FARA

Inventory of

Innovative Farmer Advisory Services using Information Communications Technologies

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Innovative Farmer Advisory Services using Information Communications Technologies

Prepared for:
The Forum for Agricultural Research in Africa

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Contents

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FARA attempted to contact each organization to receive the most up-to-date information on the project. We are grateful to every organization that responded and provided current information on the status of their project. Invaluable contributions came from the International Institute for Communications and Development (IICD) and The Technical Centre for Agriculture and Rural Development (CTA) who provided information about the many ICT projects they are involved with. Special thanks to the International Development Research Centre (IDRC), who have been working on a study entitled, *ICTs and small-scale agriculture in Africa: a scoping study* and were able to provide a lot of valuable information about several ICT projects in Africa and shared their database with FARA.

The information for some projects was obtained solely online and not confirmed by anyone within the organizations. Therefore, some of the following entries may contain outdated data or project information: KACE, SIMA, VERCON, Makuleke Mobile Phone Project, GAINS, InfoPrix Benin, Agrovision, EAAI, Celac, Resimao, and KENDAT and projects implemented by or in partnership with IFAD, the Zambian National Farmers Union and Manobi.

1. Introduction

> *There are no crosscutting initiatives to learn about this new mass technology—which is only adventitiously being incorporated into development projects—or to identify its transformative possibilities. Where is the necessary MOTForce—a Mobile Opportunities Task Force to match the earlier DOTForce—without which mobiles' contribution to development will be left to the market, to chance, or just plain left behind?*
>
> - Richard Heeks, Professor and Chair of the Development Informatics Department at the University of Manchester, UK.

Currently most farmers' information is provided either by extension workers, through libraries or via websites. The number of extension workers has been going down while that of farmers has been growing; hence the need for innovative information systems to address this gap. The development of the National Farmers Information Service – NAFIS [www.nafis.go.ke], a voice-based service was one such initiative. Most other initiatives are web-based, such as INFONET [*www.infonet-biovision.org*], a web-based service promoting organic farming, which is supplemented by a publication titled, The Organic Farmer. Seeking information from these, and other platforms, becomes an onerous task for the farmers as it entails ploughing through many publications or surfing a large number of web-pages. Further, for the illiterate farmer, this becomes impossible right from the onset. Web-based solutions also bring challenges because internet infrastructure in Africa is still very sparse. Nevertheless, these are very useful resources and all that is needed is to provide an easy way for the farmers to navigate them.

With the widespread use of mobile phones, voice and SMS solutions should find more use as they offer easy accessibility. However, they also face the following challenges: the SMS carries only a limited amount of information and requires a basic level of literacy. Voice-based solutions are complicated to develop for they require machines to produce natural speech, or in technical terms, good speech synthesis. They also do not offer detailed information such as pictorial illustrations as in web solutions. Nonetheless, the voice solution is still by far be the most attractive platform for the farmer as it can be customised for language, is readily accessible and very natural, as it entails using the mobile phone as it is normally used.

2. Objectives

This inventory is an attempt to document all known innovative farmer advisory services or systems, currently in design, in existence or recently completed in Africa. Entries include projects using Information Communications Technology (ICT) solutions or implementing ICT-based activities, institutions/groups providing services using ICTs as well as ICT solutions software providers, both at the national and regional level. While many of the entries are projects with a definitive beginning and end date providing one or two services, others are national or regional information systems providing many agricultural services using ICTs.

Throughout Africa, ICTs have become increasingly integrated into the dissemination of information to farmers. For decades more "traditional" forms of ICTs have become more prevalent in advisory service provision. Radio and TV programmes feature agricultural information. Rural telecentres provide information on education, agricultural and health issues and equip rural citizens with skills on how to use computers and basic literacy. National ministries of agriculture have attempted to integrate ICTs into the delivery of information and have established district information centres providing agricultural information. Many NGOs and research organizations have also attempted to facilitate technology transfer in the agricultural sector.

This inventory, however, is limited to documenting innovative farmer information services. It is focused on projects/services that provide agricultural training and information to farmers directly, through the use of ICTs, rather than documenting services that facilitate exchange of information among researchers and policymakers. It also does not include the many research initiatives that exist to study the possible application of ICTs to agriculture or organizations or projects that focus on the development of linkages with input agencies, credit organizations and markets through the use of ICTs.

Maintaining an up-to-date inventory of all innovative farmer advisory services presents many challenges. Because of the pilot nature of many of the projects, they are often small, targeted to a very specific group in a remote rural location and often not properly documented. Project names often change as funders change. Many projects are currently being conceived of just as similar projects are ending. This inventory, therefore, is not exhaustive, and does not present every innovative farmer information system in existence in Africa. Rather, it serves to provide an overview of the types of services that exist or are being designed to disseminate information to African farmers in new ways.

3. Methodology

The FARA Inventory on Innovative Farmer Advisory Services is the result of an online consultation with the FARA Regional Agricultural Information & Learning System (RAILS) held during the month of October 2008 + desk study. While some projects use a variety of services and are not easily categorised, for the purposes of this research, the projects have been divided into four categories.

3.1. Voice Information Delivery Services

This includes a telephone-based information delivery service that provides advice on farming methods and market access to improve the lives of rural farming communities. Answers to many of these problems may well be on the internet – but with connectivity, literacy and language barriers, this is way beyond the reach of the vast majority of farmers. Some use call-in centres for agricultural extension support. More complex voice technology uses a simple telephone – a community fixed phone or a mobile – as the medium of information exchange, while sophisticated communication technology and computing applications have been configured at the back-end platform for the provision of the requisite information service. The solution comprises a unified messaging platform incorporating Interactive Voice Response (IVR) functionality, integrated with a Customer Relationship Management application to support integrated call handling and management of a very large audio database.

3.2. Radio: dial-up (agricultural information on demand) and regular radio broadcasts

This includes regular radio broadcasts that provide market prices or other agricultural information and dial-up radio that feature a series of short segment audio programmes that provide small-scale farmers telephone access to relevant information through an automated voice system. This radio system is an information hub featuring a regularly updated, diverse menu of pre-recorded agricultural content.

3.3. Extension services based on mobile phone and database monitoring

This is a media channel that allows anyone anywhere to affordably share market information via mobiles or through the internet. By tracking activities and profiles, the service becomes a crucial profiling and business monitoring tool, as well as an advertising medium. By focussing on profiling, this service can minimize risk in transactions, offer some brokerage services, and provide a revenue stream by permitting advertising and data mining. To date, most licensees have been donor projects. This category also includes services which allow farmers to ask questions through SMS, or broadcasting information gathered through question and answer vouchers or other innovative means.

3.4. E-learning for basic skills, agricultural education and video-based approaches

This category covers the provision of information and learning material for agricultural skills. The specific video-based approach has several important advantages to traditional forms of agricultural content, which are typically not in the local language, are intended for a literate audience, use expert terminology, lack grassroots level practicalities, and remain inaccessible in a sea of scattered media.

To identify innovative Farmer Advisory Services using ICT, we fine-tuned the conceptual understanding of the social impact of those services and their possible economic impact. The resulting inventory indicates that the majority of the initiatives around rural ICT and the use of mobile telephony in agriculture need a specific capacity to use information and highlights the challenges to upscale those initiatives.

4. Developments

4.1. Measuring social impact

Monitoring the impact of rural mobile telephony in the agricultural sector requires a better understanding of the farmers' context for the adoption and adaptation of an innovative information tool. There are many initiatives on ICTs and small-scale farmers in Africa. However, these tend to be uncoordinated, and information on the different initiatives is not easily accessible, let alone information on their impacts.

The nature or mobile technology development for farmers itself is highly contentious and requires careful research and development to make it 'right', especially when it comes to livelihood improvement and poverty reduction in Sub-Sahara Africa. Although it is recognised that the uptake of promising information technologies like rural telephony can be influenced greatly by the availability and/or functioning of input supply, credit systems, land-tenure arrangements, organisation of marketing, distribution of benefits, etc., such social-organisational phenomena have mostly been considered as conditions that hamper or enhance adaptation of rural telephony.

When trying to measure the impact of rural telephony, the question is thus not just to seek to develop an appropriate information dissemination technology, but also to alter the boundaries and conditions that affect the space for change. Resource-poor farmers in high-risk and diverse, rainfed environments face very small windows of opportunity for innovation. The mobile phone projects as listed in the FARA inventory often create special conditions to enable and stimulate farmers to utilise the recommended technologies (for instance, Questions and Answer Services [QAS] based on text messages). Such special conditions might include access to subsidised inputs, guaranteed marketing of the surplus generated, the creation of special credit schemes, the availability of highly qualified staff or in the case of QAS, accurate and timely information.

But, in a similar way, invariably, such projects leave few traces after the special conditions have been withdrawn. Replicability of the development gains is a key issue. The best guarantee for such replicability is to ensure that new communication technologies work within the prevailing physical, socio-economic, cultural and institutional conditions and, if necessary, to stretch those conditions. This approach requires special procedures to adopt a new communication tool on the basis of decision making that is informed by an understanding of the farmers' context.

A good example is the adoption of mobile phone conferencing. Mary Nyakira of the Busoga Rural Open Source Development Initiative in Uganda explained during the MobileActive 2008 conference how the mobile phone conferencing works and how farmers are enjoying it. It not only contributes to a particular form of democracy and transparency but farmers like having group discussions around a mobile phone with the loudspeaker facility on. The extension worker is "beeped" when the group of farmers is ready to start the training session. The discussions are a follow up on a previous field visit. But this time the extension worker gives advice out of his/

her office. Taking into account the considerable distances and the fact that extension workers cannot afford to visit a particular group of farmers on a weekly basis, mobile phone conferencing has a tremendous impact.

The majority of farmers are not that well organized, they have no political clout and cannot exert effective demand on agricultural information services. Despite the number of Market Information Prices Services, using mobile phone for price information dissemination , the market prices information remain often, not freely available so that prices are set locally and rather arbitrarily given the actual relative scarcity. More often than not, market prices are determined by the vagaries of weather, transport, monopolistic traders, and so on.

Rural telephony technologies can only work if they fit within the small windows of opportunities that African small-scale family farmers face. Even if the farmer is using a specific service for the first time, often due to curiosity, next time he will not subscribe to it if the service offered is not valuable.

4.2. Measuring economic impact

The principal challenge confronting governments and the international development community is to ensure that small holder farmers benefit from commercialisation in agriculture by participating in the market. Increased commercialisation shifts farm households away from traditional self-sufficiency goals and towards profit and income-oriented decision-making.

Interventions aimed at reducing transaction costs would encourage increased farmer participation in competitive markets to meet the broader poverty reduction objectives. In economic terms, the role of agricultural informatics is to reduce the information search costs in the agriculture value chain and to link the decision to grow with that of the decision to sell. The final objective is reducing total transaction costs to increase the incentives for smallholder farmers to participate in commercial agriculture as opposed to being stuck in subsistence farming.

The logical starting point in understanding the total information-related transaction costs faced by the farmer is to understand the demand for information at each point of exchange by disaggregating the agricultural value chain to a series of activities. A simplifying assumption is that the relevant information is available in some format, as opposed to the extreme case of missing information.

When we disaggregate stages of information needs and searches, the breakdown is as follows. The farmer has information needs and searches for information related to six stages: (1) Deciding (2) Seeding (3) Preparing and Planting (4) Growing (5) Harvesting, packing and storing (6) Selling.

The first stage is “Deciding”. This is the stage where farmers decide on what crop to grow, how much land to allocate for each crop and also arrange working capital financing. The second stage is “Seeding”. This is when farmers either purchase seeds or prepare their own seeds based on the crop they have earlier decided to grow. They might also prepare a seed bed during this stage. The third stage is “Preparing and sowing”. During this stage, farmers prepare the land using own or hired labour or land preparation machinery and subsequently sowing the seeds. The forth stage is “Growing” where application of water, fertilizer and pesticides take place. The fifth stage is “Harvesting, packing and storing”. During this stage, farmers have to find labour for harvesting and locations for storage, if at all. Packing, if at all, takes place during this stage. The final and sixth stage is “Selling”. In this stage [some] farmers check prices at the various markets and find a method of transporting the packed produce to the selected market to sell.

An analysis of the information search of a group of smallholder farmers in Sri Lanka, growing tomatoes, onions, brinjals and chillies, demonstrated that the information search costs amount to 11.0 % of the total costs incurred by the farmers in the six-stage process.

> *When the total information search costs in different stages of the agricultural value chain are considered, we find that the highest percentage of cost of information is incurred during the growth stage, followed by the decision stage and selling stage. In terms of proportion of cost of information in each stage in the agricultural value chain, the decision stage comes first with the cost of information search to total cost ratio being 3:1, followed by growing stage with a ratio of 1:4 and the selling stage with a ratio of 1:5. The reason for the unusually high percentage of information search costs during the growing stage [53%] we found is caused by the idiosyncratic government procedure on fertilizer subsidy to farmers in that area. We expect the growing stage to be less pertinent in countries without such inefficient fertilizer subsidy policies and hence it is not analyzed further [de Silva and Ratnadiwakara, 2008].*

The absence of effective marketing chains plagues Africa. It affects the possible impact, information and the use of mobile phones can have. A marketing chain can be seen as a multi-stakeholder network that is highly integrated and shares a common perspective or goal: to deliver a product as cheaply and efficiently as possible to the consumer. Increasing the efficiency of the whole chain – the purpose of providing agricultural information – is in the interest of all stakeholders, whether they are farmers, processors transporters, retailers or others. Threat of competition leads chain partners to be highly aware of the 'competitive position' of their chain vis-à-vis others. This awareness leads to 'chain thinking'. Creating such 'chain awareness' is a big challenge in Africa. Three examples suffice.

- In Benin, a large number of unproductive people 'eat' from the export earnings of the cotton produced by small farmers. Benin refuses to sell effective but cheaper pesticides that are available and that could reduce farmers' pesticide cost substantially, simply because that would cut the salesmen's profit.
- In Ghana, the Cocoa Marketing Board is directly involved in pesticide production. They have so far not cooperated in the certification of organic cocoa which would undermine the rationale for mass spraying of synthetic chemicals.
- A woman farmer in Uganda refused to tell the other farmers what she learned at a cheese-making workshop in Italy (!). The extension worker found the information on the internet and gave some technical cheese-making training with mobile phone conferencing follow up. The 'chain awareness': "Only large quantities of cheese justify a truck of cheese to Kampala" made the woman join the rest of the group.

5. Results

The many initiatives that provide farmers with information are largely institutiona-based, product-specific as well as platform-specific. Information is provided by different organisations, each offering a specific product, for example, banana growing, on a given platform, such as web-access, which is often in the English language. Coupled with the many challenges the African farmer is faced with of infrastructure, literacy and language, this model of information delivery has proved to be largely ineffective. A comprehensive model is needed which is expected to address the limitations in the existing methods, by offering a holistic, one-stop-shop information service on a variety of carefully integrated platforms. Further, a model is needed that implements farmers' feedback, a resource that is used to further enhance information delivery.

In agriculture and rural development, the prevalence of uneven distribution of knowledge is being increasingly recognized. Mere information in the form of flow of messages may not be able to address the problem. Knowledge as the creative result of a flow of messages anchored on the commitment and beliefs of the actors involved in the process and resulting in human action is needed. The environment in which knowledge is built – capacity building and empowerment processes, social mobilisation and organisation – are the important factors that are to be taken into consideration.

5.1. The capacity to use information

The Brazilian pedagogue Paolo Freire argued some 35 years ago for the need for dialogues and discourses among learners to understand the world instead of mere understanding of words. Similarly, in the process of knowledge management, dialogues and discourses among the rural community are essential. Modern ICT, if properly defined, can help to broaden the canvass for dialogues and discourses among the rural community.

The inventory shows how the majority of initiatives around rural ICT and the use of mobile telephony in agriculture is donor- or at least driven by external institutes or organizations . As long as these initiatives are considered as pilot, or submitted to a "proof of concept" inception phase, their impact is limited. The upscale of these initiatives will create new challenges. The more farmers are targeted, the more the content will be questioned by the research community and other stakeholders in the field of agriculture. Every agricultural information provider will want to have their content set the standard for a national service in contrast with a single information service which would have the monopoly in content. But diversity of rural knowledge request that different roles be played by different actors.

Providing weather forecasts on a daily basis is information. The generic data is generated from elsewhere and is given to the rural community through various media such as radio, television, newspaper, rural telecentres, and mobile phone alerts. The rural community does not get involved

in the generation, validation, evaluation, understanding and appreciation of this information. In such a "take it or leave it approach", the rural community remains a mere passive observer.

The horizontal transfer of knowledge has a blended learning process. Learning by doing, learning through participatory research, evaluation and knowledge management, CD and intranet based learning, face-to-face interactions, etc. are playing a crucial role in the capacity building process.

A single information system at national level cannot therefore meet all the needs and there will never be one fit for all system. Different platforms are needed depending on the content, the level of literacy, and the specific information needs.

- The basic information needs for farmers are market information prices, weather forecasts, transport facilities and information on storage facilities. This first type of data is, although vital and of direct concern to the farmer, quickly outdated and changes constantly.
- The second level of information needs is about crop and cattle diseases, fertilizers, etc. The inventory indicates that several such information services have been developed in order to provide information in a standard way, i.e., question and answers services.

  The most attractive forms of question and answers service are probably those services that are audio or voice-based, because they overcome the limitations of text-based platforms. In some cases, audio files are made accessible to farmers through the use of mobile phones (Kenya, Uganda and Zimbabwe). But these initiatives have just started (NAFIS, Kenya) or have yet to begin (Kubatana, Zimbabwe). The CELAC/BROSDI project of Uganda includes information and innovative techniques directly generated by the farmers themselves.
- The third level is more context and local specific and requires the direct interface between the extension worker and the farmer.

The evolution of an active utiliser constituency is the basic premise for a strong extension framework. The core of extension is in helping people make better choices through the supply of information and in enhancement of people's capacities to process such information and act on it, thereby reducing the transaction costs involved in pursing livelihood options.

5.2. Challenges to upscaling

Innovative information initiatives invite farmers to use and share their traditional knowledge using modern ICT. Rural community and scientists have come together for weather forecasting, blending frontier science and traditional knowledge that influence the decision-making process. The development of active utilizer constituency and horizontal transfer of knowledge have become crucial, particularly when viewed in the context of declining resources in formal governmental extension agencies, increasing demand from the rural sectors and new challenges like climate adaptation, bio-technology, farmer innovation techniques. Formal extension would become fruitful if it becomes a facilitating process for active utiliser constituency and community knowledge management, rather than if it attempts direct interventions and implementations. Such a framework requires a capacity building process among the officials of the formal extension system in innovative farmer information systems, building the structures, shaping the functions and refining the process through mobilisation, organisation, technology incubation and systems management.

But formal extension in its role in facilitating an improved access to knowledge needs to overcome four challenges. When several farmers are reached through a particular farmer information

provider, the service could become controversial if no consensus is reached before the upscale about the content with a large community of agricultural and rural actors.

A second challenge for the upscale of (the mainly pilot) ICT and mobile phone projects will be the necessary alliance with a mobile phone company. Several mobile phone providers compete for this "last frontier market". Also politicians challenge the major mobile phone providers: "Your competitor reaches the rural population with mobile credit services, how do you intend to service the farmers?"

A third challenge is to make sure the information platforms are inter-operational. In an upscale each of the platforms on which farmers' information is delivered has various advantages and limitations, and is often an inadequate solution when used on its own. It is observed here that to provide an effective solution, many platforms need to be carefully integrated in such a way as to harness the benefits of individual platforms while avoiding their limitations. In other words, an effective solution must contain all these individual platforms organised carefully so that each falls in its place to fulfill a set objective. For the farmers' information service the elements of such an information matrix include the following: (a) SMS (text) Platform (b) Voice platform (c) Web-portal (d) Call centre (e) Extension workers (f) Libraries (g) Researchers.

A last challenge is that it is typically difficult to attract the private sector to invest in such ventures in Africa because these entrepreneurs are primarily risk averse. This is where the public sector and NGOs can play a huge role by partnering with local private business (mobile phone operators, computer application developers, mobile phone traders, computer distributors) so that the solution can be sustainable after the time period of any given project.

6. Business benefits

If innovative farmer information systems respond to specific farmers' requirements and benefit farmers, mobile providers, researchers and input/market providers alike, there is a better chance for increased sustainability. For instance, when the back-end of the farmer information system contains a call centre, the farmer information system can implement farmers' feedback to be used for localisation and respond to specific farmers' requirements such as language and specific products adapted to local climatic, soil conditions. The SMS platform can be used for alerts, targeted to provide farmers with specific information, thereby creating demand.

When farmers call, they are automatically connected to an IVR (Interactive Voice Recording), which will prompt them to get critical information either in English or in their indigenous language. If they are satisfied, they will hang up at this point. If the farmers require further information, they can be either referred to a manned call centre, to a website, or to extension workers. In cases where the farmers may wish to get information in their local languages, they can automatically be referred to the manned call centre. The call centre can also, in some cases, refer farmers to the website or to extension officers for further information. The content to be used by the system can be harnessed from libraries and research institutions.

The IVR, the manned call centre and the website can monitor farmers' questions, locations and preferences, and preferences. Analysis of this information is key to policy decision-making. The feedback can pinpoint the content of required information for various locations and also the language preferences. These feedbacks and remarks from farmers are invaluable to other service providers in order to better target some adverts and improve on the content of education messages. These service providers will in the future increasingly use SMS for information dissemination.

Such innovative farmer information systems benefit farmers, mobile providers, researchers and input/market providers, among others. The farmers can have a comprehensive solution from which they can get critical information in the language of their preference. The telecom provider is able to penetrate the rural areas as the bulk of the population is a farming population, who can be attracted to a network, so as to access the information resource. Researchers have massive data from hundreds of thousands of farmers using the feedback resource. Input and market providers can advertise their products: fertilisers, market bids, etc., through a carefully targeting system based on feedback information. Such advertisement guarantees the system's sustainability.

7. Conclusions

It is important to realize that farmers and agricultural labourers should not be treated as mere consumers of generic information and knowledge. The agricultural sector requires a well-organised learning community in the form of farmers' associations, cooperatives, women's groups, etc.

Innovative farmer information systems are a blended learning process in which face-to-face interaction, learning by doing, learning through evaluation and experience, participatory research, etc., convert the generic information into location-specific knowledge and then empower its members through horizontal transfer of knowledge. It should enhance the self-directed learning among the rural community.

There will never be a 'one fit for all' system. But the inventory suggests that systems that use a voice-platform or audio files provide an innovative and promising entry point to farmer information while the other platforms (SMS and web-based platforms) remain essential to provide a back-end offering more detailed information.

In order to answer the question: [How can we monitor the impact?] we need to look into the broader innovation opportunities of farmers. To monitor the impact of the tool we need to look into:

- The most effective ways of reaching farmers with timely agricultural information and knowledge (indigenous and external).
- Mechanisms for harnessing the potential of FM radio stations and digital telephony as technologies for communicating agricultural information.
- Options for repackaging agricultural information and knowledge for small scale farmers.
- The potential role of and an e-repository (of local agricultural content) in Africa for purposes of disseminating local agricultural content.

PART II: PROJECT SUMMARIES

1. Voice Information Delivery Services

Project Title	***Allo Ingenier*** http://www.irinnews.org/Report.aspx?ReportId=78408
Project Owner	*Centre de Documentation pour le Développement Rural* (The Documentation Centre for Rural Development)
Project Partner	CTA
Project Status	Active
Country	Cameroon

The *Centre de Documentation pour le Développement Rural* in Yaoundé, which is part of the agricultural non-governmental organisation (NGO) *Service d'Appui aux Initiatives Locales de Développement* (Support Office for Local Development Initiatives), provides a service for farmers to call in with questions. If the agricultural expert on hand does not know the question right away, he/she calls a specialist and gets back to the farmer. *Allo Ingenier* not only provides answers for farmers but helps agricultural experts understand the important gaps in their knowledge. The documentation centre gets approximately 300 requests for information a year.

Project Title	**Banana Information Line** http://www.comminit.com/en/node/267102/306
Project Owner	Local Language Speech Technology Initiative (LLSTI)
Project Partners	National Agriculture and Livestock Extension Programme (NALEP); Kenyan Ministry of Agriculture
Project Status	Completed
Country	Kenya

This text-to-speech (TTS) telephone service provided farmers in Kenya with information related to how to plant, grow, and harvest bananas, in English and Kiswahili. According to the organisers, because anyone with a landline or mobile phone can access the information line, communities that are more difficult to reach by traditional means can access agricultural information more easily. A TTS service bypasses the need for literacy, as well as the problem of reaching farmers living in very remote areas, and can easily be kept up-to-date by extension workers. Farmers can call the line any time of day, every day. This project ran as a pilot for several months in 2006, but has now been superseded by the National Farmers Information Service (NAFIS) information line launched in May 2008 (see www.nafis.go.ke), which covers a wider range of crops and livestock.

Project Title	**National Farmer's Information Service (NAFIS)** http://www.nafis.go.ke/termcond
Project Owner	Government of Kenya
Project Status	Being Implemented
Country	Kenya

Kenya launched, in May 2008, a farmers' information service where the country's farming community will receive and exchange timely news and information on agriculture, weather patterns and other related issues through their mobile phones. The service will allow 4.5 million farmers access to agricultural extension information through the web and telephony. The system will be updated through the web by field extension officers and the same information will be updated on the IVR (interactive voice response) to be accessible by any kind of phone. To date, this service receives on average only 60 calls per week.

2. Radio: Dial-up (agricultural information on demand) and regular radio broadcasts

Project Title	**African Farm Radio Research Initiative (AFRRI)** http://www.farmradio.org/english/partners/afrri/
Project Partners	World University Service of Canada (WUSC); Farm Radio International
Project Funders	Bill and Melinda Gates Foundation
Project Status	Active
Countries	Ghana; Malawi; Mali; Tanzania; Uganda

AFRRI is a 42 month action research project launched in April 2007. AFRRI gathers, implements, evaluates, and shares best practices for using radio-based communication strategies to enhance food security in rural Africa. It also offers radio broadcasters capacity-building and training services that aim to improve their programming for rural listeners.

Project Title	**The Organic Farmer** www.organicfarmermagazine.org
Project Owner	The Organic Farmer
Project Partners	BioVision, Led Leichtenstein
Project Status	Active since 2005
Country	Kenya

The Organic Farmer (TOF) is an independent and sustainable publication of relevant, reliable and ecologically sound information for farmers in Africa. As an information service for farmers in Africa, TOF has a monthly magazine, weekly radio programme and a website. The magazine distributes 18, 000 copies in Kenya and neighbouring countries and reaches around 150, 000 readers who include the farming community as well as decision makers, who are interested in learning more about sustainable agriculture and ecologically sound development. The electronic version of TOF can be accessed free of charge on the Internet and has been used so far by farmers and researchers in over 20 tropical countries. The radio programme gives tips on organic farming and answers farmers' questions. TOF Radio is on air on the national broadcaster KBC Kiswahili service every Thursday from 8.15 to 8.45 pm.

Project Title	**Family Alliance for Development and Cooperation (FADECO)** http://www.hedon.info/FADECOTanzania
Project Owner	FADECO
Project Partner	CTA

Continued

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Project Status Active

Country Tanzania

A local NGO in Karagwe district of Tanzania, FADECO specializes in agricultural extension and participatory technology development with rural farmers. FADECO started with a rural library which provided information resources (books, CDROM libraries, magazines, newsletters, etc) and then started its own newsletter called WAZA) and established information notice-boards. Computer training started and in 2004, with support from RAIN (then an ASARECA Project), FADECO went online with VSAT and implemented a Question and Answer Service (with CTA). In 2007 the radio project was launched. The radio signal covers over 1 million listeners spread across the whole of Kagera region and neighbouring countries; districts of Kyotera, Masaka, Mbarara (in Uganda), Kibungo in Rwanda and Kobero (Burundi). FADECO mainly uses the radio for disseminating information and SMS text messaging to receive feedback and questions.

Project Title **Kubatana: The Zimbabwean NGO Network Alliance Project**
http://www.kubatana.net/html/ff/ff_cont.asp

Project Owner Kubutana

Project Status In Design

Country Zimbabwe

Freedom Fone (Dial-up Radio) addresses communities' requirements for a simple, affordable technology to communicate with one another. Audio files are stored by Freedom Fone in a Content Management System (CMS) which is updated through a simple to use browser interface. These audio clips populate an Interactive Voice Response (IVR) menu through which callers can navigate for information. Deployment in any language is possible as key global files for menu prompts can be uploaded through the browser interface to the CMS. Freedom Fone is network agnostic and can work with mobiles and landlines. Scalability can be factored in through Voice over Internet Protocol (VoIP) where VoIP is available. This technology can be used in a 'cost free to caller' context – where users could dial a toll-free number to access the service – or tickle a number that records the user's phone number and calls them back, connecting the user to the IVR menu content. In a 'low cost to caller' context users can SMS in for a call back. This approach has huge potential but lacks agricultural content.

Project Title **Rural Radio Resource Packs (RRRPs)**
http://ruralradio.cta.int/

Project Partner CTA

Project Status Active

CTA produces, every year, 5 Rural Radio Resource Packs on a variety of topics related to agriculture and rural development to be re-packaged and broadcast by local radio stations in African, Caribbean and Pacific countries (ACP). Through the Rural Radio Resource Packs a panel of experts from developing countries, submit material on diverse topics. The material is then compiled to produce CDs and brochures that are distributed among partner radio stations throughout Africa. Resource packs are offered only in English and French and therefore tend to be more readily available to public broadcasters than to smaller stations which broadcast in local languages.

3. Extension Services Based on Mobile Phone and Database Monitoring

Project Title	**Regional Agricultural Trade Information Network (RATIN)** www.ratin.net
Project Partners	Regional Agricultural Trade Expansion Support Program (RATES); Swedish International Development Agency (SIDA); Fews Net; USAID
Project Status	Active since 2003

RATIN is a five year project which is a collaborative effort comprising the USAID projects, ,Famine Early Warning System Network Project (FEWS NET), focussing on bringing in crop production and trade information, and the Regional Agricultural Trade Enhancement Support Program (RATES) dealing with changing trade policy to enhance regional trade in maize. The project objective is to supply traders with improved early warning marketing and trade information in East Africa. To easily distribute RATIN information to hundreds of small and medium cross border traders of cereals and pulses in East Africa, the traders have been organized into 30 loose associations each of which receive RATIN's monthly bulletin and disseminate it to all members. RATIN also disseminates trade-related information through TV and radio, telephone, newspaper and through its website.

Project Title	**The Makuleke Project** http://www1.alcatel-lucent.com/sustainable/DigitalBridge/?_requestid=38780
Project Partners	Alcatel; Manobi; Vodacom
Project Status	Active
Country	South Africa

This pilot project allows around 100 farmers in Makuleke to test cell phone technology that gives small rural farmers access to national markets via the internet. Using a virtual trading facility installed on mobile phones provided by the project sponsors, farmers can sell their produce directly from their small farms. By checking prices in the Johannesburg markets, farmers can avoid paying commissions to intermediaries and are able to negotiate for a price fully aware of market and price conditions.

Project Title	**Esoko (formerly Tradenet)** http://www.esoko.com
Project Owner	Esoko Networks
Project Status	Active

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Countries	Benin; Burkina Faso; Côte d'ivoire; Ghana; Madagascar; Mali; Mozambique; Nigeria; Tanzania; Uganda; Cameroon; Afghanistan; Sudan

Esoko is a rural communication platform that seeks to improve incomes by building healthy markets. Any individual, business or producer group can set up Esoko to better manage their marketing, distribution and procurement networks. There are four key services provided by the platform:

1. Live market feeds: real-time SMS alerts on market prices and offers that are automatically delivered to subscribers. Users can submit offers into the system directly using SMS.
2. Direct SMS marketing: businesses can target specific groups of users and target procurement or extension messages to reduce their travel and communication costs.
3. Scout Polling: enterprises can setup automatic SMS polling for field activities to track inventories, crop activities etc. to monitor and report on crop cycles and yields.
4. Online profiling and marketing: any user or business gets a customizable web space that can advertise their goods and services. This space can be updated using Esoko's mobile2web content management service.

Esoko was begun as TradeNet in 2005 as a private initiative. It partnered with USAID's MISTOWA program in West Africa and CIAT's FoodNet program in Uganda. It works with both web and mobile devices and has a team of 20 in Ghana developing the technology. It is currently licensed by partners in 10 countries throughout Africa. Anyone can license the platform for use in their own country. Esoko provides a complementary partner support programme which is focused on capacity building and financial sustainability, with an emphasis on market data enumeration and business development services. 15,000 farmers have subscribed to the Esoko service in Ghana only.

Project Title	**InfoPrix Benin: Market prices via SMS** http://www.onasa.org/
Project Owner	National Bureau for Food Security (ONSA)
Project Partners	The German Centre for Documentation and Information for Agriculture (ZADI); *Deutsche Gesellschaft für Technische Zusammenarbeit* (GTZ)
Project Status	Unknown
Country	Benin

Surveyors of the food security office in Benin (ONASA) monitor 64 rural markets on the prices of the 25 most important staple foods. Prices are supplied to an Internet cafe where the data is processed and sent to ONASA headquarters. After a quality check, subscribers receive an SMS message with the prices of the main products from the six most important markets. Other information can be requested via SMS, and information is forwarded to radio stations to be communicated in local languages.

Project Title	**Réseau des Systèmes d'Information des Marchés en Afrique de l'Ouest/West African Agricultural Market Information System Network (RESIMAO/WAMIS-Net)** http://www.resimao.org/html/en
Project Owner	RESIMAO/WAMIS-Net
Project Status	Active
Countries	Benin; Burkina Faso; Côte d'Ivoire; Guinea; Niger; Mali; Senegal; Togo; Nigeria

RESIMAO/WAMIS-NET is a Network of Market Information Systems from its member countries that provides, to all stakeholders, up-to-date and accurate information on 400 rural and urban agricultural commodity markets via different media. The network monitors the development of the agricultural sector through the collection and publication of related statistics and analytical reports. It provides market information free through the internet, radio, print, email and SMS.

Project Title	**Trade at Hand** http://www.intracen.org/trade-at-hand/
Project Owner	United Nation's International Trade Centre
Project Status	Active
Country	Burkina Faso; Mali; Senegal; Mozambique; Liberia (starting)

In the agricultural sector, the service provides daily commodity price information for fruit and vegetable exports. This service targets fruit and vegetable exporters. "Market Prices", consists in sending, via SMS, product prices on international markets, in real time. Users of market prices are registered by the local Trade at Hand Focal Point. Upon subscription, the exporter chooses the products for which he/she wants to receive price quotations. Real time prices for wholesale markets will be sent to the exporter through the Short Message Service (SMS) in his mobile phone. "Market Alerts" is a Web-to-SMS tool that enables Business Support Organisations to transmit business opportunities, contacts and market news to business people.

Trade at Hand was designed to be self-sustainable in countries where the service is launched. The services costs are negotiated on a case-by-case basis, for each country, in order to set-up an affordable information service. The management of Trade at Hand is given to local organizations (called T@H Focal Points). Over 90% of the fruit and vegetable exporters (to Europe) from Senegal, Mali and Burkina Faso are subscribed to Trade at Hand Market Prices. The ITC is currently implementing a project which collects, by SMS, agricultural food prices on national markets of Senegal, Mali and Burkina Faso. It is done in partnership with three national price collecting institutions.

Project Title	**Eastern Corridor Agro-market Information Centre (ECAMIC)** http://www.sendfoundation.org/programs/project_item.asp?id=4&section=7
Project Owner	SEND (Social Enterprise Development Foundation of West Africa)

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Project Partner	IICD, Catholic Organization for Relief and Development Aid (Coraid)
Project Status	Active since 2003 (Projected End Date: 31 December 2009)
Country	Ghana

The ECAMIC project supports farmers in the Eastern Corridor of Northern Ghana through forming cooperative farmer groups (with around 800 members in total) using ICTs to improve access to market information and data. A market facility, which began construction in 2005, serves as a source of market information and data to twenty four community-based farmers' cooperatives. Price Information collected at the local district markets is combined with other relevant agricultural information at the ECAMIC office and distributed to district offices through e-mail. **Mobile phones are used to transmit market information**, using the Tradenet (aka Esoko) platform, and Cooperative Information Officers d**isseminate weekly prices** to cooperative leaders who then organise meetings with their members to discuss the information received (interpret market prices for the benefit of illiterate members and advise one another). Literate leaders with mobile phones **access market information and** pass on this information t**o their colleagues** who do not have phones. Increasingly, farmers are beginning to use the platform to send offers to sell produce, but the challenge now for farmers is to meet the demand of buyers in terms of stating the quantity and guaranteeing the quality of the produce.

Project Title	**E-commerce for Non-traditional Exports** http://www.iicd.org/projects/articles/IICDprojects.import17/
Project Owner	Agricultural Service Sector Investment Programme (AgSSIP)
Project Partner	IICD; Ghana Export Promotion Council; Federation of Ghanaian Enterprises; Association of Ghanaian Industries
Project Status	Complete (2000-2004)
County	Ghana

The E-Commerce Project aimed to improve the marketing capacity of small-scale producers of non-traditional exports (crops like cashew and shea nut, pineapple and maize) through the establishment of six District Agricultural Information Centres (e-commerce centres) throughout the country. Farmers and traders subscribed to the Information Service for a small monthly fee. The information services at each e-commerce centre included:

- Web-based promotion of products and linkages to current and potential traders through personalised Web sites hosted at the district offices, linked to the central Web site at the Ministry of Agriculture head quarters
- Access to market information on the main markets in Ghana at the MOFA district offices, linked to the central marketing database at MOFA head quarters

650 traders and farmers have subscribed to the service, with around 3,200 beneficiaries.

Project Title	**E-commerce for women**
Project Funder	IDRC
Project Owner	Ministry of Food Agriculture, INSTI/GAINS
Project Status	Complete (2001-2006)
Country	Ghana

The project was piloted in the central region and focused on rural poor women by addressing e-commerce of non-traditional exports, mainly horticulture and vegetables, and involved the creation of 6 centres. Agricultural personnel were trained on the use of computers and the internet and some centres had demonstration sites. The project also had direct collaboration with GAINS and MISTOWA. GAINS has been instrumental in providing information resources but there is a gap between the research information and farmers (most content from GAINS is targeted at researchers). There were plans to have VSATs in districts but the challenge was coping with the recurrent costs for band width and 'share models' with other organisations were being considered. The project has an ICT centre with internet connectivity and local content produced will be uploaded for sharing by all. Some of the newer technologies are captured on video.

Project Title	**Kenya Agricultural Commodities Exchange (KACE) MIS Project** http://www.kacekenya.com/
Project Owner	KACE
Project Partners	CTA; Safaricom Ltd; Rockefeller Foundation; USAID; Hans Seidal Foundation
Project Status	Active since 2002
Country	Kenya

The KACE MIS pilot project was initiated by KACE, in collaboration with CTA. KACE collects, processes, updates and disseminates market information daily to farmers and other market intermediaries through the MIS. Market information includes prices of commodities in different markets, and commodity offers to sell and bids to buy, as well as short extension messages. Through the offers and bids function, farmers are able to advertise their stocks (offers) for sale or their demands (bids) for farm inputs such as fertilizers and improved seeds. KACE receives feedback which it uses to continuously refine and improve the system. There are several services:

1. Rural based Market Information Points (MIPs): information kiosks.
2. Market Information Centres (MICs): centres which provide internet connectivity and liaison points.
3. Mobile phone Short Messaging Service (SMS Sokoni): a partnership with Safaricom Ltd, a leading mobile phone service provider. A farmer anywhere in the country where the

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Safaricom mobile phone network exists can access market information like commodity prices in different markets, who is buying or selling what commodity, at what prices, where and when, as well as access extension messages using their Safaricom mobile phones. The user receives and pays for the SMS messages, about KSh 7 per message, to the Safaricom.

4. Interactive Voice Response (IVR) service: an IVR network that KACE uploads market information into regularly. Users access the information in voice mail by dialling the number 0900552055 using any mobile or digital phone through a simple menu.
5. SOKO Hewani: a virtual trading floor created for small-scale producers to offer for sale various agricultural commodities; and bids to buy available? using mobile phones by calling in to the radio station (in design).
6. An Internet based Regional Commodity Trade and Information system (RECOTIS): an electronic database of clients interested in buying, selling, importing, exporting or distributing agricultural commodities for dissemination of market information (not fully operational).
7. A website: http://www.kacekenya.com/.

Project Title	**Livestock Information Network and Knowledge System (LINKS)**
Project Owner	Global Livestock Collaborative Research Support Program me(GL-CRSP)
Project Partners	**US:** USAID; Texas A & M University; Centre for Natural Resource Information Technology (CNRIT) **Kenya:** Kenya Livestock Marketing Council, Ministry of Livestock Development, SNV Netherlands Development Organization **Ethiopia:** Ministry of Agriculture and Rural Development, Livestock Marketing Authority **Tanzania:** Ministry of Industry, Trade and Marketing, Tanzania Livestock Marketing Agency
Project Status	Active since 2003
Countries	Kenya, Ethiopia, and Tanzania

LINKS is an ongoing and expanding regional linked livestock marketing information system that is geared towards addressing the needs for timely and reliable livestock marketing information for producers, traders and policy makers in the livestock sub-sector. The LINKS system supplements the Livestock Early Warning System (LEWS).

The service covers 18 markets in Kenya, 32 in Ethiopia and 30 in Tanzania. It provides information on various topics:

- Trends in livestock prices for the major livestock (cattle, camel, sheep, goats).
- Sales volumes including proportions of each kind of animal by market.

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- Costs of transporting animals by truck from one market to another.
- Number of hours taken to transport animals from one market to another.
- Prices of livestock products – milk (camel, cow, goat), meat (camel, cow, goat, sheep), hides, skins, honey.

The information on prices and volumes may be downloaded from the web using the individual country URLs: Kenya (www.lmiske.net), Ethiopia (www.lmiset.net), and Tanzania (www.lmistz.net) or accessed through SMS. Pastoral areas in the 3 countries carry about 30% of the total population estimated at 160 million people ,which adds up to 48 million people. It is estimated that out of the 48 million, about 5% (2.4 million) have access to the information through the network of major project partners with an estimated 3% (720,000) using personal mobile phones.

Project Title	**Agricultural 0Marketing and Information System for Malawi (MIS-Malawi)** http://www.ideaamis.com/SMS/index.php
Project Owner	Malawi Agricultural Commodity Exchange (MACE) Ltd http://www.ideaamis.com/
Project Partners	Telekom Networks Malawi; Rockefeller Foundation; University of Malawi Bunda College IDEAA
Project Status	Active since September 2004
Country	Malawi

The Agricultural Marketing and Information System for Malawi (MIS-Malawi) is a 5 year project in implemented through the MACE within the overall framework of the Initiative for Development and Equity in African Agriculture (IDEAA). It uses various tools to integrate ICTs into the provision of relevant and timely market information and intelligence targeted at smallholder farmers and serves other market intermediaries in the commodity value chains that represent market outlets for the farmers. There are several system components:

1. Central Hub: based in Lilongwe.
2. Marketing Information Centers (MICs): 3 centres located in Limbe, Lilongwe, and Mzuzu.
3. Marketing Information Points (MIPs): 4 centres located in Lobi, Kasungu, Rumphi and Lizulu.
4. Market resource centres: 6 centres located in Muloza, Mwanza, Liwonde, Mitundu, Jenda and Karonga.
5. Short Messaging Service (SMS): using the cell phone number 08200777, the service allows users to access wholesale prices from 13 markets, sell or buy agricultural commodities and access retail prices from 45 markets, set prices of agricultural commodities and access hybrid maize variety yields and fertilizer recommendations. There were approximately 30, 000 users of the SMS services in 2007.
6. Email ideaa@ideaamis.com and a website www.ideaamis.com

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7. Radio programme: In January 2008, MACE commissioned the virtual trading floor through the radio. The programme, called Misika ya pawailesi or Supermarket on the Air, is an interactive radio programme that allows farmers in Malawi to trade various agricultural commodities in a timely and effective manner, by placing their offers to sell and bids to buy live on the radio. MACE staff interact directly with the farmers, who call in to sell and buy commodities. From January to September 2008 the total volume traded through the radio programme was MK (Malawi Kwacha) 32,733,845.10, equivalent to $US233,813.00.

Project Title	**Système d'Information des Marchés Agricoles (SIMA)** http://ictupdate.cta.int/en/Feature-Articles/Dakoro-calling
Project Partner	Famine Early Warning System Network (FEWS NET)
Project Status	Unknown
Country	Niger

Local government staff gathers information in collaboration with the agricultural and livestock markets SIMA (*Système d'Information des Marchés Agricole* – Agricultural Market Information System) and SIMB (*Système d'Information des Marchés du Bétail* – Livestock Marketing Information System). They directly collect information in the local markets all around the country. Each telecom centre covers a certain number of villages and markets. At each satellite terminal, there is a computer connected to a small data transmitter that in turn sends the agricultural information to the capital.

Project Title	**Network of Market Information Systems and Traders' Organizations of West Africa (MISTOWA)** www.mistowa.org www.wa-agritrade.net
Project Partners	USAID; Agriterra; IFDC
Project Status	Completed
Countries	ECOWAS countries

Beginning in 2004, MISTOWA was funded by USAID until September 2007 and implemented by the IFCD. With the overall objective of increasing intra-regional trade of agricultural commodities within West Africa, the project focussed on removing obstacles to trade such as a lack of access to timely information on prices and market opportunities, inadequate ability of producers and traders to respond to production and market opportunities and an unfavourable trading environment, including tariff and non-tariff barriers. MISTOWA worked with national affiliates of Market Information Systems (MIS), Traders' Organizations (TOs) and Producers' Organizations (POs) and regional public MIS networks such as RESIMAO/WAMIS-NET and private ones such as TradeNet which provide, to all stakeholders, up-to-date and accurate information on 400 rural and urban agricultural commodity markets via the internet, radio, print, email and SMS. Other partners were inter-governmental economic, monetary and policy organizations, ICT providers, media and private companies in the agro-processing sub-sector. The project targeted all 15 ECOWAS member countries but activities were carried out most intensively in Ghana, Nigeria, Mali, Burkina Faso, Senegal,

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Benin, Togo, Cote d'Ivoire and Niger, with significant though lesser involvement of key partners in Guinea, The Gambia, and Sierra Leone. MISTOWA developed a very successful private-public partnership with "Busylab", a private software company in Ghana to create the electronic agribusiness information exchange platform, www.tradenet.biz. To assist users in accessing TradeNet and a variety of other market information and business services, MISTOWA assisted partners in establishing over 100 "Agribusiness Information Points" (ABIPs) in 13 countries throughout West Africa. ABIP managers are now highly trained in the use of Tradenet and are able to facilitate producers and traders developing profitable market linkages. A new USAID funded project, Agribusiness and Trade Promotion (ATP), has since taken over most of the activities of MISTOWA. ATP will focus on maize, onion/shallot, and live cattle value chains.

Project Title	**Farmers Information Communication Management (FICOM)** http://www.syngentafoundation.org/projects_programs_ficom_overview.htm http://www.ictard.org/ictard_projects_pilot.htm
Project Owner	Uganda National Farmers Federation (UNFFE)
Project Funder	Syngenta Foundation for Sustainable Agriculture (SFSA)
Project Partners	Information and Communication Technologies for African Rural Development (ICTARD); Meteorological Department of the Ministry of Lands Water and Environment; NARO; Uganda Microfinance Union; Foodnet Uganda; Busoga Rural Open Source Development Initiative (BROSDI); MTN Village phone project; Uganda Microfinance Union
Project Status	Complete (2005-2007)
Country	Uganda

FICOM was a pilot study to test sustainable ICT tools that can be used to effectively disseminate agronomic information, advisory information, microfinance information, market information and agro enterprise development, and related business development support service to rural farmers in Jinja, Kayunga and Luwero districts. Important tips on growing crops were relayed from the Uganda National Farmers Federation (UFFE) headquarters to district level offices, and then to 24 village phone centres, in which each farmer's group owned a mobile phone. The farmers also sent and received SMS messages with updates on market prices. The project re-developed the UNFFE Website, established a wireless network and World Space radio using the radio and internet Systems (RANET) which enabled access to advisory information (UNFFE website) without internet connection.

Project Title	**Agricultural Research Extension Network (ARENET)** http://www.arenet.or.ug/question2.php
Project Partners	National Agricultural Research Organization (NARO); National Agricultural Advisory Services (NAADS); Agricultural Research Information Service (ARIS); Bulindi, Ngetta and Mbarara Zonal Agricultural Research and Development Institutes (ZARDIs); Local Government

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	Agriculture Departments of Lira, Hoima and Mbarara districts; WougNet Kubere Information Centre in Apac; FoodNet Lira; IITA/FoodNet; Agency for the Promotion of Sustainable Initiatives (ASDI) in Apac; Volunteer Efforts for Development Concerns (VEDCO); DATICs in Rakai; Action AID International in Masindi; Uganda National Farmers Federation (UNFFE); Ministry of Agriculture; Animal Industry and Fisheries; National Fisheries Resources Research Institute (NAFIRRI)
Project Status	Active since November 2004
Country	Uganda

ARENET was developed through a Technical Cooperation Project (TCP) between the Ugandan government and the FAO. The project that developed ARENET ended in 2007 and was entitled: Strengthening Information and Communication Linkages between Agricultural Research and Extension in Uganda. The project pilot site is in Zonal Agricultural Research and Development Institutes (ZARDIs) of Bulindi, Ngetta and Mbarara, Agricultural Research Information Service (ARIS), NAADS, Agricultural Production Departments and NGOs in the districts of Mbarara, Lira, and Hoima.

ARENET provides 3 basic services:

1. Agricultural documents system: an internet tool for documenting, storing, sharing and disseminating simple technical agricultural information applicable to farmers and extension agents
2. The Question and Answer service (Q&A): an internet tool for solving technical problems related to agriculture and rural development. It was developed with the aim of helping farmers to get answers to different questions. Farmers, extension workers and service providers post the questions online under the appropriate category. The questions are answered by the best experts in each field and then posted for all to access. The questions and their appropriate answers are then stored in a data repository.
3. News and events: a system to enable districts and research sites to post news or events announcements.

Project Title	**T2M (Time to Market)** http://t2m.manobi.sn/
Project Partners	Manobi
Project Status	Unknown
Country	Senegal

Manobi developed the T2M, a system that enables producers, exporters and the public regulatory agency to use a mobile telephone, a PDA (personal digital assistant) or the internet in order to know in real time both the price and arrival status of their products at the markets, and the availability of the same products in the production sites. The price and arrival changes of the products on the markets are collected by Manobi twice a day. The data, which is sent and stocked at a centralized database, is analyzed in real time before it is broadcast to the users through a multi-channel platform specially developed by Manobi to provide value added data services at a lower cost with the mobile telephony operators' first generation classical vocal networks.

Project Title	**Xam Marsé** http://www.manobi.sn/sites/za/index.php?M=9&SM=20&Cle=54
Project Owner	Manobi
Project Partners	Senegalese Agricultural Credit Fund; Sonatel; Swiss Agency for Development and Cooperation; Senegalese Ministry of Commerce; Alcatel; Sontel; IDRC
Project Status	Active
Country	Senegal

Launched by Manobi in 2001, Xam Marsé provides market information about various products to Senegalese farmers, traders, hoteliers and others via internet and free daily SMS. Xam Marsé provides SMS with real-time information on the prices and availability of fruit, vegetables, meat and poultry, on any of Senegal's markets.

Project Title	**Agricultural Marketing Systems Development Programme (AMSDP)** http://www.ifad.org/english/operations/pf/tza/i575tz/index.htm
Project Owner	Government of Tanzania
Project Partner	IFAD; ADB; the Government of the Republic of Ireland; Vodacom
Project Status	Active since 2002
Country	Tanzania

Vodacom is working with the Ministry of Industry, Trade and Marketing to implement its AMSDP, a seven year programme. Information is provided by the ministry to Vodacom where farmers and traders can access the data, including the latest commodity prices through SMS sent from their mobile phones. This service enables farmers and traders to negotiate more effectively on the sale of agricultural produce.

Project Title	**SMS Information Service** http://www.farmprices.co.zm/
Project Owner	Zambia National Farmers Union (ZNFU)
Project Partners	IFAD; Vodacom DRC; AfriConnect/CelTel
Project Status	Active since 2007
Country	Zambia; Democratic Republic of Congo

The IFAD-supported Smallholder Enterprise and Marketing Programme (SHEMP) in Zambia created a cross-border SMS market information service began that provides farmers and traders in Zambia and the Katanga province of the Congo with daily information on stock availability, indicative market prices and sales trends that is also supported by its website. To obtain the best prices for a commodity, farmers send an SMS containing the first four letters of the commodity name to 4455. Congolese traders access the information in French via Vodacom DRC in the Congo and in English via AfriConnect/Celtel in Zambia.

4. E-Learning for Basic Skills, Agricultural Education and Video-Based Approaches

Project Title	**Rural Universe Network (RUNetwork)** http://www.runetwork.de/html/en/index.html
Project Partners	Information Systems for International Cooperation in Agricultural Research and Rural Development (ISICAD) at the German Federal Agency of Agriculture and Food (BLE) The Agricultural Research Council (ARC); *Institut National des Recherches Agricoles du Bénin* – National Agricultural Research Institute of Benin (INRAB); Caribbean Agricultural Research and Development Institute (CARDI); Jamaica Agricultural Society (JAS); German Ministry of Education and Science (BMBF)
Project Status	Active since 2000
Country	Benin, South Africa

The RUNetwork project is a collaborative effort of several institutions and communities in Benin, Jamaica and South Africa to promote the active participation of rural people in the global information society. The primary objective is to give the rural population a voice. For this purpose the project developed an operational and fully decentralized information system on the web ,in direct collaboration with the rural communities. In particular, the information system seeks to cope with problems of poor connectivity and low computer literacy. The first version of the interactive system was launched in the year 2000. The project ended in 2004. The information system continues to operate as part of a series of projects that use the system for information and communication management. The information system was further developed and continues to operate in the frame of a series of project that used the system for information and communication management. Today the system holds more then 4000 publications with generic information from developing countries; including more then 10000 images and documents. Amongst others, the system comprises a range of innovative features for the management and controlof a demand driven web-based question answer service.

Project Title	**Question and Answer Service** http://www.cta.int/about/qas.htm
Project Funder	CTA
Project Status	Active
Countries	Benin; Cote d'Ivoire; Guinea; Togo; Uganda; Botswana; Malawi; Lesotho; Namibia; Zimbabwe; South Africa; Ghana; Nigeria

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CTA has been sponsoring Question and Answer Services since 1985 to provide information services and products to researcher, extension works and rural producers in Africa, the Caribbean and the Pacific (ACP) countries. The service was based on a centralised model until 1997 when its provision was decentralised to partners in the African, Caribbean and Pacific regions. In 2007, CTA provided support to partners implementing the service in 13 African countries. The centres employ increasingly greater degrees of information technology, such as the internet, SMS, radio and call-in services.

Project Title	**Miproka (Maison d'Information et de Promotion du Karité)** http://www.songtaaba.net/
Project Owner	Songtaaba-yalgré Association
Project Partner	IICD
Project Status	Active since January 2005
Country	Burkina Faso

This is a five-year education pilot project which has built two small information centres (Maisons d'Information et de Promotion du Karité or MIPROKAs) in rural areas for women who produce shea butter. In these centres women can access the internet to keep in touch with the central office of the project owner in Ouagadougou, the capital of Burkina Faso. Apart from the shea producers, the centres are also accessible for other inhabitants of the rural areas and benefits about 800 people. Songtaaba can now produce its own Powerpoint presentations in bambara.

Project Title	**Sissili Vala Kori: Improvement of agriculture related information channels to farmers in the rural area Sissili** http://www.iicd.org/projects/articles/iicdprojects.2005-06-28.6126833637
Project Owner	*Fédération Provinciale des Producteurs Agricoles de la Sissili* (FEPPASI)
Project Partner	IICD
Project Status	Active since January 2005
Country	Burkina Faso

Sissili Vala Kori is a project set up in 2005 to improve communication and information between the farmers' federation FEPPASI and its members. Two small telecentres were built in the villages of Vieha and Boura. In these centres, computers were installed and members of the farmers' federation received training in the use of internet and multimedia tools. Approximately 6000 farmers benefit from this project, because through increased access to prices, production and food-processing techniques they can increase their production and income.

Project Title	**TV Koodo: Market price information system using web and national television** http://www.iaber.bf/tele_koodo.php
Project Owner	*Institut Africain de Bio-Economie Rurale* (IABER)
Project Partner	IICD
Project Status	Active since January 2005
Country	Burkina Faso

The *Institut Africain de Bio-Economie Rurale* (African Institute of Rural Bio-Economy) created a project to provide information on agricultural markets through a television programme entitled TV Koodo, which is linked to the IABER website (www.iaber.bf). The show is broadcast monthly on Burkina Faso's national television channel and provides market prices for livestock and grain. It informs people about the trials and tribulations of agricultural life in an entertaining way, by using puppets, with guests invited to participate in the broadcasts. The show has over one million viewers.

Project Title	**Virtual Extension and Research Communication Network (VERCON)** http://www.vercon.sci.eg/Vercon_en/vercon.asp
Project Owner	Government of Egypt
Project Partner	FAO
Project Status	Active since 2001
Country	Egypt

The Egyptian Government established a pilot Virtual Extension and Research Communication Network (VERCON) in 2001–02, in four centres, with the support of FAO. The pilot was aimed at addressing the needs of small-scale Egyptian farmers through information exchange between agricultural research and extension and, indirectly, the farmers themselves. The pilot phase of the TCP project has ended and activities are now being up-scaled with plans to roll out VERCONs in other countries in Africa (Cameroon, Kenya, Sudan, Tanzania and Uganda), Asia, Pacific, Latin America and Middle East. Users of the system can access extension materials, decision support systems and databases among others and participate in online discussions, special interest forums and news and events. Small-scale farmers can ask questions through an online service called 'Farmers Problems' and all questions and answers provided are archived to allow access to others using the system.

Project Title	**Improving Agricultural Productivity and Market Success of Ethiopian Farmers (IMPS)** http://www.ipms-ethiopia.org/ http://www.eap.gov.et/
Project Owner	International Livestock Research Institute (ILRI); Ethiopian Ministry of Agriculture and Rural Development (MoARD)
Project Funder	CIDA

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Project Status Active since June 2004

Country Ethiopia

Improving Productivity and Market Success (IPMS) of Ethiopian Farmers is a five-year project which aims to contribute to improved agricultural productivity and production through market-oriented agricultural development – focusing on the smallholder rural population of Ethiopia. The project works on strengthening the effectiveness of the government's effort to transform agricultural production and productivity from subsistence to market-oriented.

Project Title **Ghana Agricultural Information network System (GAINS)**
http://www.gains.org.gh/

Project Owner Council for Scientific and Industrial Research/ Institute for Scientific and Technological Information (CSIR/INSTI)

Project Partners Government of Ghana, CTA (Q and A)

Project Status Active

Country Ghana

GAINS is a Coordinating Centre, based at the Institute for Scientific and Technological Information (INSTI) in Accra. It is a national network that identifies, collects and disseminates agricultural information in Ghana and acts as a referral centre for requests on agricultural information as well as sustainable development and food security. GAINS has a membership of about 21 libraries and information centres under agricultural and educational institutions.

The Agona Swedru Agricultural Information Centre and the Winneba-based community radio station, Radio Peace, are two information intermediaries that GAINS uses to disseminate research findings to farmers. GAINS also offers a question and answer service that is supported by CTA and offers expert talks and work with local radio stations to prepare agricultural message to broadcast to farmers.

Project Title **ICT Support for Rural Agricultural Literacy**
http://www.iicd.org/cases/ghana-wadep

Project Owner Women and Development Organization (WADEP)

Project Partner IICD

Project Status Active since June 2005

Country Ghana

Supported by the IICD since 2007, the pilot project focuses on agricultural market access for about 15,000 farmers in the Volta Region. Small-scale producers (yam, cassava and cowpea farmers) are provided with technical information on production, marketing skills and opportunities and access to timely market information by the Women and Development (WADEP) organisation. The knowledge they acquire allows them to improve their bargaining position with buyers and traders.

Project Title	**Market Information Service Facility and Training** http://www.commercialinvestments.com.gh/mp/aboutus/whoweare.php
Project Owner	Market Access Promotion Network (MAPRONET)
Project Partner	IICD
Project Status	Active since 2001
Country	Ghana

Supported by the IICD since 2004, Mapronet currently operates in four zones within Ghana. During the pilot phase, this system is implemented with three organisations: two facilitating network members of Mapronet - Altranet (Volta region) and Trade Aid Integrated (Tamale), together with the Mapronet headquarters in Tamale that represent 150 small-scale farmers.

Through its market information service facility and training activities, MAPRONET supports its affiliated small- and medium-sized cooperatives. This project is constructing 3 basic business information centres ,where farmers can access market information and other relevant agricultural information. Through the Tradenet platform (aka Esoko) members of Mapronet will broaden their scope of collecting and disseminating market information for their beneficiaries. During the pilot phase, this system will be implemented with three organisations: two facilitating network members of Mapronet: Altranet (Volta region) and Trade Aid Integrated (Tamale) together with the Mapronet headquarters in Tamale that represent 150 small-scale farmers.

Project Title	**DrumNet** http://www.drumnet.org/index.htm
Project Owner	Pride Africa
Project Status	Active since 2003
Country	Kenya

DrumNet is a project of Pride Africa now in its third year of testing and redesign, working with around 3000 farmers in various regions within Kenya. DrumNet intends to expand operations across African countries by providing a value-chain management platform to link smallholder farmers to markets, financing and information. The concept is to provide a bridge between different value chain partners that ensures a reliable market to farmers for their produce through the provision of fixed-price contracts. The DrumNet rural supply chain management system integrates small producers, large agro buyers, suppliers and commercial lenders into an end-to-end finance, production, delivery, cash conversion and payment process. To ensure contract fulfillment, DrumNet arranges training for farmers and access to financing. DrumNet uses a mobile phone linked ICT platform to communicate, verify, and share information. DrumNet's database and a digital information/SMS/communication platform tracks interactions to verify compliance with rules detailed in a master, service level contract which defines the relationships, rights and obligations between and among the supply chain members.

Project Title	**Infonet-Biovision Farmer Information Platform** http://www.infonet-biovision.org/
Project Owner	BioVision Foundation
Project Partners	Avallain Enhancing Education; Insect Science for Food and Health (ICIPE); *Forschungsinstitut für biologischen Landbau* – FiBL (Research Institute of Organic Agriculture); Kenya National Federation of Agricultural Producers (KENFAP); African Conservation Tillage Network (ACT); ; Kenya Agriculture Research Institute (KARI); The Organic Farmer Magazine; Agriculture Information and Resource Centre (AIC)
Project Funder	Liechetenstein Development Service (LED)
Project Status	Active
Country	Kenya

Infonet-BioVision is a farmer information platform that provides information to farmers and rural communities in Africa, with contributions from local experts and international scientists on topics such as sustainable agriculture, livestock and human health promotion and environmentally safe technologies and approaches. The information platform is used as a resource pool for disseminating information inside and outside the internet through active cooperation with partner organizations and local farmer and women's groups and through ICTs. Infonet-BioVision is connected to a weekly farmers radio program on organic farming issues http://www.theorganicfarmer.org/. A new offline version (CD) will be available from January 2009. In the near future a feedback function will be implemented and there will be a built-in option for sending text to voice messages from the website to mobile phones.

Project Title	**Techno Centres** http://www.kendat.org/
Project Owner	Kenya Network for Dissemination of Agricultural Technologies (KENDAT)
Project Partners	Agricultural and Resource Centre; KACE, Sacred Africa; Kenya Soil Survey; Kenya Broadcasting Corporation
Project Status	Unknown
Country	Kenya

KENDAT has established about 16 techno centres that supply inputs and information to farmers and intermediaries. The techno centres organise field days, exhibitions and demonstrations to improve dissemination and uptake of agricultural technologies. The techno centres are managed and run by farmers and the centres are equipped with information resources and ICTs. Each techno centre has 6 computers that are solar powered and wireless phones for internet access. The government is planning digital villages in all districts and to provide more sites for sharing and disseminating information.

Project Title	**Linking Local Learners (LLL)** http://www.linkinglearners.net/
Project Partner	CTA
Project Status	Active
Countries	Kenya, Tanzania and Uganda

The Linking Local Learners (LLL) method tries to include all those involved in the supply chain and encourages them to learn from each other. It includes everyone involved in the process of bringing goods from the farm to the market: farmers, buyers, transporters, traders and retailers. They are all asked to share market information and form a network to develop a better system of communication.

Project Title	**Information Network in Mandé**
Project Owner	*Association d'Aide et d'Appui aux Groupements* – AAAG (Association of Aid and Support Groups) http://www.iicd.org/projects/articles/iicdprojects.2005-06-21.5082985182/?searchterm=None
Project Partner	IICD
Project Status	Active since January 2005
Country	Mali

The local non-governmental organisation AAAG (Association d'Aide et d'Appui aux Groupements) was created in 1990 to capacitate and enhance local farmers' organizations in the Mandé and the Tiakadougou region. It currently works with 102 local organizations in 35 villages, which are regrouped in the Fabema (Fédération des Organisations de Base du Mandén). This project addresses the information and communication problems of farmers in the Mandé region, south of Bamako. The almost total lack of infrastructure in this region makes it very difficult for Fabema to reach its constituent members and to inform them about activities, awareness workshops and market prices. The system uses a combination of shortwave radio (RAC, powered by solar systems) in five selected villages, and internet at the level of AAAG in Bamako. Information can be sent from Bamako to the connected villages and back and between the villages themselves.

Project Title	**Fruiléma** http://www.fruilema.com/
Project Partners	IICD; Manobi
Project Status	Active since January 2006
Country	Mali

Fruiléma, a business venture consisting of 5 mango producers, launched a web platform with help from the IICD and Manobi - a private sector company based in Senegal. The platform enables potential buyers to follow the whole production chain, right from where and how the mango was grown to the other end of the chain, that is, the company that is offering them for sale. Fruits sold by Fruiléma can be compared with the quality criteria defined by GlobalGap (formerly known as EurepGap); a European certificate that guarantees insights into such

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things as the origin of the product, the way it was grown, the circumstances under which it was grown, the application of fertilizers or pesticides and how it was packaged. The information gathered is accessible online and can be updated via internet and mobile phone. The available information is disseminated to various stakeholders such as producers, trackers, collectors, importers. Around 20,000 farmers utilize the platform.

Project Title	**ICT for Shea Butter Producers** http://www.iicd.org/projects/articles/mali-ict-for-shea-butter-producers/
Project Owner	*Coopérative des productrices de beurre de karité de Zantiébougou* - COPROKAZAN (Zantiébougou Women Shea Butter Producers Cooperative)
Project Partner	IICD
Project Status	Active since January 2006
Country	Mali

The project aims to promote shea butter, while at the same time increasing the turnover of the Zantiébougou Women Shea Butter Producers Cooperative (COPROKAZAN). To achieve this goal, the project has undertaken, for the installation of lighting and computers, training of women in the use of standard software and office automation tools, installation of e-mail, creation of a website, and advertising on radio and television. Approximately 350 women benefit from this project.

Project Title	**Jekafo Gelekan: Rural Information System for Farmers in the Sikasso Region**
Project Owner	Regional Committee for Coordination of Rural People (*Comité Régional de Concertation des Ruraux* – CRCR)
Project Partners	Ministry of Agriculture; IICD; *Association des organisations paysannes professionnelles* – AOPP (The Association of Farmers' Organizations); *Coordination nationale des organisations paysannes* – CNOP (The national coordinating body for farmers' organizations); Regional Assembly; The Sikasso Regional Chamber of Agriculture; local technical departments; local radio stations http://www.iicd.org/projects/articles/mali-jekafo-gelekan
Project Status	Active since January 2006
Country	Mali

Jèkafo Guèlèkan was developed with the aim of improving communication and information flows between local farmers' organisations in the province of Sikasso, and the regional and national authorities: thus elevating the voice of the farmer in the political debates surrounding agriculture. Local Committees for Coordination of Farmers' Organisations (CLCOPs) in seven main towns and villages in the Sikasso province, form the anchor points for a communication system for the farmers' organisations affiliated with the Regional Committee for Coordination of Rural People (CRCR) - covering 215 local organisations, and a total of more than a million stakeholders. The project is using computers and the internet to improve the information streams to and from the CLCOPs, and local radio to disseminate specific information on a broader scale, with all local radios in the province participating in the system.

Project Title	**Sene Kunafoni Bulon**
Project Owner	IER-TRANS; Union of Mango Producers; Federation of Potato Producers; Federation of Women Mango Transformers http://www.iicd.org/projects/articles/mali-sene-kunafoni-bulon
Project Partners	IICD
Project Status	Active since January 2006
Country	Mali

This project is a collaboration between three large farmers' organizations in Sikasso (the Union of Mango producers, the Federation of Potato producers and the Federation of Women Mango Transformers) and the regional branch of Mali's National Institute for Agricultural Research (IER). It focusses on the transformation chain of products like mangoes, onions and potatoes. In response to requests made by members of the farmers' organizations, IER looks up information on production and transformation methods and passes it on to them. The project is improving the flow of information to and from IER and between farmers using a combination of the internet, video, local radio and posters. Currently, around 15,000 farmers benefit from the project.

Project Title	**Agrovision** http://www.e-agriculture.org/19.html?&no_cache=1&tx_ttnews%5Btt_news%5D=473&tx_ttnews%5BbackPid%5D=96&cHash=50cab57bc8
Project Owner	National Information Technology Development Agency (NITDA)
Project Partner	Association of Telecommunications Companies in Nigeria (ATCOM)
Project Status	**In Design**
Country	Nigeria

Agrovision is a programme that was developed at ATCOM in collaboration with relevant government agencies in order to help farmers boost agricultural and food production. Its objective is to provide farmers with the agro-ecological mappings of the crops and soil types in Nigeria. It also provides them with other information such as planting and harvesting dates for different types of crops, storage conditions (depending on the part of the country where the farm is located), and the best means of transportation for every type of crop.

Project Title	**ICT4D Research and Resource Centre** http://www.torodev.kabissa.org/
Project Owner	Toro Development Network
Project Partners	SATNET; IMARK; FAO; CTA; APC
Project Status	Unknown
Country	Uganda

Through partnership with institutions like SATNET (Sustainable Agricultural Trainers Network) IMARK (Information Management Resource Kit) group in collaboration with FAO, CTA and APC, ToroDev is piloting the strategy of "Building Electronic Communities and Networks"

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through training community workers how to use simple modern *Web 2.0 Tools* to produce and manage agricultural information in the two districts of Kabarole and Kyenjojo.

Project Title	**Agriculture Research and Rural Information Network (ARRIN) Ndere Troupe** http://www.iicd.org/files/Arrin-Ndere%20Troupe.pdf/
Project Owner	ARRIN
Project Partner	IICD
Project Status	Active since March 2003
Country	Uganda

The Agricultural Research and Rural Information Network has set up five information centres, called InfoPops, throughout Uganda. The project staff collects agricultural questions and problems from farmers in rural communities and uses the information centres to convey these to a scientific institute. Agricultural researchers from the institute use a range of resources, including the internet, to find solutions to these problems. A script is developed based on the information acquired by the researchers and then the Ndere Troupe theatre group develops a play using the answers to the questions and distributes the transcripts (generally, text and video) electronically to the InfoPops (on CD ROM via normal postal services). The InfoPops then channel the information via this theatrical performance to rural communities in local languages. The ICT facilities in the rural InfoPops are also used by the community for other purposes such as accessing market information and providing farmers with information on new crops. The pilot project, in partnership with the IICD, has ended but the project has continued independently since January 2007 and has an estimated 15,000 beneficiaries.

Project Title	**Collecting and Exchanging of Local Agricultural Content (CELAC)** http://celac.or.ug/index. php?option=com_content&task=view&id=5&Itemid=6
Project Owner	Busoga Rural Open Source and Development Initiative (BROSDI)
Project Status	Active
Country	Uganda

BROSDI is an NGO that works with government and civil society to promote the use of ICT and open development mediums that include effective knowledge sharing, information management and use of FOSS (Free Open Source Software) in rural settings. BROSDI's project, Collecting and Exchange of Local Agricultural Content (CELAC) collects and exchanges local agricultural content for farmers through the internet, print media, mobile phones, radio programmes, videos and live performances. The CELAC website provides information on crop and animal farming practices that have worked for the farmers. The project has both a monthly online and quarterly offline newsletter, The CELAC News, written in both English and Luganda. Information is also disseminated through SMS. The project has a database of phone numbers of farmers, community development workers, agricultural extension workers and any other interested persons to whom local agro-related information is sent every Monday, in Luo, Luganda or English. CELAC also has a monthly radio call-in show, as well as uses music, dance and drama to portray farming practices and their challenges that are taped on video and burnt to DVDs for use by farmers' organizations, farmers and NGOS.

Project Title	**Enhancing Access to Agricultural Information using Information and Communication Technologies in Apac District (EAAI)** http://www.comminit.com/en/node/273680/38
Project Owner	Women of Uganda Network (WOUGNET)
Project Partners	Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA); Radio Apac, Agency for Sustainable Development Initiatives (ASDI); Volunteer Efforts for Development Concerns (VEDCO); RANET of the Uganda Metrological Department; Apac District Agricultural Office; National Agriculture Research Organisation (NARO); FAO/NARO; ARENET
Project Status	Active since January 2005
County	Uganda

EAAI was initiated to develop and improve information and communication systems to enable easy access to agricultural information for rural women farmers via a variety of ICTs including mobile phones, radio cassettes, and community radio. The project is ongoing in twelve villages within Maruzi and Kole counties in the Apac District in Uganda. It was initiated with financial support from the Technical Centre for Agricultural and Rural Cooperation (CTA), and aims to reach 12 grassroots women farmers' groups as the main beneficiaries.

The project involved setting up the Kubere Information Centre (KIC), which acts as an information resource point and supports project implementation and two-way linkages with the women farmers. From the centre, women farmers can access training in agricultural practices, as well as in the use of ICTs such as cell phones. Some of the groups have also received training in group dynamics and management. Group members are also able to share experiences with each other around best practices and new ideas.

Project Title	**Rural Information System (RIS)** http://www.stockholmchallenge.se/data/2130
Project Owner	Ugandan Commodity Exchange (UCE)
Project Partners	IICD; NAADS; The Ministry of Trade, Tourism and Industry; 15 organised rural farmer groups; The Netherlands Development Organization (SNV); MTN; Celtel; I-Network Uganda
Project Status	Active since January 2003
Country	Uganda

The Rural Information System (RIS) project began in 2003, with the Uganda Commodity Exchange (UCE), to enable rural farmers to increase their income through adapting a more commercial trading approach. The replication phase of the project, in partnership with NAADS, is establishing RIS centres with organisations that will allow farmers to use the following services:

1. Warehouse system (supported by the EU): the system, once fully operational, will enable farmers to store their commodities, to transport their commodities to the market of their choice and to sell their commodities.
2. Crop marketing bureau: to allow farmers to send and receive timely, accurate and adequate market information on markets for their produce.

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Since Aug 2007, 10 more centres have been set up with SNV, and 15 are due to be set up by early 2009 and 20 more before the end of 2009. The profits of the centres go partly (to recover for investment costs) into a revolving fund to establish new centres. The RIS project has 24 users and approximately 18,000 beneficiaries.

Project Title	**Towards Improved Farmer Access to Agricultural Information in Uganda: The Question and Answer Service (QAS) Voucher System (VS)** http://www.kitabu.info/REN_Uganda/
Project Partners	Rural Empowerment Network (REN) National Agricultural Research Organization (NARO); Technical Centre for Agricultural and Rural Cooperation (CTA); Information Systems for International Cooperation in Agricultural Research and Rural Development (ISICAD) at the Federal Agency of Agriculture and Food (BLE)
Project Status	Active since 2008
Country	Uganda

The QAS-VS developed by the ISICAD working group at BLE (The Federal Agency for Agriculture and Food in Germany) in a series of pilot projects. CTA financed its further development and up-scaling to Uganda amongst other countries. It is a demand driven, open, decentralised and web-based communication and information system. QAS-vouchers are handed out to farmers and entitle them to ask questions of their choice and to get an answer from an expert. All questions and answers are made publicly available on the web. The current project in Uganda targets 300 small-scale farmers in 3 districts and will be handed out and picked up by extension officers. Results are broadcast by rural radio to an estimated audience of 2 million farmers in English, Luganda, Luo and Runyakitara. The radio programmes will be uploaded onto the project website.

Project Title	**Agricultural Services Support Programme (ASSP)** http://www.ifad.org/english/operations/pf/tza/i642tz/index.htm
Project Partner	IFAD
Project Status	Unknown
Country	Tanzania

The project objective is to enable stakeholders in the agricultural sector including ministries, local government authorities, processors, marketers, service providers and farmers to communicate better and more effectively, through mobile telephones and computers linked to wide area networks (WAN) and the Internet. At the national level, the programme will connect all other ASLMs through the WAN, which will have upgraded local area networks (LANs). Eventually, the zones will be hooked to this WAN to complete the circuit.

Project Title	**CROMABU (Crops Marketing Bureau) Project** http://www.iicd.org/projects/articles/IICDprojects.import10
Project Owner	Crops Marketing Bureau (CROMABU)
Project Partner	**IICD**
Project Status	Active since 2001
Country	Tanzania

The CROMABU project (Crops Marketing Bureau) set up a telecentre with computers where farmers have access to information about prices and trade flows. The CROMABU initiative aims to build ICT capacity not only with farmers but within the rest of the community, particularly among young people and women. For the price information service CROMABU has linked up with another IICD project - Business Information Services (BIS) - which compiles and analyses agricultural information. The pilot project, which was supported by the IICD, has ended but the project has continued independently since March 2008 and benefits approximately 55,000 people.

Project Title	**First Mile Project** http://www.firstmiletanzania.net/
Project Owner	Government of Tanzania's Agricultural Marketing Systems Development Programme (AMSDP)
Project Partners	Government of Switzerland; IFAD; International Support Group (ISG)
Project Status	Active since 2005
Country	Tanzania

First Mile is an initiative of the Tanzanian Government's Agricultural Marketing Systems Development Programme (AMSDP) to help farmers improve their bargaining position in the marketplace by strengthening their capacity to identify market opportunities, to negotiate prices for both buying and selling, and to have a say in policy-making. The programme also helps producer groups link up with other grassroots organisations, processors, traders and others in the market chain, as well as exporters. The project provides access to online learning and train intermediaries that can link remote rural producers, who have no electricity or telephones, to the internet. They form a learning group called "Linking Local Learners".

The second phase of the project commenced in 2007. This phase includes the use of laptops by market access companies, which are robust enough for rural areas without basic power and internet infrastruture.

Project Title	**Farmers' Internet Café** http://www.iicd.org/articles/iicdnews.2005-09-06.1315910878/
Project Owner	Kabwe Farmers Association; Zambia National Farmers Union (ZNFU)
Project Partner	USAID; Education Development and Democracy Initiative (EDDI)
Project Status	Unknown

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Country Zambia

The Farmers' Internet Café, hosted by the Kabwe Farmers Association was established by the Zambia National Farmers Union (ZNFU). The basis of these projects is to link the ZNFU with affiliates at the district level while at the same time providing access to information to individual union members. The farmers are able to access general marketing trends in the agricultural sector, write letters to their relatives as well as enquire about any other services that the union or any other organisation of interest to them is offering.

Project Title **Integrating ICT for Quality Assurance and Marketing**
http://www.iicd.org/projects/articles/zambia-oppaz

Project Owner Organic Producers and Processors Association of Zambia (OPPAZ)

Project Partner IICD, Humanist Institute for Cooperation with Developing Countries (HIVOS)

Project Status Active since October 2006

Country Zambia

The Integrating ICT for Quality Assurance and Marketing project is building an internal control system for the inspectors of the Organic Producers and Processors Association of Zambia (OPPAZ), supported by the IICD since 2006. With the open source database, the inspectors will be able to collect the necessary data (plot data, crop type and crop produce) on a handheld computer. OPPAZ assists around 700 farmers to obtain international certification. The system will be tested at three pilot sites (Chongwe, Mongu and Mpongwe) and the data collected will be published on the internet. This publication can be viewed by international partners who would like to buy the produce of the member farmers, serving as both an internal control system and as a marketing tool.

Project Title **Strengthening the Agriculture Information Flow and Dissemination System**
http://www.iicd.org/cases/zambia-nais

Project Owner National Agricultural Information Services (NAIS); Zambia Agricultural Research Institute (ZARI)

Project Partners IICD, PSO

Project Status Active

Country Zambia

Supported by the IICD and PSO since 2005, this 5 year pilot project, driven by the National Agriculture Information Service (NAIS), a department of the Ministry of Agriculture in Zambia, aims to enhance the information flow between researchers, extension workers, service providers and farmers through the use of ICTs. Because of the long distance between research institutions and the rural districts where farmers live typically ;farmers face a long wait for feedback when they have questions and often cannot receive feedback in their

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local language. NAIS has improved information flow between the capital Lusaka (NAIS headquarters and the Zambia Agricultural Research Institute (ZARI) and Kasama district (12 hours drive to the North of Lusaka) through the use of e-mail and with the support of Radio Mano (Community radio station in Kasama). One of the radio programmes includes broadcasts of 15 minute segments of agricultural information in the local language. District Extension officers also collect and record questions from local farmers to broadcast on the radio. Some questions can be answered directly while others will be answered by the ZARI and repackaged again by NAIS so that feedback is given to the farmers the next week. So far, 500 farmers have received information through this pilot project.

Project Title	**Sustainet (Sustainable Agriculture Information Network) East Africa** http://www.sustainet.org/index-en.html
Project Owner	Federal Ministry for Economic Cooperation and Development (BMZ), Germany
Project Status	Active

Sustainet East Africa, through its member organizations, documents and disseminates best practices in the agriculture sector. A member of the organization, PELUM TZ (Participatory Ecological Land Use Management *Tanzania)* has developed audio visual CDs and DVDs on GAPs. Some radio stations in Kenya like Inooro have educational programmes ,which allow farmers to call and ask questions. A regional newsletter called ENEZA is at the final stages and will be made available both as hard copies and E-newsletter.

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Appendix 3

FARA Video Interviews on Innovative Farmer Advisory Services

Why is local content creation by farmers so important
Interview during the MobileActive 2008 World Summit (Johannesburg, South Africa) with Mary NAKIRYA, Program coordinator BROSDI, Busoga Open Source & Development Initiative

Mobile phone conferencing among farmers
Interview during the MobileActive 2008 World Summit (Johannesburg, South Africa) with Mary NAKIRYA, Program coordinator BROSDI, Busoga Open Source & Development Initiative

CELAC: e-agriculture in Uganda
An eight minute Business Africa/CTA video production

The advantages of a voice QAS system over text based (SMS) systems
Interview with Gopal Gobiratnam, OneWorld

LifeLines India: Success stories of farmers LifeLines
A technology-based helpline service is helping initiate a small revolution-of-sorts in the lives of rural communities in India

Interactive voice service systems for farmers should be rolled out over the whole continent
Interview with Dr. Mucemi, Teknobyte (bis)

Interactive voice service systems for farmers
Interview with Dr. Mucemi, Teknobyte, Kenya

African languages technology offers opportunities for farmers' queries
Interview with Ms. Wanjiku NGANGA, University of Nairobi, Kenya

Why agricultural e-learning is still marginal
Interview with Ousseni Zongo, International Institute for Communication and Development (IICD), The Hague, The Netherlands

Satellite Broadcasting for Agricultural Information
Interview with Karen Hackshaw, Programme Coordinator Institutional Publications, Technical Centre for Agricultural and Rural Cooperation (CTA)

CTA Accra training on digital satellite users
First Voice International (FVI) to provide information on agricultural and rural development

Content management for African biological farming
The INFONET-BioVision Information Platform

Co-Creating a Farming Information Hub for the Next Century
Interview with Richard Fulss, Information Manager, ILRI, Addis Ababa, Ethiopia

Targetting science journalists and farmers at ICIPE
Interview with Professor Christian Borgemeister, Director General of the African Insect Science for Food and Health – ICIPE Nairobi/Kenya

Farmers' Academies in Ethiopia: planting the seed
Interview with Getachew Tikubet

How can software used in e-health in Africa be used in agriculture
Interview with Dr. Jorn Braa, coordinator of the Research group BEANISH (Building Europe Africa collaborative Network for applying IST - information sharing technologies in the health care sector)

UNECA and the promotion of national e-agriculture strategies
Interview with Sizo D Mhlanga, Regional Adviser PCP Policy & Strategies, United Nations Economic Commission for Africa

UbuntuNet and the importance of networking in agriculture
Interview with F.F. Tusubira, **UbuntuNet Alliance** for Research and Education Networking

World Conference on Agricultural Information and IT
Tokyo, Japan, **24 - 27 August**. IAALD Joint Conference

Communication challenges at the Africa Rice Centre
Interview with Savitri MOHAPATRA, Communications Officer at the Africa Rice Centre (Benin - Togo).

Arid Lands Information Network
Interview with James Nguo, Kenya

Acronyms and abbreviations

AAAG	Association d'Aide et d'Appui aux Groupements [Association of Aid and Support Groups] (Mali)
ACT	African Conservation Tillage Network
AgSSIP	Agricultural Service Sector Investment Programme
AFRRI	African Farm Radio Research Initiative
AOPP	Association des organisations paysannes professionnelles [The Association of Farmers' Organizations]
APC	Association for Progressive Communications
AIC	Agriculture Information and Resource Centre
ARC	Agricultural Research Council
ARENET	Agricultural Research and Extension Network
ARIS	Agricultural Research Information Service
ARRIN	Agriculture Research and Rural Information Network
ASDI	Agency for the Promotion of Sustainable Initiatives
ATCOM	Association of Telecommunications Companies in Nigeria
ATP	Agribusiness and Trade Promotion
BLE	Bundesanstalt für Landwirtschaft und Ernährung [Federal Agency for Agriculture and Food] (Germany)
BMBF	Bundesministerium für Bildung und Forschung [Ministry of Education and Science] (Germany)
BROSDI	Busoga Rural Open Source Development Initiative (Uganda)
CABI	Centre for Biosciences and Agriculture International
CARDI	Caribbean Agricultural Research and Development Institute
CELAC	Collecting and Exchanging of Local Agricultural Content
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Centre for Tropic Agriculture
CIDA	Canadian International Development Agency
CILC	Community Information Learning Centre

CLCOP	Local Committees for Coordination of Farmers' Organisations (Mali)
CNOP	Coordination nationale des organisations paysannes [National Coordinating body of Farmers' Organizations]
CNRIT	Centre for Natural Resource Information Technology
CONAFED	Le Comité national Femme et Développement [National Committee for Women in Development]
COPROKAZAN	Coopérative des Productrices de beurre de Karité de Zantiébougou [Zantiébougou Women Shea Butter Producers Cooperative]
CORAID	Catholic Organization for Relief and Development Aid
CROMABU	Crops Marketing Bureau
CRCR	The Regional Committee for Coordination of Rural People (Mali)
CSIR	Council for Scientific and Industrial Research
CTA	Technical Centre for Agricultural and Rural Cooperation
DATIC	District Agricultural Training and Information Centre (Uganda)
DFID	UK Department for International Development
EAAI	Enhancing Access to Agricultural Information using Information and Communication Technologies in Apac District
ECAMIC	Eastern Corridor Agro-market Information Centre (Ghana)
ECOWAS	Economic Community of West African States
EDDI	Education Development and Democracy Initiative
FADECO	Family Alliance for Development and Cooperation (Tanzania)
FEPPASI	Fédération Provinciale des Producteurs Agricoles de la Sissili [Farmers' Federation Feppasi] (Burkina Faso)
FIAB	Federation Nationale des Industries de l'Agro-Alimentaire du Burkina Faso [The Federation of Agro-Industrial Enterprises of Burkina Faso]
FiBL	Forschungsinstitut für biologischen Landbau [Research Institute of Organic Agriculture]
FOSS	Free Open Source Software
GAINS	Ghana Agricultural Information Network System
GAP	Good Agricultural Practice
GPS	Global Positioning System
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit [German Technical Cooperation]
HIVOS	Humanist Institute for Cooperation with Developing Countries

IABER	Institut Africain de Bio-Economie Rurale [African Institute of Rural Bio-Economy] (Burkina Faso)
ICT	Information Communications Technology
ICTARD	Information and Communication and Technologies for African Rural Development
ICT4D	Information Communications Technology for Development
IDEAA	Initiative for Development and Equity in African Agriculture (Malawi)
IDRC	International Development Research Centre (Canada)
IFAD	International Fund for Agricultural Development
IFDC	International Center for Soil Fertility
IER	Institute for Agricultural Research (Mali)
IMARK	Information Management Resource Kit
IMPS	Improving Agricultural Productivity and Market Success of Ethiopian Farmers
INSTI	Institute for Scientific and Technological Information (Ghana)
IICD	International Institute for Communications and Development
IITA	International Institute for Tropical Agriculture
ILRI	International Livestock Research Institute
INRAB	l'Institut National des Recherches Agricoles du Bénin [National Agricultural Research Institute of Benin]
ISFH	Insect Science for Food and Health
ISG	International Support Group
IVR	Interactive Voice Response
JAS	Jamaica Agricultural Society
KACE	Kenya Agricultural Commodities Exchange
KARI	Kenya Agriculture Research Institute
KENDAT	Kenya Network for Dissemination of Agricultural Technologies
KENFAP	Kenya National Federation of Agricultural Producers
KHDP	Kenya Horticultural Development Project
LAN	Local Area Network
LED	Liechetenstein Development Service
LEWS	Livestock Early Warning System
LINKS	Livestock Information Network and Knowledge System

LLL	Linking Local Learners
LLSTI	Local Speech Technology Initiative
LMIS	Livestock Marketing Information System
MACE	Malawi Agriculture Commodity Exchange
MAPRONET	Market Access Promotion Network (Ghana)
MIC	Market Information Centre
MIP	Market Information Point
MIS	Market Information Service
MISTOWA	Network of Market Information Systems and Traders' Organizations of West Africa
MOA	Ministry of Agriculture
MoARD	Ethiopian Ministry of Agriculture and Rural Development
NAADS	National Agricultural Advisory Services (Uganda)
NAFIRRI	National Fisheries Resources Research Institute
NAFIS	National Farmer's Information Service (Kenya)
NAIS	National Agricultural Information Services (Zambia)
NALEP	National Agriculture and Livestock Extension Programme (Kenya)
NARO	National Agricultural Research Organization (Uganda)
NICT	New Information Communication Technology
ONSA	National Bureau for Food Security (Benin)
OPPAZ	Organic Producers and Processors Association of Zambia
PDA	Personal Digital Assistant
PELUM TZ	Participatory Ecological Land Use Management Tanzania
PU	Pastoral Unit
QAS-VS	Question and Answer Voucher System
RADA	Rural Agricultural Development Authority
RAILS	Regional Agricultural Information and Learning Systems
RATES	Regional Agricultural Trade Expansion Support Program
RATIN	Regional Agricultural Trade Information Network
RECOTIS	Regional Commodity Trade and Information System (Kenya)
RESIMAO/WAMIS	Réseau des Systèmes d'Information des Marchés en Afrique de l'Ouest/West African Agricultural Market Information System Network

RNE	German Council for Sustainable Development
RRRP	Rural Radio Resource Pack
RUNetwork	Rural Universe Network
SAILD	Service d'Appui aux Initiatives Locales de Développement [Support Office for Local Development Initiatives] (Cameroon)
SATNET	Sustainable Agricultural Trainers Network
SEND	Social Enterprise Development Foundation of West Africa
SFSA	Syngenta Foundation for Sustainable Agriculture
SHEMP	Service d'Appui aux Initiatives Locales de Développement
SIDA	Swedish International Development Agency
SIMA	Système d'Information des Marchés Agricoles [Agriculture Market Information System] (Niger)
SIMB	Système d'Information des Marchés du Bétail [Livestock Market Information System] (Niger)
SMS	Short Messaging Service
SNV	The Netherlands Development Organization
STCP	Sustainable Tree Crop Programme
TCP	Technical Cooperation Programme
TTS	Text to Speech
UCE	Ugandan Commodity Exchange
UNCTAD	United Nations Conference on Trade and Development
UNDP	United National Development Programme
UNESCO	United National Economic and Social Community
UNFFE	Uganda National Farmers Federation
USAID	United States Agency for International Development
VEDCO	Volunteer Efforts for Development Concerns
VERCON	Virtual Extension and Research Communication Network (Egypt)
VoIP	Voice over Internet Protocol
WADEP	Women and Development Project (Uganda)
WAN	Wide Area Network
WOCAT	World Overview of Conservation Approaches and Technologies
WOUGNET	Women of Uganda Network
VSAT	Very Small Aperture Technology

WUSC	World University Service of Canada
ZADI	The German Centre for Documentation and Information for Agriculture
ZARDI	Zonal Agricultural Research and Development Institute
ZARI	Zambia Agricultural Research Institute
ZNBC	Zambia National Broadcasting Corporation
ZNFU	Zambia National Farmer's Union

About FARA

FARA is the Forum for Agricultural Research in Africa, the apex organization bringing together and forming coalitions of major stakeholders in agricultural research and development in Africa.

FARA is the technical arm of the African Union Commission (AUC) on rural economy and agricultural development and the lead agency of the AU's New Partnership for Africa's Development (NEPAD) to implement the fourth pillar of Comprehensive African Agricultural Development Programme (CAADP), involving agricultural research, technology dissemination and uptake.

FARA's **vision**: reduced poverty in Africa as a result of sustainable broad-based agricultural growth and improved livelihoods, particularly of smallholder and pastoral enterprises.

FARA's **mission**: creation of broad-based improvements in agricultural productivity, competitiveness and markets by supporting Africa's sub-regional organizations in strengthening capacity for agricultural innovation.

FARA's Value Proposition: to provide a strategic platform to foster continental and global networking that reinforces the capacities of Africa's national agricultural research systems and sub-regional organizations.

FARA will make this contribution by achieving its *Specific Objective* of **sustainable improvements to broad-based agricultural productivity, competitiveness and markets**.

Key to this is the delivery of five *Results,* which respond to the priorities expressed by FARA's clients. These are:

1. Establishment of appropriate institutional and organizational arrangements for regional agricultural research and development.
2. Broad-based stakeholders provided access to the knowledge and technology necessary for innovation.
3. Development of strategic decision-making options for policy, institutions and markets.
4. Development of human and institutional capacity for innovation.
5. Support provided for platforms for agricultural innovation.

FARA will deliver these results through the provision of networking support to the SROs, i.e.

1. **Advocacy and resource mobilization**
2. **Access to knowledge and technologies**
3. **Regional policies and markets**
4. **Capacity strengthening**
5. **Partnerships and strategic alliances**

FARA's major donors are The African Development Bank, The Canadian International Development Agency, European Commission, the Governments of the Netherlands, United Kingdom, Italy, Ireland, Germany and France, the Consultative Group on International Agricultural Research, the Rockefeller Foundation, Bill and Melinda Gates Foundation, the World Bank, and the United States of America Agency for International Development.

The Inventory of Innovative Advisory services is really excellent: so often things are duplicated but this one seems to be integrating work already underway. You should create a publically accessible database of projects we can access....and if not, shall we do one!

Pete Cranston/UK

Many thanks for this very illuminating report, and congratulations to the authors for a job well done.

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