

## Farmer Innovation in Uganda: Aiding and Abetting the Land Users

WRS.Critchley<sup>1</sup>, R. Lutalo<sup>2</sup>, H.D. Miiro<sup>3</sup> and A. Lwakuba<sup>4</sup>

**Abstract:** Over the last decade Uganda has embraced a series of projects and programmes to promote farmer innovation that is perhaps unrivalled in Africa. This paper presents the background, methodology and accomplishments of the four main innovation projects – ‘Conserve Water to Save Soil and the Environment’, ‘Promoting Farmer Innovation’, PROLINNOVA (‘Promoting Local Innovation’) and ‘Stimulating Community Initiatives in Sustainable Land Management’ (SCI-SLM). We trace the genesis and evolution of the programmes – through the first two which have now completed their activities, to PROLINNOVA which is currently active country-wide and finally to SCI-SLM which is in its inception phase. An example is given of an innovator and an innovation, in the field of land husbandry/ sustainable land management under each project. We present Evas Gakyalo with her trash lines and manure management in Kabale, Ali Alias with his mulching and water harvesting in Katakwi, George Lubega from Nakasongola with his pasture rehabilitation system, and finally the RECPA community with their hillside reforestation programme in Ntungamo. We argue that improved natural resource management in ‘difficult’ and marginal areas is most likely to be solved when the ideas of innovative land are appreciated and supported by researchers, and the process stimulated and facilitated by extension agents.

Uganda has a typical sub-Saharan dependence on rural livelihoods based, in turn, on rainfed agriculture. 1993 figures demonstrate that 55% of Ugandans live below the poverty line (World Resources Institute, 2001). The agricultural sector is the mainstay of Uganda’s economy, providing 80% of the population (of around 17 million) with employment. It is estimated that, between 1970 and 1997, the rural population increased by 90% and the cultivated area rose by 35%. However the yields of most crops were stagnant or declined. Between 1987 and 1997 the population grew by some 43%, but food production by less than 20%. Furthermore the scientific community point to a problem with declining soil fertility, and this is echoed by farmers’ concerns. It is little wonder therefore that poverty and land degradation are considered paramount targets of Uganda’s development strategies and policies. The ‘official’ research and extension services are evidently finding it hard to combat the problems, but what of the ‘unofficial’ role of farmer innovators in Uganda’s agriculture and the fight against land degradation?

Originally ‘research’ and ‘extension’ in agriculture simply didn’t exist as named disciplines. It was farmers themselves who experimented with crops, planting methods, animal husbandry and grazing systems. Farmers also engaged themselves in selection of improved varieties, and carried out crop and animal breeding. Naturally not all farmers were innovative: a few had the imagination and skills to carry out research. In terms of extension – in other words spreading the message of better practices – it was farmers again who were involved, informally, in sharing knowledge. In some countries, a few centuries ago, religious communities and early institutes of learning (Universities etc) developed model farms and gardens and carried out trials. There is evidence that they also involved themselves in teaching farmers better practices. Whatever the origin of these ideas, by the time the first official ‘research’ and ‘extension’ services were established in the 19<sup>th</sup> century, there had already been huge advances in agricultural practices and both crop and animal breeding. Indigenous knowledge had laid the foundation for modern agriculture.

The first official research institutes characteristically had their own station farms, and carried out controlled trials – usually according to the agenda of the scientists themselves. Their research recommendations were then typically passed on to advisors within extension services – and then transmitted to farmers. This was through a top-down ‘transfer of technology’ (TOT)

---

<sup>1</sup> [WRS.Critchley@dienst.vu.nl](mailto:WRS.Critchley@dienst.vu.nl) corresponding author, Vrije Universiteit Amsterdam

<sup>2</sup> Environmental Alert, Kampala, Uganda

<sup>3</sup> Ministry of Agriculture, Animal Industry and Fisheries, Entebbe, Uganda

<sup>4</sup> Ministry of Agriculture, Animal Industry and Fisheries, Entebbe, Uganda

mechanism, with little or no feedback loop. This type of research and extension system was exported by colonial regimes to tropical countries within their control. Uganda is a typical example of this. Over the past few decades there have been various developments, or evolutions within research and extension. These have included the 'training and visit' extension systems and 'farming systems research and extension'. While appropriate in certain conditions, there was a crisis in R&E in many countries – both developing and developed - in the last part of the 20<sup>th</sup> century for various reasons (political changes; national economies; the drying up of aid budgets for R&E; etc). The last two decades have seen the emergence of participatory R&E methodologies, and also support for demand driven systems with privatised service delivery – such as the NAADS (National Agricultural Advisory Service) programme in Uganda.

However, farmer innovation – including farmer to farmer extension - is making a come-back, especially where TOT has failed. That is in the poorer, more marginal areas, where researchers (and extension workers) often feel uncomfortable and don't quite know what to do. Farmer innovation is a type of PR&E approach. Wherever farming is practised there will always be a number of farmers who are creative and try things out for themselves. They may be driven by curiosity, or (more often) by a need to produce more food and/ or money to support themselves and their families. Where do they get their ideas from? Very often the source of innovative ideas is mixed. The farmers are creative in themselves, but they look around them and listen to whatever information they can get access to. Commonly they observe different practices on their travels, and adapt these to their own situations.

Over the last decade Uganda has embraced a series of projects and programmes to promote farmer innovation that is perhaps unrivalled in Africa. This paper presents the background, methodology and accomplishments of the four main innovation projects – 'Conserve Water to Save Soil and the Environment', 'Promoting Farmer Innovation', PROLINNOVA ('Promoting Local Innovation') and 'Stimulating Community Initiatives in Sustainable Land Management' (SCI-SLM).

'Conserve water to save soil and the environment' (CWSSE) was funded in 1994 and began activities first in Tanzania (Mbinga District) and in Kenya (Embu District). Uganda was later confirmed as the third country in a regional programme. It was in Uganda where there was the greatest level of farmer participation, and the most conscious attempt to refine and record methodology. Within Uganda, Kabale District in the south-western highlands was identified as the focal location for activities. Kabale, and specifically the sub-County of Kamwezi was chosen because it answered four important requirements. First it harboured a rich tradition of land husbandry, second it was prone to drought periods (the project was mandated to consider areas with moisture deficit problems), third it was a priority area for the Government in terms of soil conservation, and finally because the local land users were evidently eager to participate in such a project.

The project was co-ordinated from its inception by the Ministry of Agriculture, Animal Industry and Fisheries - Soil and Water Conservation Section (MAAIF-SWCS). The local MAAIF extension agent was deputised to facilitate the day-to-day activities of the programme. Research input was provided through a consortium of MAAIF-SWCS, Makerere University (Kampala), and Silsoe Research Institute (UK), with some support from the Centre for Development Cooperation Services, Vrije Universiteit Amsterdam. Additionally, for a period of a year and a half (from early 1996 to mid-1997) an Overseas Development Administration (ODA) supported expatriate associate professional officer was posted to Kabale to assist the project. The project endorsed a basic methodological sequence based on the steps of *Identification*, *Evaluation (1)* carried out through a 'focussed participatory rural appraisal', *Evaluation (2)* the 'validation' component, *Development* meaning 'value addition' to local practice, and *Dissemination* of proven technologies through a joint farmer and extensionist approach.

*Evas Gakyalo was one of the original farmer-researchers under CWSSE, selected for her system of protecting cropped fields with trash lines. She was one of a group of four farmers*

*who participated in on-farm trials to monitor the effectiveness of this essentially traditional technique. Several parameters were monitored, these included soil fertility, soil moisture sampling, soil erosion, crop performance and labour input. The results of the trials demonstrated that (1) SOM levels were higher under trash lines than the surrounding area (2) soil water was higher above the trash lines and (3) that zone – immediately above the trash lines – was where plant performance was best. Since the culmination of the trials in 1998 Evas continued to participate in the follow-up programme 'Indigenous Soil and Water Conservation Phase 2' which focussed more on the role of farmers as innovators. Evas is taken as an example of how a resource poor farmer has moved forward in many creative ways through a combination of her own initiative and stimulation by these programmes.*

Promoting Farmer Innovation (PFI) ran from 1997 to 2001 in dry / marginal areas of the three East African countries of Kenya, Tanzania and Uganda. Within Uganda the location chosen was the cluster of Soroti, Kumi and Katakwi Districts. Building on the hypothesis that had been upheld by CWSSE, that local African farmers possess valuable knowledge which could potentially be of use in combating land degradation and stimulating increased agricultural output, PFI sought to focus on four questions:

- 1) What useful indigenous knowledge and innovation in soil and water conservation/ land husbandry exists?
- 2) Can farmer innovation be stimulated to provide a significant source of effective and adoptable technologies?
- 3) Do innovators constitute a useful means of helping to disseminate these ideas? and
- 4) Can this approach – if valid – be vertically upscaled and institutionalised?

PFI thus aimed at identifying individual farmers who were innovative in their land husbandry methods, then stimulating them and others to continue innovating, and through farmer to farmer exchange visits, spread that knowledge so that it could aid others in each locality. As such, PFI sought to find an alternative (or at least supplementary) approach to research and extension in the drier areas. The experience from PFI in East Africa demonstrated that local land husbandry practices were plentiful, and that farmer innovators can provide a continuous source of improved systems. These innovators are different from other farmers:

*"Innovative farmers gain inspiration typically from a mix of what they have seen outside their home areas, and their own creative ideas. They are characterised by being (normally) middle aged, and having an important stake in the land. Farmer innovators tend to be imaginative, and demonstrate pride in their achievements when these are recognised. They apparently visualise patterns of integrating resources and intensifying production that escape others" (Mutunga & Critchley, 2001)*

To be able to tap into this wealth of indigenous knowledge and innovation, the PFI programme developed a methodology through learning by doing, once again based on experience from CWSSE.

*Ali Alias Ajaru is a 'larger than life' innovator identified, and worked with, by PFI. Mutunga and Critchley (2001) describe Ali and his innovations in full, and their description is summarised here. Ali is an enthusiast, who is not just constantly testing and trying new ideas, but also feels a vocation to teach others. Ali is in his 40s and has three wives. He is better off than the average householder in this dry and remote part of Katakwi District. It would be a simplification to portray Ali as being a man with just one innovation: in truth he is experimenting and trying out a very wide range of practices. The innovation for which he was originally selected was a series of contour barrier of pineapples to act against runoff and erosion. Some of his ideas he has picked up on his travels, other on PFI-sponsored tours. One of Ali's mottos is: 'Don't let a drop of water escape'.*

PROLINNOVA is the acronym for 'Promoting Local innovation' which is an international network for innovation-based projects, as well as being the umbrella for a number of country

programmes. These country programmes are located both in Africa (Ethiopia, Ghana, Niger, South Africa, Tanzania and Uganda) but also in Asia (currently Cambodia and Nepal). The idea behind PROLINNOVA is simply that innovation-based projects and programmes could, and should, learn from each other and provide mutual support. It was conceived in 1999, and the inception phase, with activities in Ethiopia, Ghana and Uganda, began in 2003. PROLINNOVA's aims are multiple, but more than either of the foregoing programmes there is a strong emphasis on multi-agency implementation (both NGOs and Government Ministries and Research and Extension Agencies) and institutionalisation of concepts. Uganda's country programme under PROLINNOVA's is particularly dynamic, and though first-phase core funding will come to an end in 2006, a local innovation fund which can be tapped into by innovators, will continue specific activities before the second phase takes the programme forward.

*George Lubega is an innovator uncovered by one of Uganda's PROLINNOVA partners. He is around 80 years old and has an interesting story to tell: he has developed a range rehabilitation system, based on long term night-corralling of livestock. The corral (kraal or 'boma') is much larger than normal, and animals are over-nighted for several seasons. The result is a thorough incorporation of dung which improves the soil condition and leads to re-establishment of stoloniferous grasses – Cynodon and Brachiaria in this case. Rarely do we find such successful and sustainable models of rangeland rehabilitation in Africa. This is an important innovation. In fact, with adequate rehabilitation and improved grazing management, it is likely that an associated termite problem will diminish anyway: in any event, termite control without improved grazing management will not be a lasting solution to biomass production.*

Stimulating Community Initiatives in Sustainable Land Management (SCI-SLM) is a medium sized project, financed through UNEP-GEF and about to initiate its activities in Uganda – as well as three other countries in Africa. SCI-SLM has a slightly different focus from the previously discussed projects: it aims to identify local innovation in sustainable land management by communities in the drylands of Africa. The "commons" are where many of the most serious land degradation problems are found, and it is communities that are key to their management. Many observers lament that a free-for-all "tragedy of the commons" scenario is inevitable: but SCI-SLM is based on the premise that there are many examples of community-based innovation in natural resource management, and these deserve uncovering and building on. Of particular importance are those innovations that have been triggered by changing environmental or demographic conditions. What communities have developed themselves is a surer way to adoptability than "scientific" recommendations (where these exist at all) which are often impractical, or out of keeping with local livelihood systems. When institutionalised, organisations – whether government or non-governmental – will absorb innovation-centred approaches into their day by day operations. SCI-SLM will develop this approach in areas prone to desertification in four African countries: Ghana, Morocco, South Africa and Uganda. By spreading the message wider through methodological guidelines, global benefits will be achieved in terms of better, sustained, land management.

*RECPA is the abbreviation for a village association: the village in question is Rwoho, in Ntungamo District, South West Uganda, and the full name is 'Rwoho Environmental Conservation and Protection Agency'. Set up entirely by the efforts of the community itself, RECPA is precisely the type of community action that SCI-SLM is seeking to identify. RECPA has received no funds from outside, and no professional advice, yet the association is thriving and is currently involved in a reforestation project on a hillside above the village. The sense of community commitment comes across strongly, and is encapsulated in RECPA's motto "Environment is a Friend".*