Modern communication technology and market reform

Mobile signal coverage is expanding fast. More and more people own and use mobile phones and some are finding innovative ways to use them to enhance their earning potential. In the Republic of Tanzania, Internet connectivity is evolving rapidly, but few people in rural areas have access to the technology. The use of mobile phones and text messages, or SMS, is still far more widespread than e-mail. Yet the speed of change is dramatic. Communication technologies that allow wireless access within a 30-km radius are being extended throughout Tanzania and tests are verifying the feasibility of using GPRS modems in remote districts.

“It was important that we adapt quickly, looking for ways to ensure that everybody benefits from these changes,” says Clive Lightfoot, technical advisor of the First Mile Project. “We want to make certain that groups of people are not left behind and that the revolution is also directed towards reducing rural poverty.”

What is the First Mile Project?

The First Mile Project enables small farmers, traders, processors and other people in poor rural areas to build profitable market linkages between producers and consumers. Funded by the Government of Switzerland, the First Mile is being implemented in collaboration with the Agricultural Marketing Systems Development Programme (AMSDP) of the Government of the United Republic of Tanzania. The AMSDP is a seven-year IFAD-funded programme designed to increase food security and incomes in poor rural areas by improving the structure and performance of the country’s crop marketing systems. It ends in December 2009.

The First Mile builds on the foundations laid by the AMSDP and particularly on its work to strengthen the organization, leadership and financial management of producers’ groups. First Mile Phase 1, which was effective from June 2005 to March 2006:

- facilitated learning among local groups to improve market linkages
- generated locally-developed good practices in building market chains
- helped small farmers to obtain greater access to market information and market intelligence through ICTs, as their needs evolved
What is the First Mile Project?

First Mile Phase 2, an ongoing two-year initiative, focuses on how to build sustainable and reliable services along market chains in rural areas. It also supports the creation of market access companies that can use information and communication technologies (ICTs) to provide marketing services to small farmers.

The main activities of the First Mile Phase 2 include conducting trials to assess the commercial viability of solid state laptops as an ICT tool for market access companies and information board managers, and the viability of market intelligence services provided through an SMS-accessible Internet-based trading platform and information boards.

The First Mile has used the Linking Local Learners (LLL) approach to support the exchange of learning and good practices among local groups as they improve market linkages.

The project is generating significant learning about:

- how ICTs impact on rural markets
- how ICTs can achieve transparency along marketing chains and support services that ensure transaction security
- what types of learning and backup support are needed by rural entrepreneurs as they develop commercially viable market access companies in rural areas

Modern communication technology and market reform

The First Mile explores ways of linking smallholder farmers with markets by means of modern information and communication technologies (ICTs) and tests ways to ensure reliable and affordable ICT access along market chains in rural areas. The initiative uses an approach to knowledge sharing and learning that enables farmers, traders and others to learn together how to build profitable marketing chains and establish commercially viable businesses that provide marketing services to small farmers. The approach, known as Linking Local Learners, combines face-to-face exchanges with use of an Internet-based learning platform.

Mobile phones make communication faster and more efficient, allowing participants in a market chain to make comparisons, honour time-sensitive deals and understand better what happens along the value chain, beyond the activity of their immediate trading partners.

ICTs also contribute to transparency along marketing chains. Transparency can give partners confidence that they are entering into a fair deal and are guaranteed transaction security, even in places where rural markets are widely scattered and deals require coordination among many small farmers. Transparency eradicates current inefficiencies and distrust.

Market intelligence, which consists of constantly updated information on market prices, supply and transport, also contributes to transparency.

Currently, the First Mile focuses mainly on making ICTs available to new businesses that help facilitate linkages along the value chain. The businesses provide marketing services to small farmers, broker deals between producers and buyers or processors and gather market intelligence at the main markets in each district, acting as what are called market enumerators (see On the emergence of MACs). ICTs can ensure that the businesses are continuously linked with their client farmers and market intermediaries.

Testing ICTs for sharing market intelligence

The First Mile is conducting trials to assess the types of connectivity that best suit the marketing needs of new businesses providing value chain linkages, both on the move and in the office. The initiative is working with the Zanzibar-based FUNEA Sofnet company to pilot financial, operational and contractual arrangements for an ICT equipment rental service. Together, they are testing solid state laptops along with suitable GPRS modems and broadband cable for Internet access that will improve business linkages for trade agents and market access companies (MACs) and enable them to maintain contact with one another.

Some major hurdles must still be overcome to broaden rural access to computers and to the Internet. In rural areas, electricity may be lacking or intermittent. Computer viruses are unchecked and dust and humidity cause problems. One of the greatest difficulties is lack of reliable servicing for laptops and modems in remote areas.
Many questions remain to be answered:
• Can laptops function in rural areas?
• Will it be possible to repair them quickly?
• Can they be rented or bought at a reasonable price?
• Will Internet access be reliable?

While working with FUNEA on laptop trials, the First Mile is also testing an Internet-based trading platform. The tests identify ways in which a network of market access companies and market enumerators can gather and share complex, locally-relevant market intelligence and use it to run commercially viable small businesses. As part of the trial, users should be able to use their mobile phones to send and receive text messages containing market information to be uploaded onto the Internet trading platform. In addition, they will be able to subscribe to an SMS ‘newsletter’ that will provide them with regular market intelligence updates. The First Mile expects to have the results of the trials by mid-2009.

Used together, the tools could revolutionize linkages between producers and other value chain operators and provide emerging market access companies with a solid basis for their business. The tools will also support an information board system (see The emergence of MACs). Strategically placed information boards can be run as small businesses. They will form a network linked to the Internet that provides market information and feeds it back to producers and others in specific localities through a simple SMS system.

The First Mile’s communication and learning hub, the Linking Local Learners website, is likely to become busier and to expand its role, as more rural people are drawn into the ICT network and are able to participate in ongoing discussions.

The next step will be to look at how newly-emerging ICT products can help track products along the value chain and how financial services can respond to the demands of a more efficient transactional situation. One of the major challenges is to overcome cash-flow problems so that payments can be made on delivery.

Drumnet, a new Internet-based rural supply chain management system, could be the answer. Drumnet’s ICT platform tracks the logistics of supply and the financial flow of payments, facilitating transactions among producers, large agro-buyers, suppliers and commercial banks. Its master contract spells out the roles, rights and obligations of all parties in the supply chain so that certified farmer groups can enter into secure agreements with reputable buyers, while fees and payments pass through a bank.

Drumnet is currently working in partnership with Agritrade/Linking Local Learners to launch a pilot in Embu, Kenya that will support local market access companies in their new business ventures. If the pilot is successful, the system will quickly be adopted by the companies and farmers’ groups throughout East Africa.
The emergence of MACs: profitable and transparent linkages

The First Mile Project is a process of learning and adapting. Since the initiative started in 2005, it has fostered a dynamic learning environment that has helped smallholder farmers explore new directions and hone new ideas as they build their enterprises.

In its initial phase, as the First Mile built on the foundations established by the AMSDP, it concentrated on increasing the capacity of district core groups established in 14 districts in Tanzania. Each group comprised the AMSDP partner agency, the AMSDP district focal point and representatives of traders and farmers. The groups played a key role in linking farmers with other participants in market chains and in building partnerships among them. The intention was that the groups would eventually shift from public to private and become commercial companies. But experience has taught that people with a more entrepreneurial approach are better suited to this type of activity.

“We realized that in order to make the marketing information function truly sustainable, it was best to focus on an individual or small group of committed individuals with an entrepreneurial approach and a commercial track record, who had more experience of picking up business opportunities,” says Ueli Scheuermeier, First Mile technical advisor.

What is a market access company?
Market access companies (MACs) are small commercial enterprises that operate in rural areas roughly the size of a district. They are owned by the operators themselves and they offer a range of services to their smallholder farmer clients, including:

• better access to local, national and international markets
• locally-relevant market information and intelligence
• suitable financial sources for loans and support for small businesses
• collaboration with all key players along the market chain to achieve more efficient marketing

The First Mile also focuses on helping people establish small businesses, based on village information boards, which can later develop into fully fledged MACs (see From middleman to honest broker). The aim is to facilitate linkages between smallholder farmers and markets and encourage fair and transparent trading for all players. The MACs identify big buyers and processors who need to source products and they earn a commission when they are able to strike a deal. They also function as market enumerators, providing essential information on market prices, product supply and transport.

Regional transaction security managers who are posted in various localities of Tanzania support the activities of fledgling MACs, identifying and training potential trade agents.

Locally based MACs and information board managers will eventually receive support from national marketing companies. The companies will provide daily price updates from major national markets each morning by SMS. They will also provide MACs with coaching in business skills to ensure that they are able to offer a full range of transaction security services, from sourcing, tracking and tracing products, to securing cashless payments for farmers. National marketing companies are also responsible for operating the Linking Local Learners network in Tanzania, Kenya and Uganda (see ‘The new face of Linking Local Learners’). In the future, national marketing companies will help operate transactions in which the requirements of large-scale buyers create a need for coordination over several districts.

The learning curve
MuMac is a market access company that serves the Muheza district in Tanzania. It was formed by a group of five people and it now successfully sources fruit, spices and other local produce for various buyers. Sourcing large orders is the best way for a MAC to get started and begin covering costs. Experience has shown that it is not difficult to find large buyers willing to pay a good price for reliable delivery of a good quality product.

The small MuMac group immediately grasped the importance of the MAC function – connecting producers and buyers, brokering deals among them and encouraging transparency in transactions, for the benefit of all. The success of a MAC depends on its reputation as a trustworthy and independent broker.

In the Muheza district, oranges are the main cash crop. MuMac was quick to explore the possibility of finding new and profitable markets. “In Muheza we produce at least 6,000 to 7,000 tonnes of oranges per season,” says Geoffrey Mariki, one of MuMac’s five members. “We have four strong orange producer associations, a new market centre in Mtindiro and good roads connecting to it. There is great potential for profitable trade here.” The company is already working to strike a deal with a large fruit juice plant in Morogoro. The focus now is on ensuring that the requirements of large-scale production can be met.

“Farmers are faced with the problem of lack of information,” says Geoffrey Mariki. “They are just not aware of market needs. Some of the orange farmers do not know the market requirements for oranges: the varieties, prices, timing. You find that the middlemen know this information better than the farmers, and because the middlemen are better informed they are cheating the farmers.”
MuMac ensures that the specified amount and quality of produce is delivered at the agreed time and for the agreed price. Its members inspect, load and, if required, transport the produce to the buyer; they also pay the farmers, drawing on the advance for the first delivery. For their brokering services, they charge a commission of five per cent.

MuMac is educating farmers to meet buyers’ requirements. “We recommend that farmers use crates to avoid damage to the oranges during transport,” says Mohamed Mtumbi, who works as crop officer for the Muheza district council. “But they continue to pick the oranges before they are ripe and transport them loose. We also advise them to grow the Valencia variety, which ripens later than others.” The company also urges farmers to sell in groups or associations rather than individually, to ensure smoother transactions along the value chain.

Murumase, a rural marketing service company based in the Mufindi district, is another new MAC that has evolved from the district core group experience. Murumase has successfully brokered a timber deal and is now closing a contract between bean producers and a buyer. The company is also busy teaching farmers the importance of maintaining quality and meeting the needs of the buyer. “We help farmers do what is necessary to get a good price for their produce,” says Nuswe Nanzali, one of the company’s managers.

A steep learning curve lies ahead, as MACs and trade agents analyse challenges to the system and devise solutions. But MuMac and others are also well-supported by the Linking Local Learners scheme. “We are exchanging ideas with other MACs in East Africa,” says Geoffrey Mariki. “We are learning from each other about how to solve the problems that we face here.”

### Information boards

The market information board will become one of the system’s main tools. Set up at local markets and at the main markets where many people go to trade and buy, the strategically placed boards will act as channels for a wide range of locally relevant information communicated rapidly and efficiently through mobile phone connections. Above all, the boards will disseminate key market intelligence in any given locality, bringing together price information, offers from producers and details of the requirements of local buyers, processors and retailers.

Information boards are the obvious and immediate means of building a fast-reaction information network reaching out to farmers and their associations in large areas such as districts. The boards can become a trading tool, channeling not only market price information but also offering to buy and sell produce. As such, they can be self-sustaining businesses; fees for advertising on the information board could cover the board manager’s salary. The manager could post market information received through the MACs, find prospective advertisers such as traders, dealers, farmers’ groups and individuals and negotiate prices for advertising.

MuMac is setting up information boards around the area to source farmers’ produce and send out information to farmers about buyers’ requirements. Producers can respond to the board manager either as individuals or groups, providing details of the produce that they can supply.

Murumase is putting up three information boards in and around the town of Mafinga and will hire a board manager to look after them. “We need to share information about the MAC deals through information boards so that we can keep producers and buyers in our area informed,” says Murumase member Nuswe Nanzali. “We will use the boards to search for produce. If we have a buyer, we can advertise what and how much he requires, so that anyone who can fulfill the order can contact us and we can link them to the buyer. We can also advertise, say, input sales. We will charge for advertising and also charge for using our cell phone. We are waiting to see how the Internet trading platform will help our information board businessmen link producers and buyers.”

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Up-to-date market information is made available on village information boards.

"IFAD/D. McCormack"
From middleman to honest broker

Bahati Tweve looks on with satisfaction as workers cut planks to size before they are delivered to the buyer. With his mobile phone, a good instinct for a deal and an ability to drive a bargain, he has helped other farmers and local producers link up with traders along the value chain, to the benefit of all.

Bahati struck a deal with a buyer after forging a series of linkages from local timber producers to sawmill to transporter to buyer. The buyer needed 300 cypress planks for construction. Bahati found the timber producers, had the wood cut to size and arranged for transport of the planks. Thanks to Bahati’s activities, local producers earn more money for their product and he and his company earn a healthy commission. The buyer has already agreed to pay a higher commission for future deliveries.

Bahati lives in Magunguli, a remote and isolated village in the Mufindi district of the southern highlands of Tanzania. Magunguli is located more than 50 km east of the main road, a major trade route linking northern and southern Tanzania. The village is accessible only by a winding dirt road and is not yet connected to Tanzania’s electricity grid. The nearest village that has electricity is 15 km away; this is where the inhabitants of Magunguli charge their mobile phones. Poor connectivity and poor linkages to markets put local farmers at the mercy of middlemen who often exploit them and profit at their expense.

Like the majority of rural Tanzanians, Bahati depends on agriculture as a main source of income and he understands the needs and frustrations of a farmer. But as an ex-middleman, he has also had first-hand experience on the other side of the contractual divide. He gave up being a middleman when he realized that while he was making a profit on what other villagers produced – and they were often his own relatives – they were clearly losing out and continued to live in poverty.

Sharing the profits

Since then, Bahati has become particularly receptive to the change of thinking fostered by the AMSDP, the First Mile and the Linking Local Learners approach and he has begun to try to share the profits. He was a member of the AMSDP Mufindi district core group, in which he worked as a market spy, or mkulima shushushu. He gathered price information and helped farmers sell their produce at better prices, both to the local market in Mafinga and to markets in Dar es Salaam. He was so successful that AMSDP contracted him to train other shushushus in the district. He has also trained 19 farmers’ groups in ways of gathering market intelligence.

Now he works as a market investigator, or trade agent, for the Murumase MAC, in a role that has evolved from that of market spy. Bahati set up Murumase together with Nuswe Nazali, a district crop officer, and Henry Mang’eny. They saw that the greatest challenge for small farmers in their district was knowing where to sell their produce after harvest. Murumase provides marketing services to clients, charging a commission on a percentage basis.

“I search for information from different markets,” says Bahati, “and I also link my clients, who are small farmers, with small businessmen through deals.” He provides information to the
MAC on where farmers can get the best prices for their beans, paprika, potatoes and maize. He has brokered deals for them with traders at markets as far away as Dar-es-Salaam, about 500 km to the north.

Bahati has become a so-called honest middleman, who finds and makes good deals for farmers and operates his business in an open and transparent manner. He gathers comprehensive information on the quantity and quality of produce needed at particular markets and on potential delivery times and buyers. Like Bahati, other middlemen are adapting their activities to the changing commercial climate.

Good communication is essential to Bahati’s activities as a trade agent. “When looking for deals to broker, I use the telephone and SMS, but first I meet the buyers face to face. I cover a wide area – the whole district of Mufindi and the neighbouring districts of Njombe, Makambako, Kiroro and Iringa. I use public transport to get to some places. To get to others I need to ride a bike, take a lift on a truck, or walk.”

Farmers in his neighbourhood have benefited considerably from his efforts, which have helped them gain better access to markets, find potential customers, learn going rates for produce, reduce inefficiencies along the market chain and maximize profits for all. Bahati helps farmers identify market opportunities and make informed choices. “Everyone is satisfied, including the farmers,” he says. “Now we are all aware of what is happening in the marketplace. I work openly and farmers know what I am going to get out of the deal.”

One of the challenges ahead lies in the willingness of his clients to pay for the services he provides. “We need to make farmers and traders see the urgency of contributing to the cost of soliciting market information and brokering deals,” says Bahati.

**ICTs for speedier communication**

ICTs are key to the success of these new ventures. Bahati has set up an information board in Magunguli. He is also testing a solid state laptop (see Bringing laptops to rural areas) and is using his mobile phone to link up with the network of trade agents and MACs that are gathering and sharing market intelligence through the tradenet.biz online trading platform (see A springboard for training). He posts locally relevant and up-to-date market intelligence to draw people to the information board and he hopes that by posting advertisements he will draw more people and more advertisers, to make it a profitable business.

But he knows there are significant challenges to be overcome: the challenges of building trust and understanding among local people.

“It’s difficult to make money doing this,” says Bahati. “In the past, we were supported by the AMSDP and services were provided free of charge. People do not understand that now we are trying to offer the same services on a commercial basis,” he says. “They keep asking me if I am just becoming another middleman.”

Murmuse is currently in the process of being registered so it can operate smoothly as a legal entity. The company links about 50 groups of farmers, processors, traders and individuals. After the successful timber deals, the company has gone on to source beans from local producers for large-scale buyers.

In less than four years, villagers in Magunguli have progressed from being dependent on information provided by middlemen to becoming independent negotiators and deal-makers. Many are rebuilding their houses with fired bricks and tin roofing, and the number of children who attend secondary school has grown from 4 to 17 in the past few years.
Amour Usi and his company, FUNEA Softnet, are currently working with the First Mile to pilot a computer rental service for people in rural areas. Their target customers are producers’ associations, farmers’ groups, information board managers and the newly-emerging market access companies, all of which need computers and Internet access to maintain connections and obtain up-to-date knowledge of markets to run their businesses efficiently and compete with middlemen.

Many challenges are involved in achieving this goal in rural areas. Electricity may not be available and Internet access is still very limited. Computers are expensive and they can be damaged by dust, heat and humidity. When they break down, maintenance and services are hard to come by.

The trials currently under way use laptops made by InkMedia, a Canadian company. These small, portable, robust computers were designed especially for use in Africa. They have no moving parts, they use the Linux operating system and they are virus-free because nothing can be saved onto the hard disk. "Linux is an open source software," says Amour. "Because the software comes free, the cost of the computer is cut significantly."

Reliable access to needed information and to communication technology that supports connectivity for small rural businesses is at the core of First Mile activities. Funea is doing its best to keep costs down by offering these machines in a rental package. "For many people this is a better option than going to the expense of owning and maintaining a computer," says Amour. A small fee covers rental, maintenance and start-up costs for Internet access. The company upgrades computers and makes sure they are serviced regularly. It offers the options of solar charging in areas not connected to the national grid and of accessing the Internet through the mobile phone network, using a GPRS modem.

Experience has shown that lack of reliable servicing for communication equipment is the single biggest obstacle to better connectivity in rural areas. Funea is preparing a training course for computer technicians who will service and provide maintenance for rented machines in their areas.

Bringing laptops and the Internet to rural areas

Amour Usi is working with First Mile to pilot an ICT rental and maintenance service for small businesses in rural Tanzania.

IFAD/D. McCormack
With the right organization along the value chain, ginger growers in northern Tanzania could be making undreamed-of improvements to their living conditions and their incomes.

Ginger has been grown in the Same district for more than ten years. Only recently, though, producers have begun to overcome marketing inefficiencies, source potential buyers and meet quality standards, rather than selling to transporters at the roadside. The impact on the local economy is potentially huge.

Ginger is a major crop in the Same district. A third of the district’s population are involved in ginger production and the sale of ginger provides 50 per cent of their income. In 2005/2006, 6,000 tons were produced from 600 hectares. Although the quantity grown is increasing yearly at an average of 46 per cent, the yield per hectare is low and could even be doubled. About 90 per cent of the ginger is cultivated organically.

A number of entrepreneurs have decided to put into practice the lessons that they have shared through Linking Local Learners. They recognize that the ginger market chain is in a deadlock. Farmers are disorganized, with no access to reliable information. There are no quality standards and there is no-one to manage the quality and grading of the product. It is easy for speculative middlemen to dominate the situation and farmers go along with this because they know that market outlets are unreliable.

The middlemen come from Kenya and Dar es Salaam and sometimes from Uganda to buy ginger directly from the farmers. There are various selling points for the raw ginger along the road where the trucks pick it up. The roads can be bad in the rainy season. A few farmers have joined together to get a better price, but many still sell individually.

Inspired by the stories of emerging market access companies they were hearing about, local entrepreneurs set about forming their own MAC and locating new potential buyers. They found two that were interested in their product: Unifine, a Dutch export company, and Kenya Jambo biscuits in Nairobi, both of which were looking to purchase processed ginger. The biscuit company needed 1.5 tons of powdered ginger per month; Unifine wanted dried and chopped ginger.

Bulking together and ensuring that certain product standards were met were new concepts to many local farmers, but when they saw that the farm gate prices negotiated could double their profits from 218 to 475 Tanzanian shillings per kilo, they were persuaded.

AMSDP has organized training for producers in processing and drying the ginger. Being able to process raw produce adds significantly to the asking price and cuts down transportation problems.

Small loans have allowed producers to buy solar driers. Producers are now getting up to 1,500 tsh for 100g for dried sliced ginger. The next step is to buy processing equipment that will allow farmers to produce ginger powder.

Because ginger provides such a high proportion of income in the district, any improvement in the ginger market will have a massive impact on the local economy and quality of life. Villagers would like to have water in the village and would like to use any extra income for schools and a dispensary.

The company is searching for people with vocational training who are interested in setting up businesses in rural areas.

“I decided to train local service personnel to provide backup to my rental service,” says Amour. “People in rural areas with computers face particular hardware problems. There is a lot of dust, which means that the computers require regular maintenance. At the moment, maintenance is expensive because technicians have to travel long distances to reach rural clients who have technical difficulties.”

If the venture takes off, Amour has more plans: “I think that once people have been introduced into the system we will be able to offer extended packages. For example, we can also offer educational information for children and parents.”
The new face of Linking Local Learners

The Linking Local Learners (LLL) approach is at the heart of the First Mile activities. It combines face to face learning with an Internet-based learning platform. The www.linkinglearners.net website acts as a hub of information and exchange. It is an online learning platform that enables poor farmers, traders, processors and other people in rural areas to share their experiences as they learn how to build profitable marketing chains.

Underpinning the website and its knowledge exchange network is the conviction that the best ways to bridge knowledge gaps and overcome the handicaps of rural isolation are learning by doing, when local groups learn together through experience and discussion, and peer-to-peer learning, when individuals and groups share knowledge and experience over the Internet.

The LLL network reaches across Tanzania, Kenya and Uganda and is operated by the national marketing company in each country. Online mentors support discussion and analysis of experience.

The service brings together people who want to improve a common practice. Together, they form a local learning group. Each learning group is linked with local groups in other places who are learning about the same practice. Information flows quickly between local groups, even though they may be distant geographically. They use the LLL Internet learning support tools to exchange and pool their ideas, experiences and outcomes. They give one another advice and learn from one another as peers who are generating experience of the same practices.
Violet Cheti, a processor and farmer in Muheza District, uses the Linking Local Learners Internet-based platform to share ideas and experiences with her peers in other parts of Tanzania.

Although Internet access is still far from widespread in rural areas, producers’ associations can be linked into the system. If even one member is able to access the Internet site and participate in debates and exchange, the whole group benefits from the knowledge to be gained.

Learning is continuous. Propelled by a vision of the future and ideas to try out, participants quickly gather experience in new ways of working. As they test their ideas they can reflect together on the outcomes: What worked well? What can we improve? How can we act more effectively next time?

The LLL methodology has shown itself to be an important tool for sparking innovations and making them locally relevant to marketing, a complex system in which many variables influence the potential for success. The direct exchange of lessons and best practices among peers who are learning while doing has produced innovations that have in turn been reinvented when tried out by groups in different contexts. Local groups have often come up with locally specific solutions that are derived from innovations used elsewhere.