JOLISAA
JOint Learning in Innovation Systems in African Agriculture

Joint learning to enhance innovation systems in African agriculture

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Introduction

Recognition is growing that strong and dynamic innovation systems are essential for adaptation to the rapid changes being experienced by smallholder farmers, including growing population pressure on limited natural resources and climate change. Yet relatively little is documented about how innovation processes unfold in smallholder agriculture. Most researchers, development practitioners and policymakers implicitly or explicitly work with a linear model of transfer of "innovations" from research via extension to farmers for adoption. This seldom reflects how innovation actually happens. Recent studies have revealed that effective innovation takes place within heterogeneous networks of researchers, farmers, private entrepreneurs, NGOs, government and other stakeholders. They interact over time in a non-linear, iterative and non-predictable fashion to solve a pressing problem, adapt to new conditions or take advantage of new opportunities. The outcome of such interactions usually consists of a mix of technical, organisational and institutional innovations developed and refined "on the go", often quite different from what the initiators envisaged.

The EU-funded project JOLISAA (Joint Learning in Innovation Systems in African Agriculture) is assessing recent innovation experiences in smallholder farming in Benin, Kenya and South Africa to find out what conditions favour or impede innovation processes, as a basis for making recommendations for policy, research and practice. The three Africa-based and four Europe-based partner organisations in JOLISAA made an inventory of innovation cases involving smallholders in the three countries to take stock of the diversity of multistakeholder experiences and assessed them broadly according to a common framework. From these cases, the partners selected some "lesson-rich" ones for deeper analysis together with the stakeholders involved. They are currently exploring how the innovation processes unfolded, the roles of the different actors and the linkages between them. Special attention is given to the contributions of smallholders

This paper provides insights about the initial results of the inventory and assessment of innovation cases. It highlights some challenges related to the methodology and draws some lessons regarding key features of the innovation cases, the way the inventory and assessment have been conducted and the conditions identified that are favouring or impeding innovation processes

Methodology: highlights and challenges

Inventory of innovation experiences

The main criteria for considering cases for inclusion in the inventory of agricultural innovation experiences in Benin, Kenya and South Africa were: (1) smallholder and other resource-poor rural stakeholders actively involved; (2) at least three different types of stakeholders involved; and (3) experience at least three years old and beyond the initial stages of innovation. Cases were sought through: literature search; interactions with resource persons in universities, research institutes and networks within the national agricultural innovation landscape; drawing on JOLISAA national team members' prior knowledge of specific innovation cases; and/or seeking innovation within a given region, area or farming system in each country. Field visits were also made to supplement the available documentation.

To allow for analysis across cases and countries, JOLISAA developed a common analytical framework for broadly characterising the cases, drawing on the innovation system concept (Hall 2003; World Bank 2006,

2012) and the actor-network theory (Latour 2005). The framework included innovation type, nature and domain; stakeholders, their roles and interactions; innovation triggers and drivers; innovation dynamics and scale; and results obtained.

During the inventory process, the national JOLISAA team members faced three major challenges:

1. It was sometimes rather difficult to find cases meeting the JOLISAA criteria, as experiences identified were too recent, or did not involve enough stakeholders, or somehow had too meager / ambiguous an innovation angle.
2. It was difficult to develop a common understanding of innovation-related concepts. The people from different disciplines and professions who interacted in JOLISAA used concepts such as innovation processes and systems, stakeholders and enabling environment in different ways, which is eventually reflected in the heterogeneous description of the innovation cases.
3. It was sometimes difficult to access relevant information. Some cases were not well documented, either because they happened outside a formal project setting or because formal researchers (who typically document) were not involved. The available documentation usually contained little information about the innovation *process*. In some instances, intellectual property rights issues prevented documentation to proceed, linked to expectations that JOLISAA would pay for access to the information. Offering such vague future rewards as sharing results, joint learning or lobbying for favourable policies seems too meagre an incentive for many to want to take part in the documentation.

Collaborative Case Assessment of selected innovation cases

Out of the 57 inventorised cases in 3 countries, the JOLISAA partners selected 13 for deeper analysis (called Collaboratve case assesment or CCA in JOLISAA jargon) together with the stakeholders involved. They include the cases with the seemingly richest experiences, the ones having experienced more dynamic over the recent years and the ones with stakeholders most willing to take part in the assessment. They delved deeper into the actual roles and contributions of the different actors, the nature of linkages between them, the dynamics of the innovation process over time in relation to external factors, and the role of local knowledge and creativity. This more detailed assessment should contribute to a better understanding of innovation processes and systems and to the development of a field-tested, realistic analytical framework for assessing them in a participatory manner.

Methods used for CCA include a mix of collective and invidivual semi-structured interviews and focus group discussions with key stakeholders, mutli-stakeholder asessment workshops, direct observations and bibliographic review of grey literature related to the cases, among others.

As was the case for the inventory, some challenges were encountered in applying this approach:

- Building multistakeholder CCA teams (mix of researchers, local stakeholders and students) and making them work effectively so that the assessment could be participatory rather than external was rather difficult, and at times failed short of expectations
- CCA team members had difficulties in taking a critical distance with what they already knew about the case before-hand, and could not dig as rigorously and as intensively into unknown details and ambiguities of the innovation story as what could have been wished for
- Capturing the dynamics of the innovation case over a longer period, rather than capturing a static picture, was easier to say than to do, as it involved more intensive and sophisticated data collection, all the more so that time was limited to be able to interview stakeholders more than once.

Initial results from inventory and assessment

The 57 documented cases in the inventory covered a wide diversity of experiences in terms of type (technical, organisational, institutional), domain (cropping, livestock-keeping, fishery, processing, marketing), scale (local, regional, national) and duration of the innovation process (a few years to several decades). A comparison of the cases based on their main features confirmed the diversity of stakeholders involved in innovation, the diversity of innovation triggers and the frequent occurrence of market-driven innovation, including emergence of new value-chain arrangements. It also illustrated the typically long timeframes of innovation processes; the common occurrence of “innovation bundles” (a combination of different types of innovation); and often a close relationship between documented innovation processes and externally-funded projects.

The **stakeholders** in innovation typically included a mix of individual farmer-innovators, one or several community-based or farmer organisations, research, extension services, NGOs, private entrepreneurs, government and externally funded projects. Depending on the specific case and phase of innovation, leading and active stakeholders varied. For instance, researchers, an NGO or a project might be very active in initial stages (on-farm experimentation, building capacity etc), while farmers and their organisations or a business stakeholder became more active in later phases. Formal research did not initiate or play a leading role in many innovation cases; ideas and initiatives came from different sources, including farmers. Policymakers and private-sector actors were seldom among the active stakeholders. This may reflect the relative scarcity of specific pro-innovation public policies in the three countries, and the limited connections of national JOLISAA teams with non-conventional partners. Truly farmer-led cases of multistakeholder interaction in innovation were few, probably because such cases were less visible and less likely to be documented. In many cases, one of the stakeholders (typically a research institute or an NGO) played the role of intermediary (Klerkx & Leeuwis 2008) to facilitate interaction among the stakeholders.

Most cases had a mix of different **innovation triggers** for innovation. Degradation of natural resources (e.g. declining soil fertility, dwindling supply of water, disappearing forest) was the most common trigger. Others included seizing a local or global market opportunity, or introduction of an improved technology or practice (e.g. new livestock breed, new way of parboiling rice). Changes in policy were rarely mentioned as triggers.

For many inventory cases, the relevant **timeframe** for understanding the innovation process easily spanned over 10 years or even several decades. The innovation processes often seemed to go through several phases at an uneven pace – sometimes very rapid, sometimes almost dormant – under the influence of constantly changing drivers in the overall environment. In Kenya for instance, the initial introduction of *Prosopis* sp. to restore degraded lands was considered a success until farmers found it to be an aggressively invasive species that had to be eradicated. Another innovation iteration then took place, leading to ways of managing *Prosopis* by using its pods for forage, burning it to produce charcoal and producing honey from *Prosopis* stands. Such changes in an innovation landscape over time raises doubts about the ability of many assessments based on short periods to predict the actual fate of "initial innovations".

Many concrete innovations resulting from an innovation process exhibited several **interwoven dimensions**: technical (e.g. a new variety), organisational (e.g. farmers acting collectively to acquire inputs or sell their produce) and institutional (e.g. new coordination mechanism). These various dimensions emerged over time as the innovation process unfolded from a specific entry point (often a new technology). JOLISAA refers to these as "innovation bundles". New dimensions may result from new stakeholders coming on board, or from stakeholders starting to change their practices and, in so doing, transforming or taking advantage of the environment in which they operate.

Many innovation cases that were well documented and well known had a strong **link with externally funded projects**. The abundance of "projects" to stimulate innovation is typical of developing countries. As national public funding for innovation is scarce, public institutions and NGOs depend on external support to carry out innovation-related activities, while smallholders are usually too poor to pursue innovation at a significant scale on their own. Projects can be important for creating innovation dynamics embedded in a temporary favourable environment, shielding the process from usual inhibiting factors, and may thus allow a minimum critical mass to be reached or initial bottlenecks to be overcome. However, projects often artificially promote short-term uses of technologies that may not be sustainable, trigger opportunistic behaviour from some stakeholders, lead to an aid mentality and overlook more endogenous, low-cost and potentially more sustainable innovation pathways and outcomes. They may also have difficulties to propose objectives and activities truly in line with demands and needs of local stakeholders

Initial CCA results (the majority of which will only be available in 2013) show that innovation stories tend to be rather complex (more so than what the inventory had uncovered), with different stakeholders having different perceptions of what has happened and why. For example, what intervening institutions presented as a success story often turned out to be regarded differently / more critically by the farmers themselves. Also, researchers and other institutional actors tend to be relatively blind to innovations that have happened outside of formal projects and arrangements. Yet such innovations might be essential for understanding the eventual success of an innovation process and for sustaining its momentum; an example is the informal trade in aloe products in Baringo District of Kenya.

Initial lessons drawn from the inventory and assessment process

The inventory and collaborative assessment are meant to provide lessons not only for the people directly involved in the cases but also more generally for policymakers, researchers and development practitioners, about how to support effective innovation processes that strengthen the knowledge, creativity and linkages of the smallholders. This should render smallholder more resilient to rapid and even sudden changes. Some initial lessons drawn from the assessment of innovation cases thus far include:

- African agriculture is moving forward in multiple directions: numerous ongoing innovation experiences, many of them unacknowledged by formal institutions, show the capacity of diverse African stakeholders to take advantage of opportunities, to access or create markets, to manage natural resources in a responsible and sustainable manner etc.
- Ultimate success of an innovation process cannot be predicted. The probability of achieving success can be increased by getting away from rigid and prescriptive schemes and by nurturing, supporting and adjusting innovation processes "en route" over an extended period in a dynamic, iterative and flexible manner adapted to the specificities of the context, the stakeholders, the evolving opportunities and the constraints under which innovation emerges.
- Achieving success also depends on tackling the multiple, complementary dimensions of innovation – technological, organizational and institutional. Just focusing on technical innovation (a common bias) is clearly insufficient.
- Innovation processes can be boosted through appropriate policies and investments (for example, policies that would regulate the informal aloe harvesting and trade in Kenya, or policies that would create a framework for negotiating contracts between the industry and farmers in Benin and in Kenya)°, and by creating missing linkages or strengthening existing linkages among stakeholders.
- Different stakeholders need to be actively involved in innovation processes, including smallholders, researchers, extension, private sector, government administrations etc. Each stakeholder contributes decisively to the process by expressing needs and demands, formulating goals and vision, offering their skills in playing their unique roles, and sharing resources and responsibilities. Each stakeholder group requires different types of support, training and incentives to be able to contribute effectively. This is well illustrated again by the Aloe case in Kenya, where the lack of integration into the innovation process of the informal Aloe traders made the whole process of domesticating Aloe and producing Aloe sap much slower and much less efficient.
- The local knowledge, experience and creativity of smallholder farmers make a vital contribution in innovation processes that will improve the livelihoods of millions of rural and urban households in a sustainable way.

Conclusions and perspectives

JOLISAA partners found that many diverse multistakeholder innovation initiatives have taken place in recent years or are still ongoing in the three study countries in Africa. By engaging actively with other actors well beyond the conventional ones in research and extension, smallholder farmers acquire new capacities and skills and receive stimulation and support to pursue innovation. Many of the actors which whom they collaborate seem increasingly aware of the need for, and benefit from, collaboration with farmers and their organisations, as well as with each other. This allows the different actors to tackle complex problems and challenges that they cannot handle on their own.

Greater recognition of the existing and potential role of smallholders in innovation provides a better basis for their partnership with other stakeholders in innovation processes. This puts rural communities in a better position to be able to adapt to change and to address new challenges. Showing ways to better take into account local initiatives on one hand, and on the other hand to more consciously involve smallholders and other rural stakeholders in externally-led and funded initiatives renders all actors better able to pool their energies and knowledge in a continuing process of innovation.

The JOLISAA inventory and assessment, among other similar efforts (e.g. Adekunle *et al* 2012), contributes to illustrate that African agriculture is responding actively to the many challenges it faces in reducing

poverty, increasing food security and managing natural resources in a sustainable way. This may help counter some of the deep-seated pessimism and periodic negative publicity about African agriculture. The inventory and assessment may also have a strong motivational value: other institutions across Africa may want to emulate JOLISAA by documenting many more innovation cases on their own. This would greatly expand the fragmented existing knowledge about what's new in African agriculture and would help change perceptions and increase the motivation of many to keep innovation happening across Africa.

Acknowledgements

This work was carried out as part of the JOLISAA project (www.jolisaa.net) under the Framework Programme 7 of the European Commission. The opinions expressed herein are the sole responsibility of the authors. The authors thank the JOLISAA consortium members and their partners in Benin, Kenya, and South Africa for providing data and useful comments on this paper.

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