RESEARCH SUMMARY

Social relationships, local institutions, and the diffusion of improved variety seed and field management techniques in rural communities: six case studies in South Kivu, DRC

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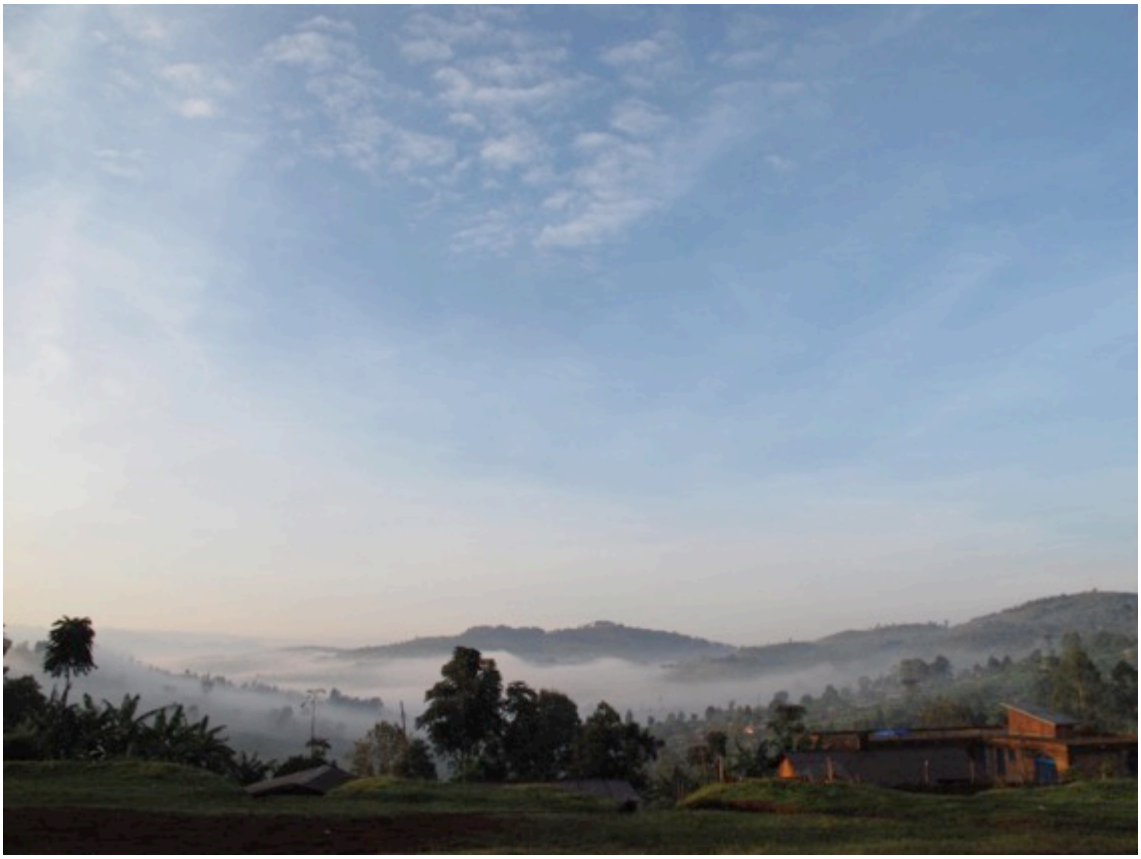

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Research context

This qualitative study was part of an evaluation of the impact of the N2Africa intervention in South Kivu, Democratic Republic of the Congo (DRC), conducted by the Development Economics chair group of Wageningen University (the Netherlands) and funded by the Economic and Social Research Council (ESRC). The N2Africa intervention in South Kivu (phase one, 2009-2014) included dissemination of improved variety seeds (beans, cassava, maize, soy) and field management techniques (e.g. line sowing, cereal-legume associations, fertilizer application, and use of rhizobium inoculum for soy), the focus being benefits of biological nitrogen fixation (BNF). The assumed method of dissemination was based on a lead-satellite farmer model, local NGOs being responsible for sharing information and inputs with the "first generation" of farmers.

Background

Seed sharing systems: Any technology, including seeds and associated field management techniques, is tied to social meaning. Studies specifically addressing the social relationships involved in seed diffusion in rural communities are relatively few. As such systems can vary widely depending on their social and agro-ecological environments, intervention projects and policies should be based on context-specific knowledge.

Farmer to Farmer model: The model assumes that farmers will share seed and information to other farmers as a naturally occurring social phenomenon, therefore serving as an efficient channel through which to introduce and diffuse inputs and knowledge throughout a given community. Terms such as lead and satellite farmers refer to generations of learners, or relative positions as information and seed diffusors. This model, however, falls short on taking into account when resources are not passed on, whether due to social or agro-ecological factors, and to whom resources are transferred.

Research aims and questions

The aim of this study was to analyse how improved variety seeds and information traveled through rural communities, with attention to social relationships and local institutions as well as the intervention set up. Three research questions focused on conditions of the technology introduction, what farmers learned, and the nature of social relationships between those who shared inputs and new techniques.

Research methods

Research was conducted from 15 October to 15 December 2014 in three of the five territories where N2Africa was implemented: Kabare, Walungu, and Uvira. Six case study sites were selected, not to make inferences about the general population of South Kivu, but rather, to observe and describe individual farmer experiences and dynamics related to the (sharing of) seed and technologies introduced by N2Africa, across the range of approaches used by the different NGOs. Therefore, each site was chosen based on having received an N2Africa intervention.

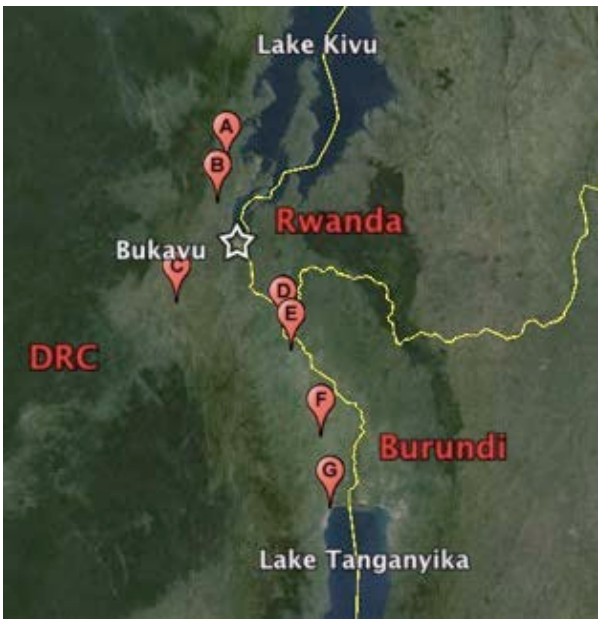

Figure 1. Map of case study locations. Markers indicate case study sites. All sites were on or close to main travel routes. Yellow lines indicate international borders.

Fieldwork consisted almost solely of interviews, with participant observation playing a minor role as time spent in the villages was limited to day trips. Semi-structured interviews were conducted with farmers (67 individuals, of which 18 were men, and 9 focus groups) as well as staff of the implementing NGOs and research institute. Interviewees were primarily members of local farmer associations because N2Africa was implemented through these community structures. The interviewees were mostly so-called lead farmers (those who were "first generation" seed receivers), who then introduced us to other interviewees, who were either other lead farmers or to so-called satellite famers (to whom they had given seed).

Key lessons

Farmer to farmer model

- The set-up of the demonstration fields, trainings, and input distribution varied depending on the NGO and local association, though the general format included a practical training with demo field and distribution of inputs.
- The six implementing NGOs distributed inputs and techniques using the master-satellite farmer model, which despite certain disadvantages, was generally approved of by famers and NGO staff. The distinction between master and satellite farmer was not always apparent.
- After observations in the demo fields, some field management techniques (line sowing, inoculum, fertilisers) and crops (soy) generally received more interest than others.
- In their own fields, overall, farmers found that the introduced varieties performed better than those previously available, and continued to produce them as long as they produced a yield. Line sowing and use of compost fertilizer were techniques most applied. There was relatively little familiarity or use of inoculum.
- Farmers made very little mention of soil fertility benefits provided by legumes, and did not typically practice crop rotations. Rainfall, inherent soil fertility, and application of compost were the three factors described to most affect soil fertility.

Information and improved variety seed flow

- Information and seed flowed between family, field or house neighbours, and members of the same associations. Family members were ideally prioritized, but in actuality it was not always the case because they may have been located far away due to virilocal marriage patterns or displacement due to insecurity. Distance to family, distance between house and fields, and social cohesiveness of the local association affected choices to share technologies.
- Seed and information were typically given when requested, with varying expectations of reciprocity. There were some female networks where they exchanged regularly without being asked and without any immediate expectations.
- The local agricultural, development associations played a key role in structuring and disseminating the new technologies.

Conclusions

The improved varieties and field management techniques were typically diffused at two levels: first, through farmer-associations, and second, from individual farmers to family, field and house neighbours, or (new) association members. Though ideally, family were prioritized, which of these relationships were deemed most important depended on local factors. Seed and information exchanges were characterized by a moral ideal of distributing new variety seed (considered communally owned), and both delayed and immediate reciprocity. Associations that functioned better than others seem to have resulted in a wider seed and information distribution. Farmers generally received the improved variety seeds positively, evidenced by continued production and feedback on higher yields. Line sowing and use of mineral and organic

fertilizer were techniques of most interest, evidenced by continued use which was reportedly due to the tangible effect on increased yields.