Introduction

Access to information on good agricultural practices and innovations remains one of the key contributors to enhancing agricultural productivity. This is becoming more important in the context of climate change effects on agriculture. For Tanzania, where average yields of most crops is below the global average\(^1\), timely access to good agricultural practices (GAPs) is critical in enhancing productivity and achieving the government’s goals of food security and increasing the share of agriculture in GDP. 

As over 90 per cent of the agricultural workforce in Tanzania comprises smallholder farmers, approaches to enhancing smallholders’ access to information is critical to realising the above goals. As farmers access information from multiple sources, Aga Khan Foundation (AKF) views extension and advisory services (EAS) as a multi-nodal communication system comprising a range of service providers – public and private – and a variety of communication tools that enable farmers to feed into and source extension knowledge on a sustainable basis. This view emerged out of AKF’s experience in working on agriculture and market development in Lindi and Mtwara Regions (LMRs) of southern Tanzania, where the Foundation has been implementing its multi-sector Coastal Rural Support Programme Tanzania (CRSPT) since 2009. Through CRSPT, AKF has worked directly with over 60,000 rice, sesame and horticulture farmers, contributing to significant increases in yields and incomes through improved farming practices.

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AKF’s Coastal Rural Support Programme Tanzania (CRSPT) was started in 2009 in collaboration with the Government of Tanzania with the long-term goal of improving the quality of life in Lindi and Mtwara Regions (LMR) through multi-sectoral interventions in the economic and social sectors. CRSPT started with a programme to increase financial inclusion for rural poor through the formation of community-based savings groups (CBSGs) and to support smallholder farmers to sustainably increase productivity of rice and sesame – adding horticulture in 2014, poultry and legumes in 2016 and sunflower in 2017 – and to facilitate the integration of smallholder farmers into market systems. In 2013, education and health programmes were introduced within CRSPT, as part of a growing multi-input area development (MIAD) approach across the two regions. CRSPT(T) was designed and implemented in partnership with the Government of Tanzania and is funded by the Department for International Development (DFID), the European Commission, Global Affairs Canada (GAC), GIZ, Financial Sector Deepening Trust (FSDT), Gates Foundation, Johnson and Johnson Trust and the Agriculture Market Development Trust (AMDT). Under its economic development initiative, the programme has directly benefitted over 60,000 farmers and value chain actors and organised 178,000 people (66 per cent of them women) in savings groups.

practices and linkages to market.

Sitting within the Southern Agricultural Zone, AKF’s programme area is served by the Naliendele Agricultural Research Institute (NARI) and a Ministry of Agriculture Training Institute (MATI), both of which are located in Mtwara. Government agricultural extension is devolved to the local government administration, with 13 District Agriculture, Irrigation and Cooperative Officers (DAICOs) managing about 700 extension workers. The government’s extension service approach is predominantly based on farmer field schools facilitated by Government Agricultural Extension Officers (GAEOs), who also provide responsive advice on request from farmers. Government agricultural extension policy welcomes a pluralistic approach, with government, NGO and private sector providers working in a variety of ways. AKF capitalised on this pluralistic approach to work with multiple actors to strengthen access to information for farmers. The CRSPT, implemented in partnership with the government, has yielded several important lessons to inform agriculture sector programming. This brief focuses on lessons around extension and advisory services for smallholder farmers in Tanzania and, possibly, other countries facing similar challenges and context.

Rationale and context

The rationale for the programme was to address and reduce poverty by increasing incomes and food security for small farming families in LMRs. To do this the programme facilitated the aggregation of smallholder farmers into competent farmer and savings groups. Using a range of approaches, the programme communicated technical innovations concerning the production of rice and sesame (and horticulture in recent years) as well as safe ways of collective savings. In addition, it worked closely with the groups to build knowledge and skills in storage and marketing of produce as well as establishing small business competencies.

Why focus specifically on approaches to sustainable extension? Because farmers will always need access to information and support to make the shift from subsistence to commercial agriculture. It is only with such support that they can effectively improve cropping choices and practices and thereby increase opportunities to generate income. Over a period of six years, CRSPT worked with a range of information providers and assessed their effectiveness through talking directly to farmers. This paper outlines the programme interventions, results and learning as a consequence of this work.

Programme interventions

CRSPT undertook production training with farmers in both sesame and rice value chains at different levels of intensity. Farmer groups attended up to 25 sessions over a season managed by programme extension staff. Juxtaposed were the short three or four day training sessions given to a much larger group just before the start of the season. Farmer-to-farmer demonstration models of GAPs were used as the main communication approach. Trained groups often became registered producer marketing groups (PMGs) for collective sales.

This training and subsequent support to farmers was delivered directly by three different types of workers. Thirty five Government Extension Officers were seconded to the programme and were trained and provided with some logistical incentives for transport. This was the local government’s contribution to the programme. CRSPT recruited some field staff as a compliment to the Government Extension Officers and supervised all field activities. Community Based Facilitators (CBFs) were recruited from the farming communities and modestly remunerated to support farmers in their locality. Forty keen and capable local farmers were selected as CBFs and given additional training to provide five farm visits per day to promote GAPs. They were rated highly by farmers. With the closing of CRSPT most are committed to continue providing some advice to their community but not to the level of engagement they attained while being paid.

CRSPT trained 260 individuals (entrepreneurial farmers to work as Village Based Agents (VBAs) selling agro-inputs to farmers.
Of these, 171 are trading and about half of these are thought to be profitable and growing input supply enterprises. VBAs provide the last mile link between the large input suppliers and the farmers. All VBAs were found to be providing some advice to farmers on products to use, application, mixing and safety, while some made listening to advice a condition of sale. Some are providing free field advisory visits and some provide a paid spraying service. Some sell on credit, in effect providing some financial services to farmers. A few are actively promoting GAPs, doing their own demonstrations and organising farmer trainings. At least one is advertising products on the radio.

NARI provides the technical knowledge for the Southern Agro-ecological Zone and has significant capacity, with 28 scientists and 50 technicians. Alongside the government budget, NARI also receives some project funding, usually focused on specific crops. NARI seems to be strongly committed to communicating their findings, where funding allows, producing a range of pamphlets and broadcasting information on the local radio stations. There is ambition within the NARI to do more, including running an agricultural information call centre.

CRSPT’s experience with supporting Pride FM Radio to produce a weekly farming programme, “Kilimo ni Ajira”, has been featured in a final report by Farm Radio International – although the feature did not include actual estimates of listenership or audience feedback ratings. CRSPT survey data suggests radio access is high (99-100 per cent of farmers have access to a radio, while 54 per cent of rice farmers and 60 per cent of sesame farmers own a radio). However, listenership of agricultural programmes is much lower at 6-15 per cent, and of the CRSPT-supported Kilimo ni Ajira programme, lower still at 2-9 per cent. Usefulness of information ratings by individual farmers is at 58-98 per cent, which is adequate. The potential numbers reachable by relatively inexpensive radio coverage is high and a 10 per cent listenership would reach 57,000 households in LMRs.

AKF organised and trained farmers to work as PMGs. Over 50 PMGs were formed. These were found to be important conduits of information on market opportunities and potential buyers for their members. However, they were not generally seen as important channels for more general agricultural production advice. In some cases, groups had suggested a member for a CRSPT training course – and in most cases this member had provided some feedback to other group members. In one case where the VBA was not an independent trader, but a member of the PMG, the VBA was primarily serving the needs of the group members.

Agricultural Marketing Cooperative Societies (AMCOS) constitute a significant organisational network across rural areas and, therefore, have potential for being a structure through which extension information could be organised. Those that are trying to be active are focusing on providing services to their members like input supply and tractor hire – which the AMCOS can also use as an income-generating opportunity – as opposed to extension services.

There was an expectation that contract farming might provide a sustainable channel of extension. In practice, the expectation from the companies seems to have been that they would provide some inputs and buy the crop, and that CRSPT would provide the extension advice. As a result, the model was never really tested, and in practice the sesame contract farming has been a tiny sideline for the companies (in 2014 the contracts delivered eight metric tonnes of sesame and agribusiness Export Trading Group reports that it bought around 45,000 metric tonnes outside of the contracts).

“After becoming a resource farmer I realized that I enjoy teaching people ... and I am happy because they are practicing what I have taught them. When people see the profit it becomes easy for them to adopt new practices”.
Abbas Meyo – volunteer resource farmer and lead farmer – Madarawa Village, Lindi Region
The community based savings groups (CBSGs) in LMRs form a remarkable network of 9,000 groups and over 170,000 members, 66 per cent of whom are women, and most of them primarily farmers. This is over three times more than those reached by the CRSPT agricultural extension programme and provides a potential organised structure through which to deliver future extension.

Lastly, a zonal information and extension liaison unit (ZIELU) was designed by government to coordinate the activities of extension and research actors to improve the relevancy of extension services to farmers.

Impact

CRSPT undertook three quantitative surveys between 2012 and 2014 that identified a number of farmer practises regarding the use of extension/communication services. Over 53,000 rice and sesame farmers were trained over the course of the programme and many are using a growing network of sources of advice including those detailed above.

Of note is that farmers are familiar with working with the government employed extension officers and respect their training and advice. As CRSPT pulled out of some areas to move into others, it was observed that farmers started adopting utilisation of more services (independently of the programme).

With respect to all available extension and communication services, direct project beneficiaries use services more than indirect beneficiaries. Rice farmers using non-CRSPT advisory services grew from 5 per cent to 38 per cent for direct beneficiaries and to 21 per cent for indirect beneficiaries. For sesame growers, this increased from 7 per cent to 29 per cent and 25 per cent respectively.

Reported receipt of agricultural advice has increased fivefold over the life of the project and 50 per cent of direct beneficiaries and 25 per cent of indirect beneficiaries now receive some advice. However, excluding the advice and training directly financed and organised by CRSPT, access to other services has increased for both direct and indirect beneficiaries. This supports the theory that CRSPT has contributed to crowding in of other services and/or behaviour change in terms of advice seeking.

Unsurprisingly, mobile phones have already resulted in a communication revolution in rural LMRs although not as a result of project activities. Phones are ubiquitous and many focus group members reported using their phones to seek agricultural information – from friends, relatives, input suppliers, extension workers, etc. This trend is only likely to increase.

Lessons learned

One of the most important lessons learnt is that no single channel of learning and advice is sufficient. Real change is promoted when a number of complementary channels work to reinforce each other. Within this composite approach, farmer-to-farmer learning, with the ability to see new techniques and discuss them with trusted neighbours, is particularly important.

A multi-faceted extension system needs continual care and fine tuning to ensure that the messages and approaches remain relevant to farmers and that new information is fed into the system when appropriate. This requires feedback from the users, an ability to understand farmer needs and an appreciation of emerging opportunities as well as flexible management in order to respond to all of this. The question is: Who should take on this oversight role?

Government extension workers can be effective change agents if they are brought into an effective and supportive management structure. CRSPT used this permanent extension resource well and achieved positive impact with support training and transport subsidisation. Workers return to government service better equipped and more enthusiastic than when they started. However, under-resourced government extension opportunities mean that this enthusiasm will not necessarily be

“Because of my exposure as a field extension officer my importance in society has increased from the village to district level. I’ve been invited as a spokesman to government workshops and a radio programme. I have networked with many farmers and may receive 10-15 calls in a single morning. I have also received a number of job offers.”

Bwana Natosa – Government Extension Officer – Masasi
Government extension officers can play a more effective role if they are able to systematically engage community-based facilitators/lead farmers in each community. These would in turn disseminate extension messages at the village level and act as an extended arm of the government extension officers. Local government authorities in LMRs acknowledged this model of linking an extension officer with 4-5 lead farmers as a viable approach for that needs to be scaled up. This could work if the government can incentivise lead farmers perhaps through non-financial benefits such as training and recognition. 

Entrepreneurial local farmers and other business people, with appropriate training and support, can become profitable agricultural input retailers providing the last mile link between wholesalers and farmers. They have demonstrated that they can also become valuable advice givers on crop husbandry in relation to the products they are selling.

Mobile technology is opening up new opportunities for both push and pull information transfer. This will probably be most effective if it is integrated with and becomes part of a composite learning ecosystem that includes many of the possibilities detailed in the programme intervention section. 

Contrary to received wisdom, some farmers said they would be willing, in certain circumstances, to pay for good quality, relevant crop husbandry advice. This might well be limited to high value crops such as pulses. Nonetheless, it is worth noting even though it was not widely tested in CRSPT.

**FIGURE 1: DIAGRAM OF A LEARNING ECOSYSTEM**
**Recommendations**

An effective extension system is best conceptualised as a 'learning ecosystem' (Figure 1) with the farmer in the centre. Different organisations will be active in different parts of the ecosystem, using a range of communication tools. To be cost-effective, use will need to be made of various ways to bring farmers together to learn and exchange information. The whole system should be dynamic, responding to the changing needs of the farmer and changing external opportunities and constraints (e.g. prices, new technologies, climate change).

Within a dynamic learning ecosystem, different organisations and institutions have different roles to play. One key mistake many agricultural projects have made in the past is to ‘try and do it all’, setting up new groups and creating parallel structures that are often not sustainable. Smart design recognises the strength, weakness, and potential of the existing ecosystem and identifies where value can be most effectively added in relation to the time, budget, and skills available to each stakeholder.

Notably, a key player in the said ecosystem is the ZIELU. This unit should not be expected to implement the learning ecosystem, but rather to catalyse the various stakeholders to implement their respective parts. An important part of this task is to listen to farmers, especially the more remote, poorer, and women farmers, and to ensure the system as a whole continuously evolves to meet their changing needs.

**Conclusion**

An effective and dynamic series of communication channels is at the heart of the change process. Using farmer-to-farmer approaches and demonstrations is key to gaining the trust and confidence of farmers and the first step to enabling them to use multiple channels in different but appropriate ways. Of particular note is the need to find the most appropriate entity through which to manage or coordinate this process, changing and adapting it as appropriate and keeping it relevant to farmers’ needs. This is both time consuming and dependant on superior skills all round. The use of radio to capture a mass audience and finding a way to help stations attract advertisements and commercialise the service is a key next step. Alongside radio, mobile technology holds great potential.

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