

EMERGING

Voices

in ICT and Agriculture



This publication is an initiative of the ARDYIS project



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About CTA

The Technical Centre for Agricultural and Rural Cooperation (CTA) is a joint international institution of the African, Caribbean and Pacific (ACP) Group of States and the European Union (EU). Its mission is to advance food and nutritional security, increase prosperity and encourage sound natural resource management in ACP countries. It provides access to information and knowledge, facilitates policy dialogue and strengthens the capacity of agricultural and rural development institutions and communities. CTA operates under the framework of the Cotonou Agreement and is funded by the EU.

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EMERGING *Voices* in ICT and Agriculture

Shaping the future of ACP rural development using ICTs...



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African Network for Agriculture, Agroforestry, & Natural Resources Education



African Youth Foundation



Caribbean Farmers' Network



Forum for Agricultural Research in Africa



Pacific Agriculture and Forestry Policy Network - Secretariat of the Pacific Community (SPC)



Yam-Pukri Association

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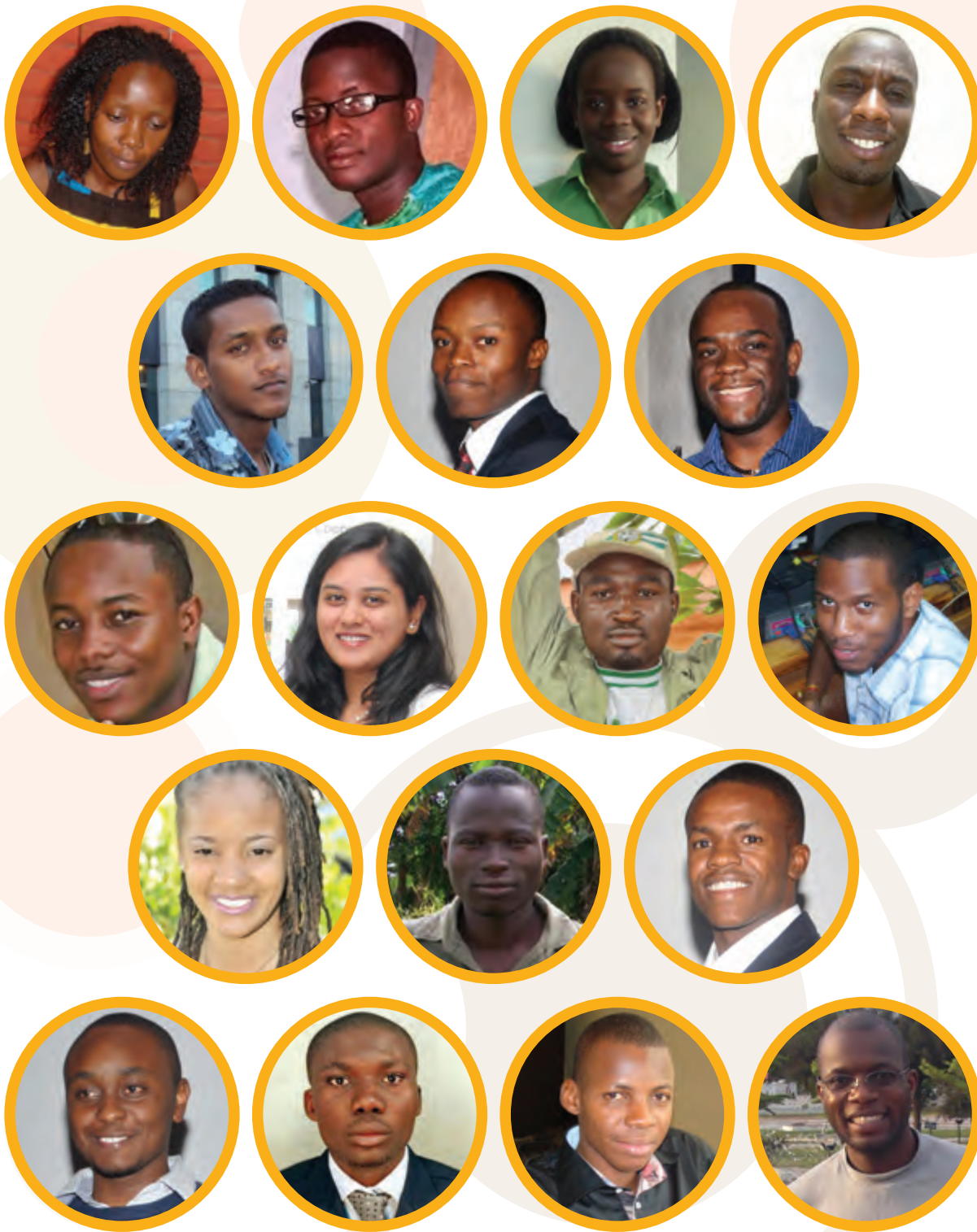
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The full versions of essays can be read on the ARDYIS website <http://ardyis.cta.int>

“The energy of youth can spark economies ... The future belongs to them and they have a clear vision of the world we need to build together: peace, the preservation of our beautiful planet, the opportunity to make a better life.”

- United Nations Secretary-General Ban Ki-moon



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A MESSAGE FROM THE CTA DIRECTOR

Shaping the future of agriculture and rural development

Agriculture in African, Caribbean and Pacific (ACP) countries faces many challenges. Despite their countries' heavy reliance on this sector for economic growth, food security and employment, young people perceive agriculture as an unattractive career option.

Agriculture accounts for over 50% of GDP in some countries such as the Democratic Republic of Congo. This, coupled with the high level of unemployment, means that the need to secure the continued interest of youth in agriculture is imperative.

The majority of farmers today are older. A research study by the Caribbean Farmers' Network (CaFAN) found that the average age of farmers in the Caribbean is 45 years, with the majority being over 60 years of age¹. With a lack of youth to replace them, the future of agriculture is uncertain. Youth unemployment is a critical problem. In several countries the number of young people out of work exceeds 50%.



It is therefore evident that a well-supported agricultural sector could present the ideal solution if it is transformed in the eyes of the younger generation. It must become attractive, viable and offer real opportunities for income.

ICTs offer a good avenue for achieving this objective. These technologies are reaching every socio-economic segment, even in remote rural areas. They offer efficient tools for transforming the agriculture sector. As it's recognized that young people spearhead the development of innovations

in ICT, there are therefore, new rationale and opportunities for linking agriculture and youth. Moreover, in rural areas, ICTs can help improve youth livelihoods and reduce rural exodus.

The ARDYIS (Agriculture, Rural Development and Youth in the Information Society) project is one of CTA's recent initiatives with ACP partners, notably created to improve ICT access for rural youth. Its aim is to raise awareness and strengthen the capacity of young people, allowing them to contribute to agriculture and rural development through the use

of ICTs. This booklet provides an overview and the results of the essay competition «*Youth finding solutions to challenges in agriculture and rural development using ICTs!*», one of the many ARDYIS activities. Entries submitted demonstrated that youth are more and more interested in the agricultural sector and supporting them will definitely have a strong impact in attracting more youth to rural areas.

In addition to the ARDYIS project, CTA has also embarked on other initiatives such as a project with the FANRPAN (Food, Agriculture and Natural Resources Policy Analysis Network) to develop policies for youth in southern Africa and initiatives to target young scientists. Through its youth initiatives, CTA will contribute to the efforts of ACP governments to create employment and income for the youth in agriculture and related rural economies. ■

Michael Hailu
CTA Director

¹ Caribbean Farmers' Network - Source: www.cafan.org, CaFAN Youth in Agriculture Regional Workshop, 2010

Fostering youth solutions...

The essay competition «*Youth finding solutions to challenges in agriculture and rural development using ICTs!*» was an initiative of the ARDYIS project, a framework of actions, which aims to improve opportunities for youth in agriculture and rural development through the use of ICTs.

Youth, aged from 18 to 25 years old, were required to submit entries in four categories. The first category asked them to present two agricultural challenges and discuss how ICTs could be used to address them; the second category offers to analyze how ICTs could be used for effective advocacy and lobbying to promote agriculture; the third category targeted the use of ICTs to improve access to markets and the last category allowed them to tell the story of a young person living in a rural area who has used ICT successfully or in an innovative way (even if the experience was not a success) for his/her work. The summaries of essays published here are grouped into three sections, based on the initial four categories.

We have decided to share summaries² of 18 of the best essays to highlight the solutions and perspectives of some of the best young entrants. Showcasing successful youth exposes those to new opportunities, motivates them, ultimately boosting their interests and those of their peers. We are certain that among these 18 young people, whose essays have been highlighted in this booklet, we have future leaders of ACP agricultural and rural development. Some of them are already making a difference in their communities and they will certainly achieve more in the future. They are people to watch!

² For more information about the contest and to read the full versions of the best essays, please check: <http://tinyurl.com/ardyis-essay-documents>

Launched in June 2010, the competition has helped to create a collaborative framework for hundreds of young people and youth organizations who are active or interested in the farming sector, in rural development and in the use of ICTs in that context. Different activities have been organized since then, including: training and exchange on the use of web 2.0 tools in agriculture and rural development; a workshop on agricultural entrepreneurship through ICTs, the Youth In Agriculture Blog Competition (YoBloCo Awards; see Appendix); the adoption of an advocacy document entitled “*Call for Stronger Support for Youth Involvement in Agriculture and ICT*”; and networking and information dissemination on opportunities. Many youth have attended conferences to strengthen their knowledge, and some even have secured employment opportunities as a result.

The ARDYIS initiative is still at its early stages and is refining its strategy and actions. We are open to collaboration with all organizations interested in these issues. I would like to seize this opportunity to thank the institutional members of the project’s advisory committee, whose constant support has been crucial to the success of this project. Thanks must also go to my colleagues at CTA, in particular, Mrs Oumy Ndiaye (who as head of department at CTA, played a central role in the establishment and operation of the initiative), Thilda Chevouline, Giorgio Bellinzas, Therese Burke and Jenessi Matturi. Some encouraging results have been achieved so far and more will be accomplished in the future. ■

Ken Lohento

ICT4D Programme Coordinator



Tyrone Hall, overall winner of the ARDYIS Essay Competition 2010, receives his trophy from the hands of Dr. Ibrahim Assane Mayaki, CEO of the NEPAD Agency.



PART 1

Challenges experienced in agriculture and how to use ICT to tackle them

Agricultural theft, crop pests and unpredictable weather conditions... these are just some of the challenges facing today's ACP producers. Information and communication technologies tailored to their needs and budgets can offer some solutions - and help farmers introduce more sustainable practices, improve record-keeping and plan more efficient farm strategies.

TRACKING THIEVES AND MARKET PRICES



Tyrone Hall, Jamaica, Caribbean

“My main goal is to pioneer a consultancy that specializes in using communication to improve development processes with respect to health, the environment and rural development.”

I'm an unassuming but firm emerging researcher and development consultant from the Caribbean. I grew up on the outskirts of Kingston, Jamaica's capital city. At 23 years old, I graduated with a master's in International Development and Social Change from Clark University, USA. I'm keen to integrate my training as a journalist with my emerging expertise in development communication and project management.

My favourite quote: “The young do not know enough to be prudent, and therefore they attempt the impossible - and achieve it, generation after generation.” - *Paul S. Buck*

My blog: <http://www.ictworks.org/news/tyrone-hall>

Essay summary

Dusk is approaching in the sleepy Jamaican village of Glengoffee, and farmer Leslie makes his usual evening rounds to check his property. He patiently counts his cattle, scans his crops and makes a mental note of all his

tools and other assets. The evening patrol has become an essential ritual ever since agricultural theft - or praedial larceny to use its technical name - began to spiral out of control. More than 1 in 10 Jamaican farmers have been victims of agricultural theft, losing cattle, crops and equipment to crimes that are increasingly the work of organised gangs.

More than one million farmers have suffered indirect losses such as damage to crops by intruders. Each year, an estimated J\$5 billion (€43 million) worth of crops and livestock is stolen. Responses have ranged from hiring security guards to installing trained guard dogs and the government has put in place stiffer penalties with a traceability system to track the movement of food and animals. But these measures can only be taken once the theft has happened and many exasperated producers have either been discouraged from investing in their businesses or have given up farming altogether.

Mobile Phone Alerts

Technology may offer some solutions. An electronic laser fence security alert system is one such innovative proposal. It consists of an invisible laser fence installed around a property, which triggers SMS messages or voice calls to mobile phones when an intruder crosses the line. Invisible to the naked eye, it is undetectable by outsiders and uses a medium that is both familiar and widely available. Nearly two-thirds of the population now has access to a mobile phone.

Mobile phones may also hold the key to solving another problem critical to Jamaican farmers - poor market information and inadequate links between producers and buyers. An SMS information database (SMS ID) would put the two sides in touch, enabling farmers to post the price of their products via SMS or voice calls and retailers and middle-men or consumers to request the lowest prices for various products using the same simple system. For example, farmer Leslie could text prices for his produce that week: *yam \$100 or carrot \$50*. Meanwhile, buyers could request prices by punching in the name of the product and a given price range - perhaps *carrot minimum \$? Or potato average \$?* Another buyer

might want to ask: *who has min carrot \$?* And the answer will quickly come back: *farmer Leslie [978-5687] has the lowest priced carrots @ \$10*. Farmers need never be out of touch with market prices again if they use SMS ID. ■

Based on the original essay:

"Tackling Jamaica's two main agricultural plagues with ICT: Praedial larceny and information asymmetries/poor marketing" by Tyrone Hall.



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Thompson, S-A. (2008) *Attacking Praedial Larceny-Security costs adding to increasing food bill*, Jamaica Gleaner, June 4, 2008. Online, accessed July 26, 2010: <http://www.jamaica-gleaner.com/gleaner/20080604/lead/lead4.html>

A UNITED FRONT FOR FARMERS



*Samantha Kaye-Christie,
Jamaica, Caribbean*

“ While pursuing a degree in psychology at the University of the West Indies, I realized that the poverty levels in Jamaica have got worse. I think this is due to the lack of interest in the government in the agricultural sector. ”

Essay summary

Farmers need to be more united if agriculture is to thrive in the Jamaican parish of Hanover. That is the verdict of the chairman of the Green Island Cane Farmers' Association, who claims producers lack tools to communicate with each other and with authorities and organizations that could support them. The once high levels of productivity in the parish are now in decline. Farmers in Hanover complain of being neglected by the Ministry of Agriculture and say that they have no reliable channel through which to negotiate conditions that affect their incomes. A 2009 study found that more than half of the Jamaican farming community has access to a mobile phone. However, this system of communication has not proved sufficient to answer the needs of local producers.

A more effective solution could be a small tel-centre in the parish of Hanover, with access to an Intranet system to offer a constant, low-cost link between the Ministry and farmers. Skype could be part of the package, opening

As a proud 20-year-old Jamaican young lady, I take pride in reminiscing on the achievements in my life so far. I grew up in the rural community of Sandy Bay, Hanover. While attending secondary school [The Montego Bay High School for Girls] I adopted a spirit that was geared towards volunteerism. This continued throughout my tertiary level institution where I aligned myself with the Junior Chamber International (JCI) organization to further fulfil service needs.

I hope that the government will seek to enhance this vital sector (which serves as a means of added employment), resulting in a reduction in the levels of poverty.

My favourite quote:

“Excellence is an art won by training and habituation. We do not act rightly because we have virtue or excellence, but we rather have those because we have acted rightly. We are what we repeatedly do. Excellence, then, is not an act but a habit.” - Aristotle

the way to video conferences. The Intranet link would also be a platform for farmers to exchange experiences and good practices, in order to boost output.

Training And Tourism

One important consideration is that farming in Jamaica is not considered to be a profession for young people. Farmers are generally not well educated. A 2006 survey found that 50.8% of Hanoverian small-scale farmers were aged 54 or more, and that none had continued their education beyond primary school. In order for ICTs to be effectively used, most farmers will require training. One solution is to use touch screens with icons, far simpler than standard systems. If well presented, the new technology may even attract more young people to the farming sector in Hanover.

ICTs also offer hope in addressing other problems, caused by the development of tourism facilities in the area. The building of hotels and other infrastructure needed to welcome visitors robs the farming sector of valuable land and resources. The use of glass-bottomed boats to view coral reefs causes damage to them, depleting fisheries and other marine resources as a result. Use of a Geographic Information System (GIS) could do much to mitigate both problems. GIS helps users to capture, store, analyse and present data for a specific location and would offer a means of viewing variables that affect crop yield, soil erosion and drought risk. This data could be translated

into information useful to farmers and relayed to them via the Internet. For example, data on soil assessment would help them to plan their planting strategies and manage their land in a more efficient manner. For coastal management, GIS could play a useful role in locating and quantifying coral reefs, to improve conservation and protect fishery habitats. Naturally, all these initiatives will require investment and commitment. But as a popular Jamaican saying goes: *"If you want good yuh nose haffi run"* [If you want good, you really have to sacrifice and work for it]. ■



Based on the original essay:

"ICTs - Are they really the solution to challenges faced by Hanoverian farmers?" by Samantha Kaye-Christie.

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PESTS AND PRICES



Jason Haynes, St Vincent and Grenadines, Caribbean

“ I appreciate the use of ICT in agriculture and rural development and will accordingly continue to foster closer ties between my profession and those important areas. ”

I am young, dynamic and versatile Vincentian who is committed to the cause of advancing my country, and the Caribbean region. I am passionate about bettering the lives of young people through capacity building and will continue to champion the cause of under-privileged youth.

I am pursuing a Bachelors of Laws at the University of the West Indies, but I'm scheduled to graduate in a couple of months. In reality however, my passion is I.T. / computer science. In any event, given that I am already in the profession, I promise to do my best to better the lives of those whom I interact with.

My blog: <http://ictandthelaw.blogspot.com/>

My Facebook page: <https://www.facebook.com/super.starjason>

Essay summary

Pest infestations and lack of reliable market information are two major hurdles for producers in the Caribbean, preventing them

from realising the full potential of agriculture in this fragile region. With 23 island states spread over a wide area, the Caribbean is highly fragmented. ICTs offer considerable scope for addressing some of the region's key problems, providing uniform solutions to even the most isolated areas.

An agricultural information system (AIS) could do much to improve farmers' access to information on trends for prices and product demand. This would improve their negotiating position, make them less vulnerable to over-pricing for seeds, fertiliser and other inputs, and help them become better placed to make strategic decisions about which crops to grow and where to sell them. A regional price information system could collect data from main national markets and filter it out to local level through small information centres equipped with computers and Internet access. In more isolated communities, two-way or rural radio could be used to broadcast market prices to a wider target audience. Similar systems have already proved effective in some developing countries.

A case in point is Ghana's e-Commerce project which collects commodity prices in key markets and makes the data available to rural farmers through a network of provincial offices. Add-on components to such a system might include an information and online purchasing options for farm implements, advice on how to cultivate and manage certain crops and weather forecasts to help producers plan for extreme conditions. Over the past 6 years, hurricanes have destroyed entire crop plantations in Antigua and Barbuda and caused US\$305 million (€224 million) worth of damage to agriculture in Belize.

ICTs for bio-control

To combat pest damage and crop disease - which have led to what the Caribbean Agricultural Research Development Institute (CARDI) describes as a "frightening situation" - Internet-based decision support systems can be useful tools for farmers. They can provide all the information needed to help producers select the most appropriate pest control strategy, including pest identification, life cycles and pest distribution models linked to weather monitoring systems. For maximum effect, such systems could offer details of bio-control methods, backed up by 'intelligent' functions such as e-learning tools and dynamic simulations of crop ecosystems.

The sterile insect technique (SIT) is recommended environmentally friendly option for farmers. The technique involves sterilising factory-reared male Caribbean fruit flies by irradiation and releasing large quantities into infested areas. When they mate with female fruit flies, no offspring are produced, so populations are gradually reduced and sometimes wiped out. The Caribbean fruit fly causes massive damage to tropical and subtropical fruits across the region. CARDI research has revealed that the pest is found in nearly one-hundred fruit species, including citrus, guava, mangoes, French cherry, rose apple, peach and tropical almond. ■

Based on the original essay:

"Challenges experienced in the Caribbean region related to agriculture or rural development and the use of ICTs to address them" by Jason Haynes.



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MORE ICTS, FEWER IMPORTS



*Nawsheen Hosenally Bibi,
Mauritius, Eastern Africa*

“ The reason I’m studying agriculture is because I’m interested in global issues such as hunger, poverty and climate change, and my field of study enables me to contribute to making a positive impact on society. ”

My name is Nawsheen Hosenally. I’m 21 years old and from Mauritius. I’m a final year student at the University of Mauritius, where I’m studying agriculture and specializing in agricultural extension. I joined the Agricultural Society of the University of Mauritius as secretary for 1 year and after that I wanted to go further and joined AIESEC.

Youth expect to have entrepreneurial opportunities in agriculture,, where they get the support of the government/other organizations to start a business and contribute to the economy or get a job in the agricultural sector. Many youngsters have studied agriculture and have many ideas, but due to lack of opportunities and incentives, they have simply changed their field of study.

Participating in the ARDYIS project has been one of the best decisions I have taken in my life so far. It started with the submission of the essay, after which all participants were registered in a group for discussion forums where participants shared our opinions/ideas on specific topics. This has increased my knowledge and interest in ICTs, youth and agriculture. Then, we took part in training on the use of Web 2.0 tools in Accra, Ghana which has proven to be very useful as I

find I am regularly using what I have learnt there in my studies and other professional work. We are being notified about different opportunities for internship/scholarship/ competition, which is exactly what we need.

My blog: <http://nawsheenh.blogspot.com/>

Essay summary

ICTs could do much to help Mauritius achieve its goal of increasing agricultural output, while keeping production costs low and using more sustainable farming methods. The small island state is highly dependent on imports, producing just 23% of the food it needs. But a national campaign launched in 2008 to lower this level of dependence must be flanked by a strategy to use communication technologies if it is to have any real impact. Crucially, the ICTs must be matched to the conditions - and the budgets - of farmers.

For smallholder producers, the mobile phone is the ideal tool. Most smallholders have a small plot of land and are either illiterate or only attended primary school. The mobile phone answers their needs perfectly, being simple and

inexpensive to use, with good network coverage in all rural areas. Yet to date, the only mobile-based agricultural service in use on the island is the SMS disease alert, provided by the Agricultural Research and Extension Unit. It sends SMS messages to registered planters, warning when an outbreak of disease threatens a particular crop. Why stop with plant disease? How many more services could be offered to farmers using mobile phones? What about adapting the system to provide information on the price of inputs, weather updates, good agricultural practices, animal health and husbandry and help with marketing agricultural products? A good place to start would be a database for quality seeds, so that any farmer wanting a particular seed would only have to send a simple SMS to ask about availability and price.

Better book-keeping

Other applications could include using the organiser of a farmer's mobile phone to keep records of farm details, such as chemicals used and the date of application. Most small-scale farmers are notoriously lax about record-keeping. Mobile phones could also increase interaction between extension services and farmers on radio shows. Farmers could send questions via SMS, prompting a dialogue with extension experts about problems and ways to solve them.

Co-operatives, entrepreneurs and sugar planters, who generally have larger budgets and a better education, could take advantage of more sophis-

ticated ICTs. Farming software can be used to record and save farm records on computers, helping producers to plan their farms and lower their production expenses. GPS technology, already adopted by two sugar estates in Mauritius, can be used to guide tractors in auto-pilot mode, cutting labour costs and making precision agriculture possible. The Internet can enable farmers to check market prices and weather reports download technical guides and share information. With a blog or wiki, farmers can easily interact with each other and find solutions to mutual problems. If the goal of making Mauritius more food secure is to be achieved, all stakeholders involved in agriculture - the public sector, NGOs, research and extension - must make more use of ICTs. ICTs offer the chance for them to work together with farmers and find real solutions for Mauritian agriculture. ■



Based on the original essay:

“Two challenges experienced in Mauritius related to agriculture or rural development, and the use of ICTs to address them.” by Nawsheen Hosenally Bibi.

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PART 2

How can ICTs be used to improve access to market for agricultural products from your country or region?

As many farmers find to their cost, the toughest link to crack in the value chain is often the last one. Finding buyers for their products or services can be a daunting business for many small-scale producers. But ICTs can play a valuable role in linking them to markets.

CLOSE TIES, POOR LINKS



*Sangwani Rebeccah Gondwe,
Malawi, Southern Africa*

“As youth are most likely to embrace the technologies and use them, then they are the best agents to ensure maximum and efficient use of such and I strongly advocate for their involvement.”

My name is Sangwani Rebeccah Gondwe. The name Sangwani is “Tumbuka” and it means “Rejoice” in English. I love this name. I was born 25 years ago to Malawian parents. I come from the Northern part of Malawi but I spent most of my time in the capital city, Lilongwe. I hold a BSc in agribusiness management and I just finalized working on my MSc in agricultural and applied economics.

My Master’s thesis was in agricultural marketing. One set-back to the enhancement of agricultural marketing in Malawi and most African countries is poor access to information and ICTs.

My favourite quote: “Communication is the grease that makes the wheel of marketing go round”.

In my article, I referred to a case where a 100 km stretch of road could take you 3 hours to travel instead of an hour because it is so poor. Therefore most agricultural products would deteriorate before you could find a prospective buyer for your products, if you are to depend on road transport. On the other hand, a phone, email or radio message may take one minute and they are connected.

Email: sangwani2009@gmail.com

Essay summary

Karonga district, in Malawi’s northern region, is just 110 km from the neighbouring district of Chitipa. The journey should take no more than an hour, but the road is in a poor state and often the trip takes well over three hours. The daily newspaper regularly arrives a day late.. Mobile phone networks in Chitipa are erratic and Internet connection is unreliable in both districts. Yet both communities have a vital need to stay in touch with each other. Maize is the predominant crop in Chitipa, while farmers in Karonga produce mostly rice. Trading between the two districts is essential and farmers need to be connected so they have real-time information on markets and product availability.

The close ties but poor links between Chitipa and Karonga are echoed in many other parts of rural Malawi. Liberalisation in both the communication and agriculture sectors has led to massive scope for improved market information for smallholder producers. In theory, these developments should have enabled small-scale producers to plan which crops to grow and how best to sell them. In practice, poor access to reliable market infor-

mation, compounded by inefficient markets, continue to make it difficult for producers to place their products to the best effect.

Progress, but not for all

Some recent initiatives have had positive impacts on the ability of farmers to access markets, though these results have been poorly documented. Institutions have been set up to link smallholder farmers to markets through ICT interventions using FM radio, mobile phones, the Internet and emails. One such system is the Initiative for Development and Equity in African Agriculture (IDEAA), which is part of the Malawi Agriculture Commodity Exchange (MACE) project and disseminates prices for a range of products on a weekly basis. The Agriculture Commodity Exchange (ACE) programme, introduced recently by the National Association of Smallholder Farmers in Malawi (NASFAM) publishes updated farm prices on the Internet.

But large numbers of farmers in Malawi remain cut off from such innovations, especially in remote areas such as Chitipa and Karonga. Small-scale farmers in Malawi are already facing massive challenges, grappling with under-sized plots and low-yielding varieties among other difficulties. Although smallholder farmers account for 25% of the country's total GDP, an estimated one-third of the country's population is perpetually unable to produce enough food to feed the family. Many farmers rely on sales of other agricultural products to buy the food they need. Efficient commodity markets are critical to all smallholder households in Malawi. And the use of modern ICTs to connect farmers to market information has now become an imperative. ■

Based on the original essay:

“When the use of modern ICT becomes a requisite: The case of Malawi.” by Sangwani Rebeccah Gondwe.

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GOING HIGH TECH WITH SARDINE CANS



*Gabriel Dacko Goudjo,
Cameroon, Central Africa*

“ My dream is to continue my studies in a top-class university, to deepen my knowledge in Telecommunications which will enable me contribute more effective solutions to the agricultural sector in my country. ”

Essay summary

Reorganization of Cameroon's telecommunications sector has already led to several interesting developments - a number of them favouring the country's rural communities. An e-government project has been launched to improve the efficiency of public administration, extending virtual services to areas where there are no offices. A network of multipurpose community telecentres (MCTs), in more than 150 locations, has done much to improve communications in isolated areas. With more and more graduates considering agriculture for their future, and the growing trend to form farming co-operatives, there is scope for ICTs to bring wide-ranging benefits to this important sector. A four-pronged strategy could do much to address the most serious challenges facing farmers, which include low productivity, insufficient credit, poor organization and weak market access.

First would be a weekly radio broadcast, to be called "Agri-Info" and hosted by an extension expert in local languages. It would discuss prices on national and local markets, outlets, process-

Now aged 22, I grew up on my parents' farm in the west of Cameroon in a predominantly agricultural region. After graduating from high school in 2007, I moved to the capital, Yaoundé, where I passed the competitive entrance exam to the School of Telecommunications Engineering. The importance, and the instability, of telecommunications in my country are both key reasons for my choice of this sector for my future career. In 2010, after obtaining my degree in civil engineering, I learned of the ARDYIS project organized by CTA via the discussion group of Engineers Without Borders - Cameroon. I entered the essay contest and won the prize for central Africa. Through my research for the project, I was able to identify the challenges, solutions and opportunities within the agricultural sector. From this moment on, I decided to focus my telecommunications studies and my career on agriculture. I am currently working as a volunteer at Engineers Without Borders - Cameroon, where I am in charge of the programme: "Bridging the digital divide to improve efficiency in agricultural systems".

My blog: <http://afriqueenor.over-blog.com/>

ing and storage techniques and management and sales skills. Specialists could be featured on the programme, and farmers invited on to air their views about their problems and share solutions. A second component would be a deal with a mobile phone operator to secure a low-cost package offering unlimited phone calls and SMS messages between farmers. The service could also supply audio messages on technical issues of interest to producers. Village information centres, using material made available by the MCTs, could be a useful channel for making knowledge on key issues available to rural communities. The centres would cover a wide range of subjects and would make use of a variety of media, including posters and videos.

A virtual salon

A third initiative would be an Internet platform offering a geo-referenced database, using GIS, voice, data and video in a virtual community salon, staffed by someone well-informed in both agriculture and ICTs, who would help producers to explore the Internet and all it has to offer them.

Once these three initiatives have been up and running for 3 years, and producers have become familiar with using ICTs, a community WIFI network for rural areas could be launched. This low-cost service, which can be made with local materials such as old sardine cans, would enable

farmers to connect with each other, as well as with local radio and MCTs. Producers could buy second-hand computers and use freely downloadable software. The system could be powered by solar panels in areas with no access to electricity. Support from government and NGOs would be crucial to ensuring the success of these initiatives, but the opportunity of using ICTs to provide real benefits to rural producers is one that should not be missed. ■

Based on the original essay:

“Comment les TIC peuvent-elles être utilisées pour améliorer l'accès au marché des produits agricoles au Cameroun?” by Gabriel Dacko Goudjo.



USING ICTS TO BRIDGE THE AGRICULTURAL EXTENSION GAP AND IMPROVE MARKET ACCESS IN NIGERIA



*Samuel Anthony Itodo,
Nigeria, West Africa*

“ Youth can play a huge role in the development of their communities. We have an imminent food security challenge when young people shy away from agriculture, leaving this sensitive field to an ageing population. ”

I grew up in Makurdi, the capital of Benue State of Nigeria. My family was involved in agriculture. From the age of 10, I had learned how to till the soil and sow staple crops such as maize, groundnuts and rice. At one stage I owned my own small soybean farm.

When I was 14, I maintained a small poultry farm, rearing birds such as broilers and turkeys. I intend to invest in agriculture. My love for the sciences informed my decision to do engineering in school. I graduated with a degree in petroleum engineering from the University of Port Harcourt, Nigeria in 2009. In high school I dreamt of winning a Nobel Prize in Chemistry. I still hope to win one in literature as I pursue my love in poetry and story writing.

ARDYIS brought intelligent young people together and the network I have created with these brilliant young minds has been very beneficial in my day-to-day endeavours.

Favourite website: I would choose www.google.com, because for me it is the gateway to other sites, besides its versatility in terms of Google maps, docs, reader, etc.

My blog: <http://poeticfarmer.wordpress.com>

Contact: rutherford2forlife@yahoo.com

Essay summary

A practical approach to linking farmers with new information technologies has the potential to improve the small-scale agriculture sector in Nigeria. Using ICTs to map land resources and markets could help solve some of country's most pressing agricultural problems, which include low productivity and scant opportunities for farmers to sell their produce at decent prices. Geo-mapping, used to identify the potential of land for farming and its suitability for specific crop and livestock production, can

be a powerful tool for increasing agricultural output. Mapping markets for various products could help farmers decide where best to place their products. The same service could supply information on requirements for accessing particular markets, especially for export.

Ineffective extension services pose major difficulties for Nigerian farmers, and here too, ICTs can help. Distance learning can offer valuable information to producers. Farmers living anywhere in the country can go to ICT centres to sign up for online courses that will give them the technical knowledge they need to adopt sound agricultural practices, as well as business management skills such as book-keeping. Manuals, containing practical information about production and marketing methods, can be offered online or as CDs. Video podcasts offer farmers an easy way of learning about crop and livestock production. Instead of the top-down system, why not use a two-way extension service method? The ask-the-expert approach, successfully used in a number of countries and known by various names, enables producers to ask specific questions and receive answers via a feedback platform, generally a website. Farmers can use Internet blogs to share their experiences with other farmers, swapping problems and solutions with each other.

Leveraging the national youth service corp

An online database, containing names, phone numbers, websites, email and contact addresses for all agricultural extension centres, would be a useful service, especially if supplemented by details of community focus groups, NGOs, credit suppliers and development partners. Communication between these groups would open the door to more opportunities for introducing high-yielding and innovative practices and linking farmers to markets.

In order to set these kinds of services in place, changes will have to be made at policy level. Local government will need to do more to ensure the provision of basic ICT facilities for communities. One idea is to form partnerships with private organizations to set up ICT centres in rural areas. With 65% of Nigerians under the age of 25, youth will be a powerful force in developing the country's agriculture sector. Youth interest in the sector could be stimulated by forming young farmers' clubs in secondary schools, while the National Youth Service Corp (NYSC) - a mandatory one-year scheme for graduates in Nigeria - could be an effective tool for fostering ICT development in rural communities. Who better to pass on ICT skills and training than young educated members of NYSC? And what would be a better gift for the new generation of farmers? ■



Based on the original essay:

"Using ICTs to bridge the agricultural extension Gap and improving market access for rural farmers in Nigeria: A practical approach" by Itodo Samuel Anthony.

TACKLING INFORMATION POVERTY IN FIJI



Riten Chand Gosai, Fiji, Pacific

“ It is a common fact that people prefer the so-called luxurious life and are slowly moving to urban centres, leaving behind a declining rural population where majority farming takes place. Hence the onus is on the youth to avoid succumbing to the age-old stereotype that agriculture is hard labour and not a reputable profession and a white collar job is a preferred career choice. ”

I graduated in December 2010 as University of the South Pacific's gold medallist and best graduate 2010 in the Bachelor of Agriculture programme. Until recently, my life has been mostly centred on the sugarcane farms of rural Nadi, located in Western Fiji. Along the way, I have spent 13 academic years at Mulomulo primary and secondary schools. Of all the careers I could have pursued as a science student; fate linked me to my roots.

Perhaps the vitality of agriculture to the Pacific region and the world really convinced me to endorse this field as a top priority; where my utmost interest and dedication lies. Currently I am working for the Biosecurity Authority of Fiji and advocating for youth to adopt agriculture via CTA's ARDYIS project. It has been the first ever project (of its kind) that I have been involved with...

My favorite quote: "Man despite his historic pretensions, his sophistication and art, owes the fact of his existence to a 6-inch layer of topsoil and the fact that it rains"... Anonymous

Favourite website:

<http://www.facebook.com/agrifiji> - my initiative and commitment to spread the gospel and attract youth to agriculture.

Essay summary

Agriculture continues to be the bedrock of the Fijian economy, accounting for 14% of the country's GDP and two-thirds of its almost 320,000 strong workforce. However, with a drastic decline in sugar cultivation and production, the agricultural focus has now shifted towards diversifying into high-value cash crops for the domestic market, as well as tourism and exports. Information poverty continues to be one of the main obstacles to more modern, market-oriented farming practices in Fiji, whose 330 islands are scattered over 1.3 million square kilometres. Farmers are isolated, from each other, and from information and markets that could help them earn better incomes. As a result, they are reluctant to commercialise production. Most of Fiji's 86,680 rural households - 54% of the population - are engaged in subsistence agricultural or fishing activities.

ICTs can provide the essential link in bridging this information gap, but to date the agriculture sector has failed to take advantage of these new technologies. The potential is certainly there, and other developing countries have already paved the way, showing how ICTs can bring tangible benefits to farmers. Widespread use of mobile phones offers massive scope for spreading agricultural information. Software has already been developed to do just this. Take the example of Uganda, where a suite of mobile applications is being used to give farming advice. Rural telecentres, equipped with computers and Internet and using solar power for energy, can be valuable channels for transmitting information, as seen in a number of African countries. Useful agricultural information on the Internet can be accessed via mobile phones that support Internet connections. Video conferencing with farmers via satellite or over the Internet is another innovative use of ICTs, which can be especially helpful in remote areas.

Weather and pest alerts

With many Pacific islands threatened by climate change, it is important that farmers are kept informed of new techniques. In Burkina Faso, farmers' organizations have used digital photos and video to teach new growing techniques, leading to a nine-fold rise in output. ICTs can also be used to increase the efficiency and sustainability of small-scale farms, making information available on crucial issues such as pest and disease control and early warning systems. Up-to-date market

information can dramatically improve farmers' negotiating position, and simple websites that match supply and demand can be a start to more sophisticated trade systems.

ICTs can help with stock and quality control, essential for some domestic and most export markets, and important when it comes to applying for credit. Global positioning system (GPS) technology, still relatively new to Fiji, can provide valuable support to marketing and distribution. In Ethiopia, it has been used to map rural roads, helping NGOs, extension services and farmers to plan their transportation needs. Traditional electronic media, such as radio and television, which have more than 80% coverage in Fiji, should not be forgotten. But more could be done to broadcast quality programmes and provide a platform for feedback from farmers. ■

Based on the original essay:

"The use of information and communication technology to address information poverty and reluctance of farmers to commercialize in the Fiji Islands." by Riten Chand Gosai.



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HOW CAN ICTS BE USED TO IMPROVE MARKET ACCESS FOR AGRICULTURAL PRODUCTS FROM BENIN?



Babatoundé Rivaldo Alain Kpadonou, Benin, West Africa

“ *The humiliating and thankless place of agriculture in ACP countries today discourages interest from the younger generations. Their dream is to have a modern macro-economic and institutional environment in which to develop their ideas and build an up-to-date agricultural sector that is capable of facing current challenges. It is only the youth that will be able to develop a fresh, modern image of agriculture in ACP countries.* ”

My blog: <http://www.toundeblog.blogspot.com>

Essay summary

Despite its relatively recent rise, it is clear that the contribution of ICT to agricultural development and poverty reduction is becoming increasingly significant. In particular, mobile telecommunications are of special interest because of their capacity to empower rural African communities. Although mobile phones were once considered luxury goods for well-to-do urban populations, they have come to be increasingly used as the standard means of accessing information and of communication among rural populations.

I am from Benin, born in 1987 in a small village in Adjarra, where I also attended primary school. After graduating from high school in Porto-Novo in 2004, I passed the competitive entrance exam to the Faculty of Agronomy at the University of Parakou, where I graduated as an agro-economist. I am currently in graduate school following a double Master's programme, in integrated water resources management, and social development.

My own dream is to become a leader on the international scene to defend African interests and those of the most marginalized communities. My goal is to bring together the qualities and competences necessary to nurture my ambition.

However, many mobile telephone applications remain underused in the rural sector, thereby limiting the potential of this tool to boost to primary development. Short text messaging (SMS), for example, is little known or used among rural populations, despite being a relatively cheap and effective means of communication. Furthermore, the multiple SMS function and synchronization via PC allow the user to reach a wider target group, and can, for example, improve access to markets and provide producers with more accurate price information.

Unfortunately, at present only a small number of umbrella organizations are using multiple SMSs to communicate with the leaders of farmers' organizations. Yet, given the current rate of mobile phone penetration in the rural sector, and the increasing need for improved market access for small-scale producers, as well as meteorological information, the time is ripe for an expansion of this service to a wider public, in particular, to those at the beginning of the value chain. For this expansion to succeed, however, it will be important to lift the institutional and socio-linguistic barriers that currently limit SMS use in the rural agricultural sector. Expanding the use of multiple SMSs via PC, for example, requires simplified instructions and the creation of support structures drawn from the local population.

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An additional potentially limiting factor in upscaling its use is linguistic competence. Special attention should therefore be paid to schooling for children and literacy among rural populations in their local languages. ICT localization, in particular, the development of mobile telecommunications in local languages, constitutes a major strategic opportunity to improve market access for farmers through the widespread use of SMSs. ■



Based on the original essay:

"Comment les TIC peuvent-elles être utilisées pour améliorer l'accès au marché des produits agricoles du Bénin?" by Babatoundé Rivaldo Alain Kpadonou.

livelihoods", *International Institute for Communication and Development (IICD)*.

TOWARDS A COMPREHENSIVE MARKET INTELLIGENCE UNIT



*Inoussa Traoré, Burkina Faso,
West Africa*

*“ I believe that the real
wealth of our nations is our
youth. We are the future! ”*

I am from Burkina Faso, aged 25. I grew up in a village in the Boucle du Mouhoun Region in Burkina Faso, where I attended primary school and part of my secondary school education. I completed my secondary school studies at Lycée Ouézzin Coulibaly in Bobo Dioulasso, the economic capital of Burkina Faso.

After graduating from high school with a specialization in mathematics, I decided to continue my studies in economics and management at the University of Ouagadougou. I have already completed the first stage of graduate school, specializing in applied macroeconomics, and am currently working on my doctorate at the Laboratory for Economic Policy and Analysis at the University of Ouagadougou II.

The decision to analyse the issue of market access for agricultural products from the perspective of access to information is linked to my training as an economist, and to a number of studies I carried out using databases. Furthermore, according to

economic theory, information plays a vital role in all market mechanisms.

In the last few years, I have also carried out a lot of research on the role of ICT. This is why I entered my essay for the ARDYIS contest and ended up finalist for West Africa.

My favourite quote: My favourite quote comes from my father, who always writes it at the end of his letters to me: “Where there’s a will, there’s a way (*A cœur vaillant, rien d’impossible*)”.

My blog: <http://traoreinoussa.blogspot.com>

Essay summary

Agriculture dominates daily life in much of Burkina Faso, where 80% of people live in rural areas. But lack of market access is one of the major hurdles facing producers, trapping the majority of them in subsistence farming and preventing them from taking that crucial step

on the path to becoming small-scale entrepreneurs. ICTs are becoming more widely available in rural areas of this West African country, despite problems posed by poor infrastructure and illiteracy. And the slow but steady march of new technologies is bringing important changes to the agriculture sector on which most people depend for their livelihoods.

In the early stages, in Burkina Faso, ICTs were mainly used to help farmers improve crop farming practices and obtain forecasts about the weather. Then, gradually, the scope began to widen and new communication tools were introduced to open up market access. These days, agricultural information is available through a host of channels, including the Internet, television and radio, as well as on DVDs and CD ROMs. Some initiatives have become household names. TV Koodo runs a popular service broadcasting commodity prices on television and the Internet. A system launched by NGO APROSSA - Afrique Verte also sends out regular bulletins on the situation in agricultural markets. A market information system managed by SONAGESS publishes cereal prices on a website.

Traceability with ICTs

GPS offers scope for tracking products in the value chain, a prerequisite for some markets and an important stepping stone on the path to certification. Several women's producer organizations have succeeded in obtaining certification using this technology.

Key references

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The Internet has made it possible to sell - and buy - at the click of a mouse, opening up new markets for producers. A number of producers' organizations have been swift to seize this opportunity, setting up websites to promote their products. Some women's groups are successfully using this strategy to sell the shea butter that they produce.

When there is no Internet, the mobile phone can be used to distribute market information and make deals with buyers. The Burkina Faso Chamber of Commerce has launched a project called Mobile Business which uses SMS messages to provide producers and traders with the latest details on local and international market prices.

Much progress has been made in using ICTs to spur the agriculture sector. But there is scope for a great deal more, although parallel improvements must be made in raising literacy and education levels if the strategy is to achieve the best effect. A market intelligence unit would be an invaluable tool for farmers and traders alike. Powered by software that ensures regularly updated market information from a range of different sources, such a system would be a significant help in decision-making. More information means more business, and that is good news for everyone in Burkina Faso's agriculture sector. ■

Based on the original essay:

"Comment les TIC peuvent-elles être utilisées pour améliorer l'accès au marché des produits agricoles du Burkina Faso?" by Inoussa Traoré.

Ouédraogo, S. (2009) *Nouvelles technologies et organisations paysannes, l'état des lieux au Burkina Faso*, Burkina-ntic, Special Forum TIC & Agriculture, Novembre 2009.

IMPROVING ICTS, EXTENDING THE MARKET



Gerald Mangena, Zimbabwe, Southern Africa

“ I am more determined to see my vision/dream, the Afro Dream, become a reality, whereby any inhabitable place in Africa provides its inhabitants with any product or service that is locally developed/produced and can be found anywhere in the world. ”

I grew up in a small town called Marondera, 75 km east of Harare. I always wondered why we had to travel to the capital for basic services, and why people perceived travelling to the capital a preserve of the rich. If Harare had been developed, why could they not develop Marondera too? As I celebrate my 25th birthday in June this year [2011], I am more convinced than ever that any place inhabited by humans should be fully developed economically, technologically, and socially.

Thanks to ARDYIS, I received a wealth of information including training in Web 2.0. I gained a fuller understanding of the significance of rural development and how ICTs play their part. It helped me get a clearer picture of my personal dream for Africa. I had the opportunity to present my ideas and to be heard by an international jury. That was quite an honour and I travelled to countries I have never been to before.

The agriculture and rural development sector must be managed professionally just like any other sector such as the financial sector or the tourism

sector, so that they feel proud to be professionals involved in achieving something meaningful.

My blog: <http://theafrodream.blogspot.com>

Essay summary

It is 7 am, and a 28-year-old woman farmer is getting ready for the busy day ahead. This season, she expects to harvest 500 tonnes of high quality potatoes. Today, she is still wondering where she will sell them, but she takes out her mobile phone, sends an SMS and soon smiles as she receives confirmation of an order to supply a weekly tonne of potatoes for the next twelve weeks. The transaction has been made possible by a service introduced by a local software company, in partnership with mobile phone service provider. Meanwhile, in Zimbabwe's communal lands, a 16-year-old boy walks into a telecentre, leaving his ox-drawn cart full of vegetables outside. After searching through the database, he sends an email to a potential buyer. The answer comes back almost immediately, with details of when the client will come to collect the produce.

These two scenarios are projections rather than real examples. But they could soon become a reality if ICTs are used to improve access to markets for farmers in Zimbabwe. It is important to match the right technologies to the right producers and markets. Producers in Zimbabwe range from newly resettled farmers, with average computer literacy, to communal farmers - mostly very young - and the elderly, who depend on agriculture for their livelihoods, but whose literacy levels are very low. Then there are commercial farmers, mostly young or middle-aged, whose literacy levels are high.

Cost-effective solutions

Zimbabwe now has an affordable mobile phone service and good network coverage, making this tool the obvious choice since mobile phones are widely available and easy-to-use. With locally developed software, mobile phones can be used to match farmers' offers to buyers' needs and notify farmers about the latest market prices. With the help of experts from the Agricultural Research Extension (AREX), there is scope for building information systems to offer market prices over the Internet. Computer prices are coming down and in Zimbabwe customs duties

on all ICT goods have been scrapped. To attract buyer interest, farmers could use mobile phones or computers to upload details of produce and expected yields. This information could be relayed, via the Internet or SMS, to screens located in public market places, or directly to mailboxes of agents, agriprocessing companies and importers of Zimbabwean produce.

We need better Internet support infrastructure and affordable services. Broadband over power line (BPL) technology, already available in South Africa, could make a significant contribution to developing this area in Zimbabwe. It relies on the existing electricity power lines and has bandwidth speeds of up to 200 Mbps. Telecentres can be valuable in rural areas, offering a variety of services (e.g. fax, Internet, typing, printing, scanning and information, including details from online agricultural databases). Even computer illiterate farmers can walk in here and get help in securing buyers for their produce. ■

Based on the original essay:

"How can ICTs be used to improve access to market for agricultural products in Zimbabwe?" by Gerald Mangena.

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FARMERS ONLINE IN ZIMBABWE



*Raymond Erick Zvavanyange,
Zimbabwe, Southern Africa*

“ Youth must be relevant to their specific disciplines. Youth should use whatever avenues they have to make a difference. Youth must learn from experienced farmers and persons involved in agriculture. “Mere talk” is unacceptable. Youth must do it. ”

I am a second born child in a family of five children. Growing up in a high density suburb in Zimbabwe with my neighbourhood friends gave me the social character which helped in my academic and professional life. I grew up pretty fast with a growing realization that I am capable of excelling. I am inspired by people with an open mind, reminding me of the endless possibilities to my life, if you work hard. I also value my religion as well. In the words of my former lecturer at University, I am “someone who does things out of his own volition”.

I chose to deal with ICTs and marketing in Zimbabwe because this is new field. ICTs can integrate the different marketing strategies and programmes being promoted by public, private and non-governmental institutions, overcoming hurdles such as bureaucracy and personnel involvement in traditional marketing systems.

My blog: <http://community.eldis.org/.59f604b2>

My Facebook page: <https://www.facebook.com/zvavanyanger3>

My favourite quote: “With or without a PhD, there are big and important problems for you to solve.” - Freeman Dyson

Essay summary

Today's agricultural challenges need modern solutions - ones that are producer-driven, affordable and adapted to local communities. ICTs hold the key to development in Zimbabwe's rural areas, where 70% of the population is based. At national level, communication technologies are well integrated into government administration, and all ministries and state corporations have their own ICT structures and personnel. NGOs have also come on board. One popular initiative is the Freedom Fone launched by the Kubatana Trust, which uses interactive voice response (IVR) technology. Anyone can call the service to leave a voice message, listen to messages from others, or hear the information provided by Kubatana Trust. This is a social platform but could also be adapted for agriculture. Private companies looking for out growers and contract producers could use the network to link up with farmers and their organizations.

Mobile phones offer a quick and inexpensive channel for marketing perishable agricultural products such as tomatoes, eggs and milk. Producers can use SMS and multimedia messages to link up with buyers and form groups to meet up with them when larger quantities are involved. On the Internet, farmers can use Google Earth to map and plan their fields and crops and Skype and Yahoo Messenger to talk to each other, as well as to potential buyers. Video conferencing gives farmers the opportunity to hook up live with producers in other parts of the country, or even the world.

Social networking for farmers

Producers can create and subscribe to websites that promote marketing activities through e-bulletins and updates. E-newsletters can be used to document farmer success stories. Through social networking platforms such as Twitter, Facebook and Google Chat, and by running their own blogs, producers can communicate, share experiences and penetrate new markets, using community Internet facilities if they do not have their own.

Virtual producer forums offer exciting opportunities for farmers to market seasonal prod-

ucts, linking up with local, regional and global markets. Such systems can enable suppliers and buyers to compare prices and producers to market lesser known products such as mushrooms and grain amaranth, alongside popular commodities such as maize, soybeans, tobacco and roses. E-marketing zones can be created, covering similar geographical, administrative, livelihood, and agro-ecological zones, boosting investor confidence and securing new markets for producers.

Roadshows showcasing ICTs are a good way of putting rural communities in touch with developments in agriculture. Held at rural business centres, community halls and schools, such events offer a chance for producers to congregate and show off their crops and livestock. One unusual feature of agriculture in Zimbabwe is that both young and old are involved in the sector. ICT roadshows are an effective way of reaching both ends of the generation spectrum. ■

Based on the original essay:

“How can ICTs be used to improve access to market for agricultural products in Zimbabwe?”
by Raymond Erick Zvavanyange.

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ICTS HOLD THE KEY FOR MARKET ACCESS



*Aristide Z. Adaha, Benin,
West Africa*

“ Today’s youth wants (...) a new form of agriculture that uses modern techniques and that will create a high number of jobs in the service and ICT sectors. ”

I was born and raised in Fidjrossè, in the south-east of Cotonou, Benin. After completing my secondary education, I won a scholarship for the National School for Applied Economics and Management where I completed my Bachelor’s studies in business management.

Despite not having an agricultural background, I would like to contribute to the development of this sector because of its great importance to the economy of my country.

My favourite quote: “Believe and act as if it were impossible to fail.” - *Charles F. Kettering*

Essay summary

Lack of policy support, inadequate extension services, weak land tenure and limited access to inputs, credit, new technologies and markets. These are some of the factors acting as a brake on the rural economy of Benin, a country where more than 50% of the population is engaged in the agriculture sector. Poor market linkages pose one of the major hurdles to better yields and incomes for

the country’s producers. Farmers lack knowledge about market prices, new outlets, transport and trade rules. With little or no reliable information, small-scale producers in many parts of Benin are totally isolated from the positive impacts of globalisation and often fall prey to middle-men. Links between producers’ organizations and other important partners such as extension services and research are often sadly lacking.

Improving access to information about markets, production techniques and important factors such as traceability and quality standards can make a significant contribution to increasing revenues for farmers. An agritrade website designed to help producers keep abreast of market trends and prices could be an important first step on the path to securing higher sales volumes and profit margins. The Indian initiative *e-Choupal* is a case in point. In a local context, the website of Benin’s National Chamber of Agriculture would be the obvious choice for hosting such a platform, backed up by information centres to provide support, Internet access and ICT training in rural areas.

Strength in numbers

As Burkina Faso cotton producers' association UNPCB has already shown, there is scope for negotiating a fixed fee with mobile phone operators for unlimited calls between subscribers and an SMS service to give updated market prices and connect buyers and sellers. This virtual market would allow online transactions to take place, making valuable savings in time and transport costs for producers. An effective ICT-based market platform, such as *Prix par SMS* run by RESIMAO-WAMIS-NET, can help producers plan their farm strategy well in advance, choosing which crops to grow when, depending on forecasts of likely demand. The platform could subsequently be developed to supply other services such as information on crop technologies and good practices or ICT training.

More traditional technologies also have their role to play. Radio and television broadcasts can be valuable channels for relaying information in local languages and letting producers know who is looking for which product. Farmers' organizations can use Internet radio to download pod-

casts on marketing or modules for training and compilations can be made, stored and distributed on CD-ROM. Any such initiative will be doomed to failure unless local people are involved in developing and managing it and the service is designed to be self-financing. But all the evidence points to the fact that Benin's large rural population has a great deal to gain from more investment in ICTs. ■

Based on the original essay:

"Amélioration de l'accès au marché des produits agricoles par les TIC au Bénin." by Aristide Z. Adaha.



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PLANNING AHEAD FOR IMPROVED MARKET ACCESS



Lloyd Johnson Jr., Jamaica, Caribbean

“ The youth are the future. To aid in the progress toward rural development as it relates to agriculture, there is a wealth of knowledge and experience from current farmers that will need to be transferred to another generation of farmers. In this technological age, it is expected that the youth will use these skills to increase efficiency in production practices and have access to more information than earlier farmers. ”

I was always interested in agriculture and in nature and had a great appreciation for technology when growing up. At that time the two seemed incompatible, but ICTs have now made it possible to link them in a meaningful way.

I am a 25-year-old Jamaican, currently working in an agricultural research organization. I was exposed to agriculture from an early age; as my parents kept a small backyard farm and my grandparents raised poultry on a small-scale. I expect that as we continue to develop new technologies to improve efficiencies, the world will see that the only thing constant is change.

The challenges faced in market access in my country and in the Caribbean region, are very real issues and in my opinion the key limitations toward development. Highlighting some of these

challenges in this forum would allow these concerns to reach a wider audience.

Contact Info: johnson.lloyd@hotmail.com

Essay summary

Fruit, vegetables, fish, sugar, cocoa, peppers, coconuts and poultry - the Caribbean has a wealth of often exotic agricultural products to offer, both as raw and value-added items. But lack of reliable markets is hindering agricultural development in the region. Problems include inadequate market information, poor standards of training and informal farming systems, with little formal structure or planning.

Reliable market information is difficult to obtain because of the seasonal nature of many prod-

ucts. Prices are constantly changing on these volatile markets, and the picture is made even more difficult by the geographical spread. The same commodity may have a different price in different locations, regardless of quality. And with no sound source for market information in the Caribbean, keeping one's finger firmly on the pulse is an uphill struggle. A public database system generated by a regional body and published as a website or mailing list could do much to improve the situation. With data fed into the system by local authorities, and regular updates of market information, consumers and suppliers would have a clearer idea of prices, leading to increased trade and more scope for placing new products and tapping into unfamiliar markets.

Quantity and quality

ICTs can also be used to improve producers' knowledge of quality standards and give guidance to farmers before they enter a production chain. With increasingly rigorous standards, both for international and some local markets, small-scale Caribbean farmers who don't have adequate systems in place are finding themselves unable to sell their goods or to reap the rewards. Audio-visual and other multimedia packages, backed up by practical training exercises, could do much to improve farmers' understanding of quality requirements. As mobile phones are used by most Caribbean farmers, follow-up tutorials could be conducted via daily voice or text messages. Disease

prevention, high-yielding techniques and technologies to prolong shelf-life are all areas where ICTs can play an important role in helping farmers to find out about more effective practices.

Jamaica's Agricultural Business Information System (ABIS), launched by the Rural Agricultural Development Agency (RADA) is a useful model for mainstreaming informal markets. The system aims to register all farmers on the island on a district basis, listing critical information such as acreage, crops and harvest dates. The goal is to improve market access and help with planning, avoiding market gluts and lower prices -- a common problem for farmers in the region.

Regional organizations could greatly increase collaboration and strengthen linkages and dialogue using ICTs. Throughout the region there are a host of organizations dedicated to agriculture, in both public and private sectors. But their impact is often not as strong as it might be, partly because synergies are weak or non-existent. ICTs could help to synchronise activities, leading to open networking among stakeholders and more effective interventions for development and production. ■

Based on the original essay:

"Improving market access of Caribbean agricultural products with information and communication technologies." by Lloyd Johnson Jr.

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PART 3

Story of a young producer or a youth living in a rural area, who uses ICT successfully or in an innovative way for his or her work

Agriculture needs to attract more young people if it is to move ahead and develop in the future. ICTs can be an effective way of helping young rural entrepreneurs to launch a business or improve production in their day-to-day work. And since many of them enjoy using high tech tools, it all adds up to the perfect match.

KAMAU: A FARMER AND A MOBILE BANKER



*Chris Mwangi, Kenya,
Eastern Africa*

“ *The story was on a successful and inspiring experiences of a young person who use of ICTs transformed his life and benefited his community. If this model is used in other places, it could impact positively on young rural people lives.* ”

Essay summary

Kamau is a young Kenyan in his late twenties, who lives in a small farming community in the Central Rift Valley. Four years ago, he became an agent for local company Safaricom, whose services include the mobile phone money transfer system *M-Pesa*, which literally means ‘mobile money’. Convinced of the potential, Kamau set up an *M-Pesa* kiosk in his rural community. Business flourished, and using his profits, the enterprising young Kenyan then ventured into farming. He rented several fields and planted potatoes using methods from the *Organic Farmer*, an e-bulletin on sound farming practices published by the International Centre for Insects, Pests and Ecology (ICIPE) which he got on his General Packet Radio Service (GPRS)-enabled mobile phone.

Kamau also planted maize and beans and obtained healthy yields, but when it came to harvest time, he was determined not to fall into the clutches of middle-men, as his parents’ generation had done. Everyone knew they offered low prices. The

I have spent most of my life in a rural area of Nakuru district, Kenya where we have our fair share of social and economic problems. When local residents complained of having to travel several miles into town to get access to their money to pay for: food, shelter, education and health care, I realised that there was potential to use ICT to improve local money access. I introduced one of the youth to of the idea of setting up an *M-Pesa* (mobile money transfer) shop which he did. This initiative allowed members of the community to get easy access to their money and they were able to buy household consumables and farm inputs without travelling. This example can be used as a model for the transformation of life in other rural areas.

Engagement of the youth in agriculture is minimal. But youth could make great contributions in agriculture and rural development.

My blog: <http://gbiportal.net/members/chrisngige/>

Email: chrismwa2005@gmail.com

savvy entrepreneur opted for a high-tech solution, turning to *411 Get it*, a joint venture between Safaricom and the Kenya Agricultural Commodity Exchange (KACE). Using his mobile phone to access up-to-date commodity prices, Kamau identified a favourable market.

Driving the local economy

But Kamau's farming success was only the beginning - not just for him, but for the entire rural community. He invested in *M-Kesho*, an electronic savings account which also offers short-term loans to farmers. Other villagers started to open *M-Kesho* accounts with the proceeds of crop sales, using Kamau's kiosk to make the transactions. Kamau's one-stop e-banking kiosk has simplified money access, increasing the amount of cash available to be spent in the local economy. Producers no longer need to travel to towns, so are more likely to spend their money closer to home. Farm owners in the nearby town of Nakuru no longer have to commute to Kamau's village to pay their casual labourers, using the young businessman's *M-Pesa* kiosk instead. Agro-vet

and other traders use *M-Pesa* to pay their suppliers and spend the cash saved on transport costs buying local stock and inputs. The entire local economy has benefited as a result.

Like any good entrepreneur, Kamau has a knack for spotting business opportunities, so when he saw that his operating capital was declining during the planting and weeding season, he decided to diversify. Taking out a soft loan, he bought a motorcycle, an ideal mode of transport for the poor local roads, and as he was soon to find out, an excellent way of making extra income. Teaming up with a partner, the young Kenyan launched a taxi service, a thriving business in rural Kenya and one mainly dominated by youth. Banker, farmer, taxi operator - Kamau has spread his business interests over a wide range of sectors. But the common denominator is ICTs. He would never be where he is now if he had not made them work for him. ■

Based on the original essay:

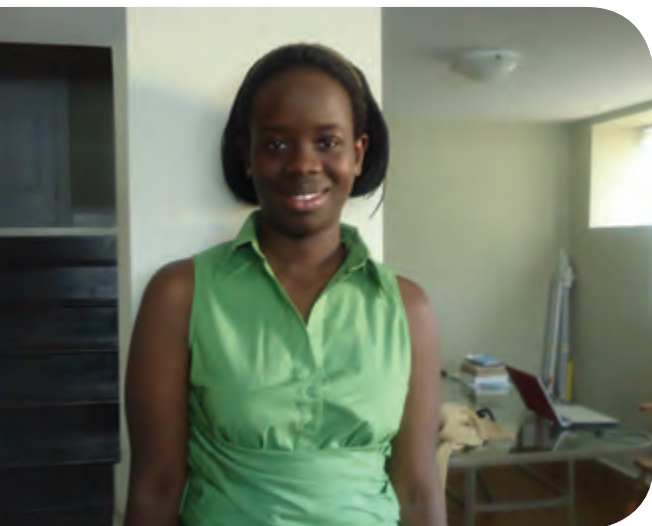
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BOLD PLANS BEAR FRUIT



**Maureen Akena, Uganda,
Eastern Africa**

“ I want to be a role model and icon to all the young women who think that technology or technical courses are not meant for them. ”

I am the youngest of three children. I am an ambitious young woman who believes that the power to create positive social change lies in the hands of the community. I graduated in 2008 with a BSc in information technology and joined Women of Uganda Network (WOUGNET) as the Information & Networking Officer. I was fascinated with the projects that were being implemented and the idea of working with women. I was then privileged to receive training on how to become a citizen journalist and a youth trainer. And because of my passion for technology and community development, in 2009, I got an opportunity to work as a remote intern for the ICT and Innovation programme at the Technical Centre of Agriculture and Rural Cooperation ACP-EU (CTA), in the Netherlands. I enjoy working in rural areas with disadvantaged communities and marginalized groups such as youth and women.

Having gained one year of work experience, I enrolled for my masters of science in Information Systems and received a Canadian commonwealth scholarship to study at St. Mary's University in

Halifax, Nova Scotia, Canada. That's exactly what I am doing now.

My favourite quote: *"Putting a price on water will make us aware of its scarcity and make us take better care of it."* - Agnel Gurria, Secretary-General of the OECD.

My blog: <http://dignityinpoverty.blogspot.com/>

Essay summary

ICTs, including mobile phones and web 2.0, can be an effective tool for drawing more young people into agriculture. Twenty-five-year-old Gilbert Egwel is proof of that. This small-scale fruit farmer from Akere parish in Uganda's Maruzi county has used community radio, telecentres and his mobile phone to launch a lucrative career based on mango and lemon trees. It all started when Gilbert heard a community radio talk show. The theme was nursery beds, and it gave the school leaver the idea of tapping into the growing market for fruit juice from manufacturers in the capital Kampala.

Gilbert bought 50 grafted mangoes and 60 lemon seedlings, and was pleased with the results of his first harvest, resolving to expand production. However, daunted by the 3000 sh (€1) cost of buying each new seedling, he decided to produce his own, selling the surplus to other local farmers who were beginning to show an interest in his fledgling fruit business. With information gleaned from an agricultural radio talk show aired by local telecentre the Kubere Information Centre (KIC), Gilbert started a nursery, mobilising village children to collect mango and lemon seeds from the neighbourhood. The young farmer planted 100 seedlings of local mangoes (known locally as *Ayembe*) and 50 of lemon (*Acungwa*), using banana fibre as potting bags. Most of them failed to grow, but using the profits from his now thriving seedling nursery, he bought better quality potting materials from Kampala.

The power of information

This time Gilbert was more successful, and he set about finding markets for his now flourishing fruit tree venture. Earlier this year, he attended a web 2.0 training session run by the Busoga Rural Open Source Development Initiative (BROSDI), and joined two online platforms at Facebook and Twitter. It was becoming increasingly clear that this approach held the key to tapping into a wider market. He received further training from the CTA-supported Women of Uganda Network (WOUGNET), learning how to find information on the Internet and use ICTs to connect with buyers.

Today, Gilbert runs a booming fruit seedling nursery and is the sole supplier of grafting materials to the National Agriculture Research

Organization (NARO) in Kawanda, with whom he makes regular contact via his mobile phone. He also uses his phone to receive payment, through the *Mobile Money* service run by Mobile Telephone Network-MTN (Uganda). And he has subscribed to MTN updates to receive the latest market prices.



The path to success has not always been easy and challenges include poor infrastructure such as roads, processing and storage facilities. But Gilbert is confident that ICTs can help overcome most difficulties.

“The only solution to all the agricultural-related problems we face is access to the right information at the right time” says the fruit farmer, who now owns 15 acres of land bought with his savings. Gilbert’s goal is to launch a juice processing venture and provide jobs for more young people from his village. ■

Based on the original essay:

“Increasing agricultural productivity through technology: *A story of a young modern fruit grower in Apac, northern Uganda*” by Maureen Agena.

Key references

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FIND THE YOUNG FARMER



*Isaac Chanda, Zambia,
Southern Africa*

“ I strive to help youth increase the levels of adoption of ICTs in my region and the nation by building capacity and showing dynamics between ICTs and particular sectors of development. ”

I am a 24-year-old male Zambian. I am a social worker and ICT trainer and consultant and currently the Executive Director for Ndola Youth Resource Centre, an organization that specialises in using ICT for youth development. As I grew up, I came to learn that what separates a successful youth from another is simply the availability of relevant information. My desire is to have a skilled young generation that rely on ICTs to make well-informed decisions for sustainable livelihood development.

My interests: Rural development and youth development

Contact: www.facebook.com/Isaac.chanda

Essay summary

With high youth unemployment in Zambia, government schemes are offering young people in the Copperbelt province easier access to agricultural land, inputs, livestock, training opportunities and in some areas, start-up capital. But limited market exposure continues to be a

serious obstacle for many young farmers, whose lack of experience makes them an easy target for unscrupulous buyers and middle-men.

One practical solution lies in an Internet-based platform designed to showcase young farmers and their products and to link them to markets. The Find the Young Farmer website could offer both audio and visual information and be developed using free and open source software such as Dreamweaver and easy Php for web design, MySQL for databases and Wikipedia for blogs and wikis.

The platform would serve as a directory for agricultural commodities and services, allowing young farmers to advertise what they have to offer and consumers to search by agricultural product, service or location, using general or more refined criteria. As well as the name and contact details of young farmers and organizations, the website would offer space to post photographs of produce and links to blogs or Youtube videos.

Farmer profiles

The marketing tool would automatically connect interested buyers to the young farmer concerned and would also supply contact information such as mobile or fixed phones, as well as email and physical addresses. Links to social media networks would enable users and farmers to exchange knowledge and experiences and a separate section would enable visitors to download useful agricultural material and information such as research documents and newsletters.

Circulated to government ministries, telecentres, organizations and via press and other media, the website would target both local and international audiences. As its popularity grew, so too would its power as an instrument for putting young farmers in touch with buyers.

Young farmers in the Copperbelt province would be encouraged to receive training in basic ICT literacy before being invited to upload details including the nature of their business, type and category of products and contact information,

as well as photos and videos of themselves and items offered for sale. To make the service sustainable, farmers would be expected to pay for space, in order to cover the cost of developing and managing the website. Expected results would be better market linkage for young farmers, more competition, more standardised prices for agricultural products and time savings for buyers looking for farm products and services. ■



Based on the original essay:

"Find the young farmer: Locating young farmers without limitations" by Isaac Chanda.

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AGAINST ALL ODDS



*Euphrèm Akaffou N'depo,
Côte d'Ivoire, West Africa*

“ Founder and owner of a poultry and cane rat farm set up with a group of young entrepreneurs. The income generated has financed my studies to become an agri-food engineer. ”

Born in Côte d'Ivoire in 1985, I graduated from the prestigious scientific high school of Yamoussoukro, where I specialized in mathematics. I was accepted at the College of Technology and passed my first-level university diploma in chemistry/food engineering. My experiences after getting this diploma form the basis of my essay. Today I am an agri-food engineer and am applying my knowledge to the agricultural sector, where I plan to achieve even greater goals.

My blog: www.euphryagrifood.blogspot.com

Essay summary

The prospects looked bleak when young Ivorian Euphrèm N'depo set out to launch his career after graduating in food chemistry and engineering. N'depo, 26, knocked on many doors to find his first job, but all were in vain. The odds were stacked against him. Jobs are increasingly scarce in both the public and private sectors of Côte d'Ivoire, and unemployment in the 15-24 age groups has risen to over 24%. For the 25-34 age range, the rate is 17.5%. In N'depo's sector the picture is even more grim. The jobless rate among graduates like him

is now 42%. One in two Ivoirians are officially classed as living in poverty.

Undaunted, N'depo decided to launch into the small livestock business, opting for rearing poultry and cane rats (grasscutters). Realising that he would need some technical knowledge to help him in his new venture, he set about investigating how to obtain some training. As the cost of the centres offering courses were way beyond his means, and the distances much too far, N'depo decided to turn to the Internet. Easier said than done in the rural community of Irobo where he lived, about 100 km from Abidjan. Here there was no landline connection to the Internet. The nearest one was at Dabou, 50 km away.

Distance learning

N'depo has never been one to give up easily and is a young man full of resources. He resolved to get round the latest obstacle using bluetooth technology and a GPRS-enabled mobile phone to line to the Internet. He soon found all the information he needed.

"The website of the *Agromisa Foundation*, through its downloadable publications, enabled me to become self-taught in poultry keeping, co-operative management and marketing farm products," he said. "The website of *Vétérinaires sans Frontières* (Vets Without Borders) enabled me to find out about rearing agoutis."

The young graduate's business plan was so impressive that he won funding from the local authorities and technical help from rural development agency ANADER to build chicken coops and cages for the cane rates and buy animal feed and breeding livestock to get started. With help from ANADER, N'depo launched a co-operative of young livestock keepers - nine young men and five women -- all of them jobless graduates like himself. The venture was soon making enough to pay a small regular salary to each member of the co-operative. But there was no time for complacency. Faced with exorbitant costs for fodder to feed their growing livestock venture, the young farmers once again turned to the Internet, and once more they were rewarded, finding a better, less costly formula based on maize, soya,

fishmeal, salt, bone-meal and snail shells, enriched with vitamin concentrates. The group is now busy planning other improvements, using information found on the Internet, of course. ■



Based on the original essay:

"L'histoire d'un jeune producteur agricole vivant en milieu rural en Côte-d'Ivoire qui utilise les TIC avec succès, de manière novatrice pour son travail : leçons apprises et alternatives envisagées."
by N'depo Akaffou Euphrèm

Key references

Agromisa Foundation : www.agromisa.org

Vétérinaires sans Frontières : www.vsfe.org

Winners of the Yobloco Awards

The Youth in Agriculture Blog Competition (YoBloCo Awards) aims to highlight the issues, successes and challenges faced by young people in agriculture and to encourage the production of information and the use of ICTs by young farmers' groups and organizations interested in the topic.

The winners, awarded in May 2012, are presented below:

INDIVIDUAL CATEGORY

1st prize:

Nawsheen Hosenally

<http://nawsheenh.blogspot.com>

Nawsheen (23-years-old) recently graduated in agricultural studies. With her blog, *Nawsheen's World*, she puts forward the main issues and key news items related to agriculture in Mauritius and other developing countries. She also writes about the many other activities that interest her.

2nd prize:

Sourou H A Nankpan

<http://www.agrobenin.com>

Biotechnology graduate, Sourou (27), is passionate about agriculture and food production. His blog, *Agro-Bénin*, presents and discusses the impacts of rural migration on agriculture, the consequences of climate warming, government projects, challenges facing food security and other issues in Benin.

3rd prize:

Anthony Mwangi

<http://youngagropreneur.wordpress.com>

In his blog, *The Young Agropreneur*, Anthony (24) shares his experiences as a young agricultural entrepreneur. He describes his blog as 'a resource for information on matters concerning agriculture in Kenya and the Eastern African region'; it is also 'a wake-up call for the youth to venture into agriculture'.

INSTITUTIONAL CATEGORY

Winners in the institutional category were selected per ACP region. Based on the submissions received, institutional blogs from three regions - Eastern Africa, Caribbean and West Africa - were eligible.

Caribbean

Agribusiness Society of the University of West Indies (UWI)

<http://technology4agri.wordpress.com>

The content of the Agribusiness Society blog focuses on technologies which can positively impact agricultural development at all levels. Technologies range from simple devices to high tech and scientific innovations, including ICTs, renewable energy production, water management etc.

Eastern Africa

Farming and Technology for Africa

<http://www.jeuneagrimadagascar.org>

Farming and Technology for Africa (FTA) is a registered association from Madagascar. The creation of this blog followed from a meeting between FTA and students of forestry and rural development at the University of Antananarivo. The blog is an information and discussion platform for youth in the agricultural sector in Madagascar.

West Africa

Syecom Business Services

<http://agricinghana.wordpress.com>

This blog highlights issues on agricultural development in Ghana, including policies, market

access linkages, youth in agriculture, ICT applications and funding opportunities. Syecom Business Services also use the blog to promote their commercial activities.

The competition was launched in July 2011 and 92 blogs were received. For the individual category, winners were selected from 15 finalists, identified following an online voting process in which more than 3,000 people participated. The YoBloCo Awards have been an exciting experience for organisers and bloggers. Through comments on their posts and interactions with the public, bloggers are raising more awareness on agricultural challenges and encouraging other youth's interest. Many bloggers are reporting an increased number of visitors as well as new collaboration opportunities.

More information, including other best blogs can be read on the YoBloCo Blog:

<http://ardyis.cta.int/yobloco> ■





ABOUT ARDYIS

ARDYIS stands for 'Agricultural, Rural Development and Youth in the Information Society'. Initiated by CTA, its purpose is to raise awareness about the opportunities for youth in agriculture and rural development and to strengthen their capacities in ICTs in these areas. It also aims to capture the attention of youth by educating them about the many innovative and inspiring options in agriculture open to them when they master ICTs. These opportunities include new business ideas,

contributing to debates on youth policies or simply sharing information and networking. ARDYIS serves as a framework for action that will contribute to promoting opportunities for youth in ACP countries in the sectors of agriculture, rural development and information and communication technology.

For more information, visit
<http://ardyis.cta.int>



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