

8

Tools for enhancing knowledge-sharing in agriculture: improving rural livelihoods in Uganda

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Introduction

In recent times, conventional wisdom among government and civil society has been that better farm outputs require the use of modern farming techniques. Although important, these techniques require inputs like hybrid seeds, fertilisers, pesticides, herbicides and machinery. But how practical is it to implement them in grassroots farming communities in Uganda when farmers live on barely one US dollar a day?

Experience has taught us that farmers themselves hold the information necessary to help improve their livelihoods. They simply require the platforms and resources to enable them to share that information.

Non-governmental organisations (NGOs) like Busoga Rural Open Source and Development Initiative (BROSDI) are striving to bridge this gap.¹ Our approach to sharing farming knowledge is a blend of participatory development approaches with information communication technologies (ICTs) and Web 2.0 tools. In particular, the use of mobile telephone text messaging services (SMS) for sharing information has proved very effective.² This article explores some of the

ways in which we work with farmers to generate and share local information using these tools.

Background

BROSDI seeks to empower rural communities to exploit their environment using ICTs and other knowledge-sharing methods for sustainable livelihoods. It uses a multi-stakeholder approach, engaging with government, civil society and the private sector. This is done through our education, health and agricultural programmes that primarily target orphan children, youth and women.

BROSDI uses a range of approaches to facilitate the gathering and exchange of information. Web 2.0 and other ICT tools include websites, audio and text blogs, compact discs (CDs), telephone calls and conferencing, mobile phone SMS text messaging services and printed newsletters and brochures.³ In addition, information is gathered and disseminated during Knowledge Sharing Forums, via the Collecting and Exchange of Local Agricultural Content (CELAC) Programme's District Agricultural Network and Village Knowledge Brokers, and during Annual Knowledge Fairs, where

¹ See www.brosdi.or.ug

² Sending a text message via mobile telephone is known as Short Messaging Service, or SMS.

³ For a definition of 'blog', see glossary, p.121. See also Blogging p.106 (this issue).



farmers gather to display or trade produce or other goods and to share information about local agricultural practice.⁴

Collecting and Exchange of Local Agricultural Content (CELAC)

In March 2005, BROSDI began a new agricultural programme. CELAC aims to improve the livelihoods and food security of rural farmers, especially women. In particular, the project promotes the sharing of indigenous farming knowledge and information management of local agricultural practice among grassroots farmers who cannot afford modern farming inputs.

The project facilitates farmer groups to register as community-based organisations, and encourages them to join the project’s District Agricultural Network, represented by elected Village Knowledge Brokers. Each group also receives seed funding to begin small income-generating activities. The aim is to foster learning from diverse experiences,

⁴ For example in 2007, over 600 farmers from different areas of the country participated in our Annual Knowledge Fair. The fairs are organised in partnership with the Humanist Institute for Development Cooperation (Hivos).

Participants gather at the 2007 CELAC District Farmers Network Annual Knowledge Fair.



Photo: BROSDI

increase work effectiveness, and help farmers engage in more effective problem-solving – and to help ensure that the groups and the network are sustainable in the longer term.

Developing local agricultural content

CELAC collects information about effective agricultural practice and adapts and repackages it into formats that are appropriate for rural farmers, most of whom have not had a basic education. The content consists of both local and outside information.

Knowledge Sharing Forums

Knowledge Sharing Forums are convened to promote the exchange of local agricultural information among farmers, using participatory peer-to-peer education and learning. Farmers, government officials (especially in the agricultural departments) and civil society organisations are all invited to take part in these participatory discussions, to share information about ‘how they do it’, ‘the good and bad practices’ and new ideas (See Box 1).

Forums are usually themed around generating information for a targeted crop or livestock type, e.g. goats, chickens, beans etc. The farmers decide on the topic beforehand and also invite other farmers to participate, who they have identified as being knowledgeable about effective farming methods for that particular topic.

The farmers choose amongst themselves a convener, to facilitate the discussions using participatory methods, e.g. group discussions or card sorting. The whole farming process is discussed, from crop preparation to post harvest methods. The project team then helps the group to document the outcomes for later dissemination, using audio equipment, a laptop, a digital camera, pen and paper.

Source: United Nations

Box 1: Knowledge Sharing Forums in action

Interestingly, with each district visited, we found that knowledge-sharing for personal development is a new concept among farmers. During a turkey-rearing Knowledge Sharing Forum in Budaka District we met Gwiko Geroshom, one of the largest local turkey farmers in Pallisa District. He uses exclusively local methods to treat his turkeys and acquired all his knowledge from his parents and through trial and error. We also met Namutosi Rose, whose livelihood is largely dependent on rearing turkeys. Namutosi had spent large sums of money on medicines for her turkeys. During the Forum, she learnt how to treat her turkeys using plants growing wild on her farmland from a man she already knew – it had never occurred to her that he had practical answers to her challenges. Afterwards, Namutosi said: *Gwiko is my friend, everybody's friend. We all know him and that he rears turkeys. What we didn't know is that he has such enormous amounts of knowledge in turkey rearing. Our turkeys die everyday yet we have the cure in our homes. More so, we call the 'cure' stubborn weeds and keep digging them out!*

Source: <http://successtories.wordpress.com>

The District Agricultural Network and Village Knowledge Brokers

During the Knowledge Sharing Forums, the project team also invites the participants to join the CELAC District Agricultural Network. Participants select one person from each village to become their Village Knowledge Broker (VKB) and to act as their representative in the network (see Box 2).

Box 2: Village Knowledge Brokers

The project has established village-level community knowledge brokers, empowering women and men with the skills to collect, store, analyse and disseminate agricultural information within their communities. Elected VKBs do not have to be computer literate or able to read and write. The project provides training, support, and information and encourages inter-group adult literacy classes. Farmers are asked to elect representatives who are:

- sociable and willing to share knowledge;
- active and living in rural areas; and
- farmers, preferably women.

VKBs are expected to be the information vanguards of the village they represent. Information generated by the CELAC project is processed and repackaged and then disseminated back to the VKBs, who in turn pass the information on to village members. The VKBs also periodically hold mini-Knowledge Sharing Forums within their communities. We request that they send any information generated to the team, which is in turn disseminated to the other farmers. Before it is more widely distributed, the information received from farmers and VKBs is first tested and verified. This is important because of the potential negative impact on farmers' crops and livestock.

Members of the Masaka District Farmers Network meeting.



Photo: BROSDI

Getting flexible with other tools for sharing knowledge

Once BROSDI and the CELAC project have collected the information generated and documented e.g. from VKBs and other farmers or during forums and field visits, it is then repackaged and distributed. The information is organised into detailed 'How to Guides' (booklets and audio CDs) and single-page summaries for distribution to the network. Audio versions are also uploaded on our audio blog for others to download.⁵ We also further summarise the information into mobile phone text messages (SMS), which are sent out to over 400 farmer subscribers on a weekly basis – and our database is growing.

The next section explores how these tools and approaches work in practice.

Sharing agricultural information using mobile phones

Due to the liberalisation of the airwaves, various telecommunication networks have extended their mobile phone services to rural areas and subsidised the costs of mobile telephone handsets – something that rural people have taken advantage of. Text messages are a less expensive and more accessible means of information access and dissemination, in particular for women farmers who are the major family income earners. SMS can be used anywhere provided one has a mobile telephone and access to a network.

The project enables farmers to subscribe to a service to receive information by weekly text messages. The SMS is disseminated in both English and Luganda, a Ugandan local language.

⁵ See the BROSDI audio blog: <http://audioblog.podbean.com>. For a definition of 'audio blog' see glossary, p. 121 (this issue).



Mrs. Mpungu (holding a mobile phone) takes other farmers around her banana plantation

Photo: BROSDI

Every Monday, we repackage information and send it via text messages to our subscribers, who then disseminate it to other neighbouring farmers (see Box 3). Some post the messages on notice boards in market places, or under jack-fruit or mango trees to protect them from the rain. Others use a public address system. They also make a written record of the messages and file them for future reference. Other farmers without mobile phones can then access this information and further disseminate it.

Box 3: An example of 'repackaged' information sent via SMS

Dilute 1 litre of milk with 9 litres of water. Spray the solution every 10 days to prevent mosaic virus in tomatoes, tobacco and sugarcane. Weaker solution of 1 part milk to 10-15 parts water applied every 10 days is effective in controlling mites and plant diseases in many plants e.g. blights, mildew, other fungal diseases and mosaic virus. Spray every 3 weeks to control spider mites and caterpillar eggs.

These are significant information sources for other grass-roots farmers in the villages. The service helps them to share and promote better farming practices using local content, e.g. garden preparation, planting, harvesting and post harvesting, marketing and pest and disease control measures. For example, Cissy Serunjogi, a sweet potato farmer in Luwero district, is active in sending SMS alerts to other farmers about approaching dry spells and to remind them to start preparing their gardens for the next season.⁶ The SMS sent have no defined word number count. Often, the recipient's phones break the message into six to eight messages due to its long length (see Box 4).

⁶ Cissy is also the current Luwero CELAC District Farmers Network Chairperson.

Box 4: Comments on sharing agricultural information using SMS text messages

The SMS sent have been of great significance especially because they give practical solutions to many of our farming challenges that have led to our household development through increasing our income avenues and amounts.

Elizabeth Mpungu, a farmer from Masaka district, during a discussion at a CELAC Village Knowledge Brokers training at the BROSDI Development Centre, Mayuge.



Mrs. Mpungu (clad in brown, blue and white Kitenge dress) takes the roles of a convener in a Knowledge Sharing Forum in Masaka district

Photo: BROSDI

We don't mind that the SMS is divided into batches. In fact, this attracts other colleagues when they hear my phone ring a number of times.

Mwanja Edwin, Coordinator for the Mayuge CELAC District Farmers Network Chairperson and also the Agricultural Extension Officer in Baitanbogwe sub-county.

Challenges and lessons learnt

Sharing on- and offline information: websites, blogs and digital radio

BROSDI used to broadcast a live monthly radio programme, facilitating farmers to travel to the radio station to share information about effective farming practice. However, a survey revealed that 90% of the farmers we directly serve did not listen to the programmes because of a poor radio signal and because they preferred their local FM stations.

Instead, we now record and disseminate the farmers' interviews using audio CDs, digital online radio and an audio blog. For example, farmers are provided with copies of the CDs and audio equipment to enable them to listen to them as a group. Our Web 2.0 audio blog also helps to reach a wider audience.⁷ All farmer interview recordings are uploaded to the audio blog, so that anyone with Internet access can download or listen to the different farming prac-

⁷ See: <http://audioblog.podbean.com>

Screengrab from
<http://audioblog.podbean.com>

The screenshot shows the BROSDI Audio Blog interface. At the top, it identifies the category as 'Agricultural' and 'How-to Guides', with tags including 'organic', 'celac', 'crop', 'livestock', 'farming', 'podcast', 'content', 'audio', 'brodsi', and 'agriculture'. The main content area displays three audio posts, each with a title, a 'Listen Now' button, and details like file size and duration. The sidebar on the right contains a calendar for April 2009, a 'Recent Posts' list with links to various topics like 'How to rear pigs?' and 'How to grow maize', and a 'Categories' list including 'Crops', 'English', 'General', and 'Livestock'.

“Text messages are a less expensive and more accessible means of information access and dissemination, in particular for women farmers who are the major family income earners.”

storing, managing and accessing information and enhances networking and sharing. However, it is only accessed by a very small percentage of farmers. Although such tools are very useful, Internet connectivity is limited in rural areas, and often unaffordable to farmers.

To help bridge this gap, we also work to make online information available offline. The project periodically prints out articles and comments from the blog. It distributes them to the Village Knowledge Brokers to share with their communities. Farmers are then able to read and also respond to these blog posts via the VKBs, without having to access them online. BROSDI keeps in touch with both the on- and offline blog authors, mostly using mobile phones. This enables a two-way communication between the distant parties.

Repackaging information like this is time consuming and expensive. Yet the scales have to balance: information must be shared both on- and offline to maintain the flow of information between those who have Internet access, and those who do not.

Overcoming language and literacy barriers

Much of the information we produce and disseminate is in English – so many people in rural populations are unable to read them. We produce information in the local language, Luganda, but those that cannot read are also left out.

BROSDI encourages farmers to take advantage of the free government education programme, Universal Primary Education, or to ask their children to read the information for them. Often, children or fellow farmers rewrite what they can in their local languages. One advantage is that all the Village Knowledge Brokers can read and write English. In addition, the audio CDs help to overcome literacy barriers. These approaches have enabled a wider audience to access the information we send out.

Issues of affordable and accessible tools

The BROSDI CELAC project has shown that sharing indigenous knowledge using ICT methods makes a significant contribution to resolving local problems – and it is the adoption of mobile telephony services which has taken the lead.

tises described. This has helped to reduce the production costs of CDs. Through WorldSpace radio, BROSDI now also frequently downloads relevant audio files and uploads them on our website for public access.⁸

We also download text files and education materials to the BROSDI website. CELAC also has a website where the short ‘How to Guides’ and transcripts from the forums and field visits and case studies can be downloaded in portable document format (PDF).⁹ Free printed copies of the ‘How to Guides’ are also available at BROSDI Development Centre. Similarly, printed copies of information are also available to farmers during Annual Knowledge Fairs.

Another online information-sharing tool is the CELAC text-based blog, where farmers, staff and other agricultural practitioners can post local agricultural-related articles.¹⁰ Using this kind of Web 2.0 application is an effective way of

⁸ WorldSpace radio uses two satellites, AfriStar and AsiaStar, to broadcast more than 100 digital-quality audio channels to people around the world, enabling them to receive digital radio programmes that are not available or rarely found on local, regional or national terrestrial radio. See: www.worldspace.com

⁹ See: www.brodsi.or.ug and www.celac.or.ug

¹⁰ See: <http://celac.wordpress.com>

“Information must be shared both on- and offline to maintain the flow of information between those who have Internet access, and those who do not.”

However, there are challenges. Telephones need to be charged. Electricity is not evenly distributed especially in rural areas. Those with electricity often charge exorbitant costs to charge a mobile phone. Also, telecommunication companies tend to install networks in urban centres first. In some rural areas, farmers have to travel long distances to access a mobile phone network or a Village Knowledge Broker with a telephone. Yet even with these challenges, the use of SMS has had a positive impact for rural farmers.

Issues of gender and culture

Although rural communities have information to share, accessing it requires more than just mobilising people. BROSDI have discovered from their experience that many farmers are sometimes unwilling to share information because of pre-existing culturally defined criteria and parameters. Many do not intend to hoard their knowledge, but lack the appropriate forums to share it in. Many grassroots communities are also not used to sharing information so it is paramount that the process is introduced gradually to them. People have differing susceptibility to change.

Each community also addresses gender concerns differently. Rural communities have mixed views on women-only projects, which often raise much curiosity among the men. In our experience, it is important that men are also closely involved, provided they are not the dominant players. When other men see their involvement, local communities are more open to working with the project.

Involving communities in mobilising and conducting the Knowledge Sharing Forums using peer-to-peer learning can help to ease the process. We have found that rural commu-

nities are more willing to share knowledge using participatory approaches and processes. During these meetings, the CELAC team emphasises the need to share if you want to learn. This strategy appears to work well. Normally, participants begin to share when they realise that they too are learning freely.

Farmers, other members of civil society and government need to create a commitment to cooperate, to change, to challenge – and to allow time for this to happen. It is important to understand the specific community culture. It requires research and planning at the base level to explore issues e.g. of culture, gender, and how receptive people are to the project. Visit the community and plan in advance how to address challenges and take advantage of strengths, and adjust your plans accordingly.

Conclusion

Information is a vital tool to enable and increase farmers' livelihoods, provided the farmer can use the information positively. This information needs to be shared so that others not only have and use it, but can also customise it for themselves and share it again thereafter.

At BROSDI, our approach is to work with partners to identify key needs or issues; determine appropriate knowledge-sharing and information management initiatives; and then communicate these initiatives in a language that matches the problem being solved and the target group. The project team, the district farmers' networks, government and other members of civil society have to work together in order for project ownership to prevail.

We have seen the tangible benefits that sharing knowledge can have, from farmers who can afford to educate their children and provide medical care for their families, to constructing more permanent houses. We have seen farmers who have benefited from increased farm outputs with each season and diversified their income-generating activities – helped by the use of appropriate tools for sharing knowledge and local content.

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