eat Caribbean programme, St Clair talks to farmers, extension officers, exporters, buyers and financiers. The talks aim to show how value chains can meet the requirements of buyers (such as supermarkets, fast food chains, processors and exporters) and link these buyers to farmers, while also discussing challenges and success stories. 'We talk to anyone who is involved in agricultural value chains and who has some experience and advice they can pass on to others,' he says. 'We discuss the links between each business to give the others a better understanding of the challenges and options at each step along the chain. Farmers call in and speak directly to the guest advisers. They can ask the financiers questions about banking, get to know the problems transporters face, and discover the issues that concern the buyers.'

The programmes are broadcast on a local radio station in Grenada, and streamed live online every week. Anyone who misses the broadcast can visit the website to download and listen to a podcast. Its reach already goes far beyond the Caribbean. People from all round the world, particularly in Africa and South America, are downloading and subscribing to the podcast and sending comments and questions to the project website.

The discussion continues on the project's blog, which also acts as a resource with case studies, further information and links for people to read more about value chains, and share ideas.

The project also uses social media, including Facebook. 'We have just started to promote the project through Facebook,' adds St Clair. 'We hope to develop the page there in the next year to help people meet and share information. Using social media should help to attract a bigger audience from outside the Caribbean, and give people the opportunity to interact with each other through the chat functions and by commenting on articles and photos posted there.'

A combination of ICTs gives farmers the opportunity to connect with other businesses and share their experiences.


## Inspiration

The programme started broadcasting in early 2011, but farmers are already making connections as a result of the programme, and using the information. The project organises regular meetings and training courses for farmers, giving information on how to work in, and develop, a value chain. The training courses provide farmers with the initial information they need to go back to their respective countries and begin establishing value chains there. The radio programme, podcast, blog and social networking reinforce the lessons the farmers have learned, and continue to provide extra information, and motivation, long after the training course is over.

Although many small-scale farmers still do not have regular access to the internet, St Clair is convinced that the Eat Caribbean approach is effective. 'We have to remember that the value chain goes beyond the farmers. The businesses and companies that we are trying to involve are all using the internet, and they are the ones who drive the value chain. As they get involved, the farmers see that the technology can benefit them too, and so even small-scale producers are willing to pay the extra cost to access this information.'

In the near future, St Clair hopes to develop an online radio station dedicated to agricultural and food issues concerning not only the Caribbean, but also African and Pacific countries. The technology is now available to make this possible at very low cost, and to have contributions and an audience from beyond the region.

'Farmers have a lot of stories to tell, and they like to tell those stories,' he says. 'They also want to hear stories from other farmers. When farmers hear other farmers speaking, they feel more empowered, responsible, challenged and respected because they hear themselves speaking. It is not just another politician or bureaucrat that they hear, but someone like them. With the help of radio, blogs and social media, this project helps all those farmers, and everyone else involved in the value chain, to speak to each other and give them a chance to share their stories.' ◀

### Eat Caribbean on the web

**Blog**
➜ http://eatcaribbean.net/blog/

**Podcasts**
➜ http://cafanvaluechains.podbean.com/

**Facebook page**
➜ http://goo.gl/lYhxQ

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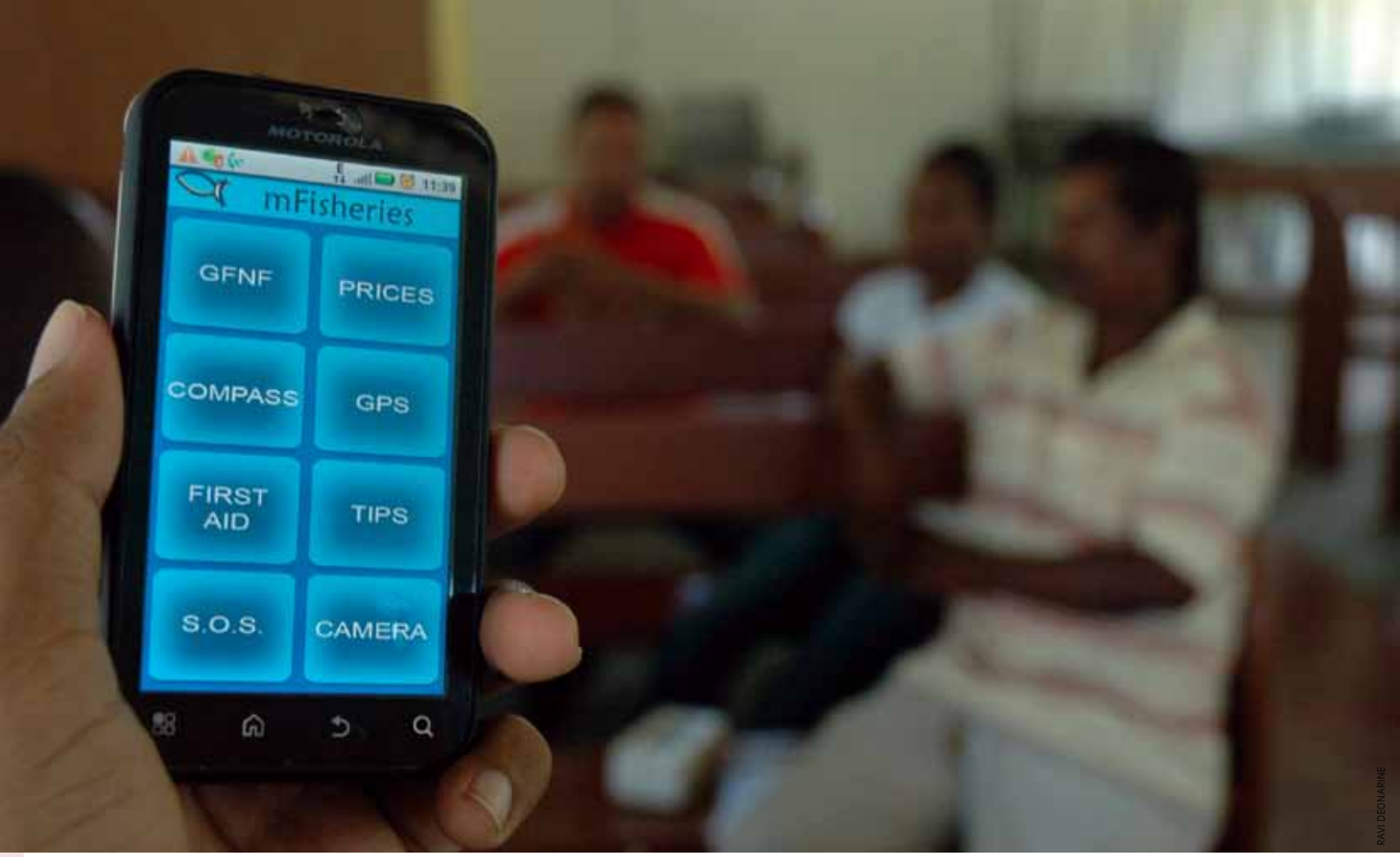

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# A smart fishing suite

A range of cell phone applications, known as mFisheries, improves market connections, supply chain efficiency and safety at sea for small-scale fishers in Trinidad and Tobago.

**Value chains**

In Trinidad and Tobago, the small-scale fisheries industry is under threat as young people are drawn away from traditional livelihoods, fish stocks dwindle and large trawlers, many of which may be operating illegally, present debilitating competition. As a result, the country now imports more fish and fish products than it exports.

While many small-scale fishers in ACP countries share the same challenges, fishers in Trinidad and Tobago enjoy relatively good access to urban centres, electricity, radio, television, cell phone services and, in some cases, even wired internet. Most local fishers have achieved at least primary-level education, and almost all have cell phones.

In 2009, the government's Distance Learning Secretariat (DLS) asked the Department of Electrical and Computer Engineering at the University of the West Indies (UWI) to make use of the cell phone technology and develop an innovative means of delivering training content to small-scale fishers. With support from the International Development Research Centre, UWI carried out a survey among over 500 small-scale fishers, vendors and processors. More than 95% reported that they used cell phones for fisheries-related work.

The survey revealed a number of challenges facing the fishers that could not be solved by training alone, and where it was felt that cell phones could help. Chief among these were market and operational inefficiencies, safety at sea, financial capacity, concern for the environment and the lack of a voice in determining fishers' regulations and working conditions.

## Reinforcement

From the earliest stages, the project team worked closely with organisations in the fishing sector and fifty fishers from five coastal areas. This collaboration led to the development and assessment of a suite of mobile applications, called mFisheries.

The two main market-related apps in the suite are Got Fish Need Fish (GFNF) and Prices, which together constitute a virtual marketplace. GFNF is an interactive application that links

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individuals who have fish for sale with those who want to purchase fish. The app displays matches of those selling and buying a particular type of fish and gives the contact details to facilitate the sale. The Prices app displays the most recent prices that different types of fish sold at in two local markets. These prices are gathered each day by the National Agricultural Marketing Development Corporation.

A number of other apps in the mFisheries suite address other key concerns, especially safety at sea. These include a compass, GPS tracking and an SOS alert. In an emergency, the SOS Alert sends pre-defined e-mails and text messages to a number of prescribed recipients and automatically initiates a call to the Trinidad and Tobago coastguard.

The GPS logging and retrieval app includes a position tracking system which periodically updates a web server with the fishing boat's location coordinates , including the date and time of retrieval, in the event that a fisherman is thought to be lost at sea. This tracking is triggered when the cell phone is detected as having left the 'geofence', defined as the boundary of Trinidad.

The mFisheries suite also has a multimedia first aid training app, which reinforces key points from training modules delivered in more traditional training sessions by the Caribbean Fisheries Training and Development Institute. Audio instructions are combined with text and images to describe what to do in an emergency. The apps include multimedia controls for stopping, pausing and replaying the content.

The training tips app delivers audio podcasts on themes such as emergency boat maintenance, fishing methods, the handling of fish, preparations for going to sea, the rules of the road at sea and survival at sea. The camera tool helps in the reporting of incidents, such as nets being damaged by ploughing vessels. Other, third-party apps, such as TideApp and WeatherBug, are freely available and are bundled with the mFisheries suite.

## Efficiencies

During a field trial, the project offered 50 water-resistant and scratch-resistant Android smartphones to the fishing communities at a subsidised rate. Along with this, they received a complimentary mobile data service. After eight months, 86% of the participants were using mFisheries regularly.

Significantly, more than 80% of the trial sample indicated that the apps could save at least a quarter of the time it takes to conduct their work. Of this group, almost 60% felt that at least half of the time it takes to fish could be saved using these tools, making their operations more efficient.

The apps have also provided better links to buyers, with 78% of users saying they rely more on market prices than they did before they used mFisheries, with almost all using the Prices app to get an idea of fish market pricing before buying or selling fish, and for setting their own wholesale and retail prices. Having been exposed to mFisheries, nine out of ten people from the trial group are now confident that smartphones, installed with the right mix of apps, can be used to improve their fisheries-related work.

Most fishers sell their catch to buyers who buy from them at the shore, travelling quickly to meet the boats in their vans. These mobile vendors resell to large regional markets, fixed-location vendors, wholesale purchasers and directly to consumers. The vendors' market access relies heavily on existing relationships with particular buyers, such as supermarkets.

The fishers are generally removed from the final, consumer market. The vast majority do not own a fishing vessel, so they work for other boat owners. Their day's pay depends on the size of the catch and the price fetched. As the fishers typically do not have on-shore cold storage or on-land transport, they must get the catch off the boat as soon as they dock. They are, therefore, largely dependent on the mobile vendors. The mFisheries' apps provide the fishers with market information that allows them to negotiate better prices.

Through working closely with the fishing communities and other partners, the UWI project has provided important insights into the interdependence of the fishers and the vendors. Despite the bitter complaints from the fishers about their local vendors, they have generally not dared to offend them by seeking new buyers because they are afraid that they will be denied the vendors' access to ice, and an immediate market for their fish on landing.

The fishers have, therefore, shown a great deal of interest in the Got Fish Need Fish app because it makes a potential new network of clients available to them. Also, by engaging all parties along the value chain, it should be possible to reduce the reliance on selling to first vendor, who will also benefit from the ability to interact with a richer and more varied market.

## Expansion

To make mFisheries available to everyone in the small-scale fisheries value chain, the project has adapted the suite of apps for Android and other smartphones, and for the web. The system is based on open source tools to make it easier to replicate. The project will also explore schemes for using further market and marine data that the fishers can use, and will examine ways of allowing them to get more information and learn more about their business.

One of the primary aims of mFisheries is to improve the efficiency of the market to make participation easier for fishers at the supply end of the value chain. The apps have facilitated the use of fish prices in daily trade negotiations, and, due to the readily available weather and tide data, changed the way fishers plan and execute their trips to sea.

*To make mFisheries available to everyone in the small-scale fisheries value chain, the project has adapted the suite of apps for Android and other smartphones, and for the web*

The system also helps to reduce inefficiency in other areas indirectly related to the value chain by providing navigational, safety and fishing advice. These improvements at the supply end will result in more stable wholesale and retail pricing further along the value chain. ◀


With the mFisheries application installed on their cell phones, fishers can access market information, safety tips and training modules.

# Answering farmers' needs

A mutli-purpose ICT centre in Nigeria facilitates discussion among those involved in value chains, including researchers. The approach has now expanded to more countries.

**Value chains**

The Ago-Are area of south-west Nigeria has a good climate and favourable soil conditions for farming. The farmers living there, however, have not been able to take advantage of the area's agricultural potential, as poor roads, a scarcity of telephone connections and an unreliable electricity supply made it difficult to reach buyers and markets elsewhere in the country.

'I was working as a scientist at the International Institute of Tropical Agriculture (IITA) at the time,' says Adewale Adekunle. 'I had an idea to set up a multi-purpose centre,' he adds, 'equipped with a variety of ICTs, which would help input dealers and researchers to work with extension officers and farmers in the area.'

IITA realised the centre would need broad support, and investment, to establish the centre and make it successful. The organisation involved the farmers, of course, and included the country's universities, multi-national corporations, international and national institutes, including the Commonwealth of Learning, and a local village NGO called the Ago-Are Community Development Agency. With an initial investment of US$10,000, the centre was developed with a VSAT internet connection, computers, video players, telephones and two motorcycles.

The farmers saw an opportunity to work with a miller in the town of Ibadan, 150 kilometres away, who was processing maize to produce feed for the poultry industry. In order to work with this miller, the farmers would have to grow a certain type of maize that would meet the miller's specific standards. This meant that the farmers needed information on how to grow the new maize crop.

At first, the farmers experienced problems with mildew and maize streak virus – so the project helped them to find varieties that were resistant to these diseases. While sourcing the new seed varieties, the project got in touch with an agricultural input supplier who could also supply fertiliser and pesticides to the farmers. The centre also developed links with the local transporters' union, and with a bank that was willing to lend money to the farmers.

'The farmers had access to loans to buy the new seed types,' explains Adekunle. 'They could get information on growing the crops from extension officers and from the multi-purpose centre. The input provider could sell products to help improve productivity. After harvest, the transporters took the maize to the miller for processing, and the miller sold the product on to the poultry industry. That is how the chain works.'

## Advances

Before long, 20,000 farmers in the area were in contact with the centre. Some 5,000 farmers lived near enough to travel there to search the internet, or ask for information themselves. The others are either linked by telephone or a representative who travels to the centre by motorbike, on their behalf.

Each representative works with a group of 20 farmers. Whenever they want information, the representative comes to the centre to search the internet, videos and other reference material for the answer. If they need further information, they have access to a support desk at the centre and can call a researcher at the IITA help desk. Generally, researchers are able to provide answers immediately, but when they cannot, they can access the internet and have recourse to colleagues either within the institute or outside.

In the early stages, the farmers agreed to pay 10% of their income to fund the centre. But over time, running costs gradually decreased as Ago-Are developed. The advent of a more stable electricity supply has meant that the expensive diesel generator was no longer needed, and a cable internet connection has replaced the VSAT service. Now, the farmers no longer have to subsidise the centre from their profits as it funds itself through running an internet café and snack bar and by hosting film nights.

The centre also organises discussions between the farmers and other businesses in the value chain. This work has led to the development of agricultural innovation platforms (AIPs), a forum for people involved in agricultural value chains. An AIP brings together the farmers in a particular area with other private sector businesses to discuss problems and ensure that they all benefit from improved collaboration.

Adekunle now works for the Forum for Agricultural Research in Africa (FARA), and has expanded the idea of innovation platforms and is using them to develop value chains in other countries, with the express aim of including agricultural researchers in the process.

'Farmers in remote areas need to be able to find solutions to their problems quickly,' he says, 'so that they can participate fully in the value chain. The multi-purpose centre and the innovation platforms have proven to be very efficient and effective in providing smallholders with the information they need. We now use the same principle to help reduce the gap between researchers and farmers.' ◀

© RAMBALDI / CTA

By developing new connections in the value chains, the farmers have moved from subsistence to commercial farming.

**Adewale Adekunle** (aadekunle@fara-africa.org) is director for partnerships and strategic alliances at the Forum for Agricultural Research in Africa (www.fara-africa.org)

# Stay up to date with Agritrade

**Agritrade is an interactive website featuring daily news, expert opinions and policy briefs covering the latest developments in agricultural and fisheries trade issues in ACP countries. The site is aimed at policy makers, agrifood businesses, farming and fishing communities and anyone involved in policy and value chain development. By registering with the site, users can customise which updates they receive and join the social networking feature to exchange ideas and information with other members.**

SVEN TORFINN / IRIN

Value chains

## Homepage

Visit the Agritrade website at http://agritrade.cta.int.

The tabbed menu across the top lists the main subject areas: agriculture, fisheries, regions, publications and events. Mouse over each word to see the topics covered in each category. The agriculture category, for example, is divided into *topics* (such as ACP regional trade, market access, product differentiation, biofuels, climate change), *commodities* (including bananas, cocoa, coffee, cotton, dairy, poultry, sugar), and *regions* (ACP, EU, and global).

Click on the topic of interest, or the category heading, to see all the relevant articles from the site, plus, on the left side, a list of the topics. Check the boxes in the list to refine your search further. Clicking on the 'events' tab, on the homepage loads a new page with a calendar of events.

Recent additions to the site are also displayed on the homepage, including news and analysis, executive briefs, interviews, videos and a list of the site's most read articles.

## Preferences

Register with the site to create a profile, connect with other members, and set your preferences to tailor the information you receive from the site. Members can access newsletters, custom news updates and news alerts. You can also create blogs and comment on any articles posted online.

On the homepage, enter your e-mail address in the 'E-mail updates' textbox on the right-hand side. Hit enter and the site will load a new page where you will be asked to fill in your full name, and choose a username and password. As soon as you click 'submit', the site will send a confirmation e-mail with an activation link to your inbox. Open this e-mail and follow the instructions.

The first time that you log in to your account you will be asked to complete your profile with additional information about yourself, select your topics of interest and the frequency with which you want to receive personalised updates.

You can also add the URL of your Twitter, Skype, LinkedIn and Facebook profiles, and paste the web addresses of your blog or other web pages. Upload an image and choose the degree of visibility of your Agritrade profile to other community members. The more information you share within the community, the easier it will be for other members to find and communicate with you.

With the profile details completed, you can then choose the types of information you would like to receive from the site, and specify how often you would like to receive updates. You can also choose to sign up for the site's regular agriculture and fisheries newsletters and news alerts. When you are satisfied with your choices, save your profile.

## MyAgritrade

The next time you log in, the MyAgritrade page will load a personal news feed according to your list of subscriptions. On the right-hand side, the profile pictures and names of new members and others with interests similar to yours will be displayed.

You can send private messages to other members, or add them to your network. To do this, mouse over the member's profile picture and click 'view profile', this will take you to their page in the community section. Click 'connect' or 'send a message'. When you connect to another member, a link to that person will appear on the MyNetwork page and on your public page. You can use the MyNetwork page to remove members from your network.

On the right-hand side of the MyAgritrade homepage, you can also see the latest blog posts and recent comments from other community members.

To create your own blog, click the 'blogs' link in the MyAgritrade drop-down menu on the toolbar. Then click 'create a blog' to add text and images. The blog post will then be available to other members.

You can access the MyAgritrade section anytime from any page on the Agritrade site by clicking the link at the top right-hand side of the page.

## Social media

Agritrade uses a variety of social media to post updates, relevant links and information.

Click the buttons on the site's homepage to stay up to date with new additions on the site.

➜ **Facebook page: facebook.com/agritrade.cta.int**
➜ **Twitter: @Agritrade**
➜ **YouTube: http://goo.gl/Dk0Bi**
➜ **Vimeo: http://goo.gl/OJHS4** ◄

# Resources

## Value chains

## Documents

**Using value chain approaches in agribusiness and agriculture**
'A value chain is a sequence of steps involved in the process of production to market delivery of a product. It provides a means of understanding relationships between businesses, methods for increasing efficiency, and ways to enable businesses to increase productivity and add value.' This guide from the World Bank considers value chain approaches in the context of five main issues: trust and cooperation, governance, market power, innovation and knowledge, and focus/intervention points.
➜ **http://goo.gl/BGpol**

**Research principles for developing country food value chains**
This report is authored by a range of experts from universities and research institutes around the world, including the International Maize and Wheat Improvement Center in Kenya and the Bill and Melinda Gates Foundation. It offers six principles that will advance research into food value chains in developing countries. The authors suggest that more focus should be placed on the opportunities that are available in domestic markets because food exports account for such a small percentage of food production in most developing countries.
➜ **http://goo.gl/6lavY**

**Value chains, donor interventions and poverty reduction: A review of donor practice**


LIZ LEYDEN / ISTOCK

ICTs help to deliver advice to farmers, connect them to other businesses and improve the efficiency of the value chain.

Reflecting donor agencies' increased interest in value chains, this report from the Institute of Development Studies examines how poverty alleviation was investigated in 30 projects. The authors, John Humphrey and Lizbeth Navas-Alemán, found that very few projects carried out impact assessments, and so could not provide sufficient evidence that their interventions had been effective in reducing poverty.
➜ **http://goo.gl/986kg**

## Web resources

**Value chain approach to poverty reduction and development of livelihoods**


JOHN GIOVAN / ISTOCK

This website provides an introduction to how value chains can be implemented in poverty-reduction strategies in developing markets. Developed by Research in Use, the site provides in-depth explanations of value chain terminology, compares traditional market systems to those that employ value chain systems and gives an overview of value chain analysis. The site also lists a number of related projects covering crops, livestock and fishing, and gives links to downloadable technical reports and further information.
➜ **http://goo.gl/3UVBv**

**ABIS Jamaica**
The Agricultural Business Information System for Jamaica, offers a range of web-based market information that is aimed at anyone involved in agricultural value chains in Jamaica. As well as pricing information for a wide range of commodities, the site provides crop, livestock and property reports for download. It also features a tracker function for finding farms and crops based on their location, name or expected yield. The site is an initiative of the Rural Agricultural Development Authority of Jamaica.
➜ **www.abisjamaica.com.jm**

**The Farmer's Toolkit**
As part of their rural market intelligence project, the not-for-profit Ugandan organisation, i-network, developed an illustrated guide for farmers who want to access market information. Available for download as a PDF, the guide outlines the processes farmers' groups can go through to integrate market intelligence into the planning, production, storage, branding and selling of agricultural produce. This 16-page booklet includes details about how to develop a business plan, create awareness and evaluate progress along the way.
➜ **http://goo.gl/vJ2v9**

## Projects

**OPPAZ**
The Organic Producers and Processors Association of Zambia (OPPAZ) is using a variety of ICTs, including the internet, cell phones and handheld computers, to monitor quality and improve crop production. This helps farmers to access the organic and fair trade agricultural value chains, and achieve international certification. OPPAZ is supported by the International Institute for Communication and Development (IICD), which is helping to develop an internal control system for the organisation to facilitate quality control inspections and the publication of monitoring results on the internet.
➜ **http://goo.gl/J3tBJ**

**eRAILS**


EDGAR SANCHEZ-SINENCIO / ISTOCK

The Forum for Agricultural Research in Africa (FARA), in collaboration with the German Centre for Documentation and Information on Agriculture (ZADI), has implemented an electronic advisory service that connects farmers with experts in value chain development. Farmers receive immediate answers to their questions, and researchers can gather data on the issues affecting the agricultural sector. The data can then help them to adapt and develop advisory services to closely meet the needs of farmers.
➜ **http://goo.gl/9L6nu**

**National Livestock Marketing Information**
The Kenyan National Livestock Marketing Information System is a market intelligence tool designed for use in the livestock sector. In an attempt to improve the links between the various participants in this particular value chain, the system uses cell phones to deliver marketing and business information to traders and producers. Traders are now able to upload and download livestock data, while traders and producers in primary markets have been able to attract buyers from terminal markets. All of which has resulted in better prices.
➜ **www.lmiske.net**

**Edmund Matotay** (edmund.matotay@gmail.com) is a lecturer at Mzumbe University, Tanzania (www.mzumbe.ac.tz)

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They are the joint authors of the paper, The developmental contribution from mobile phones across the agricultural value chain in rural Africa http://goo.gl/NJB80

# The value of communication

## Value chains

Improved access to cell phones has resulted in great changes through the entire cycle of farming life and along every link of the value chain.

**What kind of information do farmers need to participate in value chains?**

➜ At the start of the farming year, they need information about fertilisers, seed types, prices, and weather information. When harvesting and marketing what they grow, their need for information is even stronger. Farmers need to collect information about preservative chemicals from agricultural extension officers, crop stocks and prices from the markets, and even road situation and transport costs from local contacts and transport suppliers.

**How can farmers use the information to improve the efficiency of the value chain?**

➜ Rural farmers in Tanzania, where we conducted our research, mainly use their cell phones for simple one-to-one communication. Very few mentioned using other media, like radio. They simply do not rely on these methods in the same way that they rely on cell phones. Cell phones save farmers money and time because they no longer have to travel to look for the best seeds and to get advice from extension officers.

Cell phones have also helped farmers organise extra labour from distant farms and villages for the planting and harvesting periods, and they make voice calls to local transport owners to negotiate cost and availability. Sometimes, groups of farmers will get together and negotiate tractor prices to get a better deal. The phones also play a role when farmers are hiring and borrowing farm implements. Farmers borrow oxen, ploughs and harrows from each other because it is not possible for any one farmer to own all the equipment.

SVEN TORFINN / IHH

**How have these improvements changed the way farmers work?**

➜ Farmers can now communicate with extension officers and agrovets in real time. They are able to make decisions about which seeds and species of crops to plant depending on weather conditions and soil types. This has often doubled yields and improved the quality of their produce. Owning and using cell phones has also boosted farmers' confidence because it brings them into contact with agricultural experts and gives them direct access to market information.

**How do farmers benefit from being part of a value chain?**

➜ Our data show that improved communications and access to information via cell phones has resulted in great changes across the entire cycle of farming life and along every link of the value chain; because of this, it has helped farmers to take control of their businesses. Farmers are able to reduce some of the risks associated with their businesses, and many are more proactive in taking care of their businesses. Better access to market information via cell phones has increased opportunities for farmers. These positive changes have led to higher incomes and improved livelihoods.

**Are those advantages great enough to justify the cost of buying and using a cell phone?**

➜ For sure. Even if people in rural Tanzania in general are very poor, they are willing to spend a remarkably large amount of money on running a cell phone, which shows that they feel they gain many benefits from it. It is not a luxury item – most of the calls made relate to investments, information seeking and crisis handling rather than leisure. And, they are not buying expensive handsets but cheap, user-friendly and simple phones, often with a torch that they use at night.

**What needs to be done to improve information services?**

➜ Some information providers send updated market information to farmers' cell phones. But this effort is not effective, and our observations show that most farmers are not aware of these services. We recommend that cell phone companies establish a wider, affordable and effective service offering instant market prices and additional, relevant market information.

We also suggest developing the existing money transfer systems using cell phones in order to make the service more reliable and affordable in rural areas where banking services are limited. Farmers have emphasised that mobile money transfers will considerably reduce the risk of being robbed. Currently money transfer services have been a great success in neighbouring Kenya, and have revolutionised the way financial services are accessed there.

**Are cell phones likely to remain the principle method of connecting farmers to information services in the coming years?**

➜ The overwhelming majority of people living in ACP countries do not have the technological resources to connect to the internet. Even those who can connect – through telecentres or cybercafés, for example – do not know what information is available or how to access it. The advent and spread of mobile technology can ease this concern.

More than any other technology, cell phones have spread at a breathtaking rate in developing countries. The immense potential that mobile technology has for development cannot be over-emphasised. Our educated guess is that mobile technology will quickly grow to make the internet affordable even for poor people in rural Africa, helping them to become citizens of the Global Village in the near future. ◀


## A new tablet for every child

The One Laptop per Child (OLPC) organisation recently unveiled its latest device, a tablet computer, known as XO3. OLPC was set up in 2005 to provide low-cost educational computers to schoolchildren in developing countries. Since most of the people who use OLPC devices live in areas with little or no access to grid electricity, the XO3 was designed to run on very little power. The battery can be charged by a 12-volt adapter, an accompanying solar panel, or even by a hand crank. Turning the crank for six minutes gives enough power (around 2 watts) to run the device for an hour.

Another important design consideration is that the XO3 is able to operate in a wide variety of environments. Its robust rubber outer case means it can be used outdoors and transported safely. OLPC also offers the option of a low-power display that can be read in sunlight. The default eight-inch LCD display has 1024x768 resolution. The computer can run on other Linux or Android operating systems, has WiFi connectivity, and is fitted with a 1GHz processor, 512MB RAM. This makes the XO3 twice as fast as the organisation's previous computers, while using only half the power.

OLPC chairman, Nicholas Negroponte, told New Scientist magazine that the new computer is likely to be tested in villages in Sierra Leone, Tanzania and Liberia. In contrast to how it has previously operated, the organisation will be working with other computer manufacturers. Some hardware technology of the XO3 has been shared with manufacturers in return for access to their distribution networks in an attempt to bring the device to as many people as possible. The XO3 tablet is expected to be sold for around US$100.

➜ www.laptop.org

### Africa's growth in mobile subscriptions

Africa has become the second most connected region in the world in terms of mobile subscriptions – up from fourth place at end of 2010, according to research by business information consultants, Informa Telecoms & Media. Only the Asia-Pacific region has more mobile subscribers.

'Africa's mobile market is heading towards a major landmark,' said Matthew Reed, head of mobile research for the Middle East and Africa at Informa Telecoms & Media. 'The number of mobile subscriptions on the continent will cross the one billion mark in 2016 according to our latest forecast.'

However, there is a strong trend for African mobile subscribers to have multiple SIM cards, so the number of unique users of mobile services on the continent is smaller than the number of subscriptions. The number of unique users in Africa at the end of 2016 is forecast to be 572.35 million, representing a penetration rate of 86.92%, which is still lower than in other regions.

Nigeria will continue to be Africa's biggest mobile market with a predicted 152.09 million subscriptions at the end of 2016.

➜ For more information see: http://africa.comworldseries.com


### Models for expansion

Many ICT projects are successful in small-scale trials, but present new and unforeseen challenges when applied in a larger context. In an effort to understand the problems of 'scaling up', the Netherlands Organisation for Applied Scientific Research, TNO, and Netherlands-based consultancy, Hystra, examined 16 instances where project expansion worked, and considered what lessons could be learned from these examples.

The researchers studied four sectors in their research, entitled Leveraging Information and Communication Technology for the Base of the Pyramid: Innovative Business Models in Education, Health, Agriculture and Financial Services. This included a study of how ICTs are being used in agriculture. The authors stressed the potential economic and social improvements that ICTs can bring to farmers. And, while they make it clear that there is no simple solution that can be applied in all cases, they do offer some recommendations, such as focusing on a specific territory.

This would mean concentrating project efforts to cover specific areas with a comprehensive range of services, leveraging synergies and economies of scale out of a single platform servicing farmers. In order for the project to be relevant, each service needs to relate to real situations in the locality. This will, potentially, lead to the formation of partnerships with different local actors in each area – leading to collaboration across sectors and actors to address such issues as insurance and logistics. Such collaboration seems feasible given the range of actors with vested interest in supporting rural development.

➜ Read the full report at http://goo.gl/QTsY0

### Commitment to GIS in the Pacific

ISTOCK

'Every effort will be made to ensure that geographic information systems (GIS) and remote sensing are adequately resourced to serve the needs of the Pacific region,' says the director of the Secretariat of the Pacific Community (SPC), Dr Russell Howorth. Speaking at the recent Pacific Islands Geographic Information System and Remote Sensing conference in Suva, Fiji, Dr Howorth added that SPC's goal was 'to apply geo-science and technology to realise new opportunities for improving the livelihoods of Pacific communities. GIS and remote sensing is clearly a technology which can contribute to realising improving livelihoods.'

Experts and representatives from government departments, donor agencies, NGOs, research institutes and the private sector gathered for the five-day conference to discuss how GIS/remote tools could be adapted and applied in the Pacific region. The discussion considered aspects such as the use of open source software and web applications, utility applications, vegetation mapping and applications that facilitate climate change adaptation.

### Environmental data in the cloud


ISTOCK

The European Environment Agency (EEA), Microsoft and GIS software developer, Esri, have launched a cloud computing-based network to provide organisations with a secure central location for managing mapping and geospatial data.

The Eye on Earth network uses Esri's ArcGIS Online cloud services coupled with Windows Azure and Microsoft SQL Azure. The user interface enables the easy creation and sharing of map-based services and the translation of complex scientific data into accessible, interactive and visual web services. With Eye on Earth, users can create and share maps within their organisation or make the content public as web-accessible services.

Eye on Earth includes three services, all of which monitor and display environmental quality data. The app allows users to take noise-level readings with their mobile devices and instantly upload them into NoiseWatch's database.

➜ www.eyeonearth.org

## New ICTs in agriculture resource

The World Bank has produced the ICT in Agriculture e-sourcebook. Available online and for download as a PDF, the book is designed to support people using ICTs in agricultural development projects. The book is divided into four sections and 15 modules.

Section 1 gives an overview of ICTs in agriculture and has modules on improving the accessibility and affordability of ICT services in rural areas, the impact of mobile devices on agriculture and rural development, and gender equity in the sector. Other sections concentrate on enhancing agricultural productivity, assessing markets and value chains, and improving public service provision.

All 15 modules can be viewed individually on the web or downloaded as PDFs. Each covers the challenges, lessons learned, and advantages associated with using ICTs to improve the livelihoods of smallholders. The modules include examples and case studies from around the world to illustrate the practical use of technology.

The module on ICTs in farmer organisations has information on an SMS service developed by Zambia's National Farmers Union. It also explains how farmers in Burkina Faso use ICTs to share new production, processing and marketing skills. And in Niger, it gives details of community listeners' clubs that empower social networks.

The main goals of the sourcebook are to increase the information that is available on ICT and agriculture, and to generate discussion on how to use ICT effectively to improve the sector and reduce poverty. To further develop resources for the book, the World Bank is working with the FAO's e-agriculture community to host online forums, with each discussion focused on a particular aspect of agricultural development. All the resources and forum archives will be collected on the ICT in Agriculture website.

➜ www.ictinagriculture.org

**965** KB, the size of the average web page by the end of 2011, according to HTTP Archive. A 30% increase on the previous year. www.httparchive.org

**1.95** KB-per-second, the average internet bandwidth per user in Africa, compared with 8.79 KB per second per user in Europe. http://goo.gl/ATKI7

**120** seconds, the time it takes for an average internet user in Africa to download an average web page (using a 56K modem)

# Where a simple search can lead

**Sulah Ndaula**
(ndaulasula@ugabytes.org) is executive director of the UgaBYTES Initiative (ugabytes.org)

*The story that started as an internet search has led to a new product for farmers, one that has received coverage from national media after only six months*

## Websites

I am used to change in my life. Sometimes I take on new jobs or explore other ways of working. To keep developing my skills for these new challenges, I need an active source of information, communication and inspiration. And I get that from the internet.

The websites I visit reflect my changing needs. The sites I use today can be very different from the ones I will use tomorrow. There are specialised sites that I often visit, including the Telecentres Africa portal, Telecentre.org, and the UN volunteer sites. For work, of course, I regularly check the UgaBYTES pages, especially MoMeals, which links farmers to markets through SMSes. I am also studying for an MBA in international business studies, and use the Amity University portal to access learning materials.

- ➜ **TelecentresAfrica portal: www.share4dev.info/telecentres**
- ➜ **Telecentre.org Foundation: www.telecentre.org**
- ➜ **UN volunteers: www.unv.org**
- ➜ **MoMeals: http://momeals.org**
- ➜ **Amity University: www.amity.edu**

SUKREE SUKPLANG / REUTERS

## Information

Over the past year, I have spent much of my time starting quail farming in Uganda. At first, I had a lot to learn because, as a pioneer breeder in the country, the information was not available locally. I had no option but to search the web for relevant sites. I have been checking them regularly, and they have helped me to acquire extensive knowledge about quail farming, join networks of quail farmers, and find someone to supply a 2650-quail-egg incubator for hatching. I have managed to find many useful tips to improve my hatch rates. I have also established a parent stock of quail in Uganda, the offspring of which I can sell to other small-scale farmers to boost the supply potential.

I now feel knowledgeable enough to train other farmers too, and have been asked to set up a national quail breeders and farmers association that would help in the areas of training and quality, and in the marketing and management of supplies.

So, the story that started as an internet search has led to a new product for farmers, one that has received coverage from national media after only six months! Some of my favourite quail-related websites are:

- ➜ **That Quail Place: http://thatquailplace.com**
- ➜ **B&D Game Farm: http://bdfarm.com**
- ➜ **CM Game Bird Farm and Hatchery: http://gamebirdfarm.net**

## Social networking

There are a few sites, which I use for communication rather than for information, that are dearest to me. I open them every day and refresh them every hour for updates, especially my webmail and social networking sites, such as Facebook, LinkedIn and Skype, and my blog. All of these help me to publicise my thoughts and keep me connected to a network of people and organisations that have ideas in common. I find Facebook better for connecting to a more open network, while LinkedIn is good for professional work. I usually promote my blog posts and other interesting links on these sites, which helps to bring more traffic to those pages. I also post topic stories to Dgroups and other mailing lists to which I subscribe. Skype is useful for communicating with partner organisations around the world because it is free to call other users, and it has a facility to support conference calls

- ➜ **Sulah Ndaula's blog: http://themindmark.blogspot.com**
- ➜ **Dgroups: www.dgroups.org**

## Devices

I use my cell phone mainly for sending SMSes, especially to the MoMeals platform for connecting farmers to market opportunities. I am also a regular user of M-Sente and Zain's ZAP, both of which are mobile payment facilities. I actually pay most of my recurring bills, such as my water bill, with mobile money transfer services.

My laptop, however, is my most important device. Take away my laptop and you take away my efficiency. My old laptop was stolen, and I remember I was complaining for about three months until I got used to the new one. Whenever I travel, I take my laptop with me and use the web regularly to communicate with my home and with the office. I can follow work activities using the office mail chat room and use Skype to either chat or call my family.

I usually back up my documents on Google Docs, but I also make sure that I store essential documents as e-mail attachments that I send to myself. That way they are secure and I can easily access them from anywhere as and when I need them. ◀

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