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Institutional Innovations in Ecological Organic Agriculture in Africa

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Introduction

A common method of agri-food system innovation has been to develop and advocate the adoption of productivity-enhancing technology, underpinned by improved research and development (Lyson and Welsh, 1993). Recent theories of innovation and socio-technical change recognize the importance of institutions (including markets) and techno-economic networks in the adoption and diffusion of innovation (Grin et al., 2010; Smith et al., 2005; Callon, 1991). Studies of grassroots and social innovations are beginning to illustrate the importance of organizational and spatial arrangements, identities, mobilizations, knowledge and practices (Smith and Seyfang, 2013; Moulaert, 2013). If we take this broader view of agri-food system innovation, we find evidence of smallholders who are able to innovate, to organize themselves for accessing new market opportunities, to upgrade into processing activities and to increase their power in market negotiations (HLPE, 2012). Put simply, innovations for sustainable agriculture are both technological and institutional.

Recent experimentation in these systems push the boundaries of the traditional roles of institutional and market intermediaries who are taking on a wider range of roles in linking farmers with markets for their produce (cf. Vorley, 2013). These intermediaries are part of local infrastructural and institutional environments and include a range of organizations that provide support to producers to learn sustainable techniques and market sustainably produced products and services (Hamann and April, 2013; Klerkx and Leeuwis, 2009; Steyaert et al., 2014). For example, within organic agriculture systems, an emerging approach is the participatory guarantee system (PGS), whereby the oversight systems are created by producers, researchers and consumers who collectively ensure that the sustainable practices are adopted (IFOAM, 2008; FAO, 2013). In other contexts, well-established farmer-supported marketing cooperatives are taking on new roles in supporting the adoption of more sustainable practices and technologies. We also see instances where public research and extension organizations are beginning to incorporate marketing aspects to the farmer field school methodology and private traders are also beginning to invest upstream in their value chains to provide infrastructural and organizational support for small-scale producers.

The study presented in this chapter focused on these institutional and market intermediaries and illustrated *how markets work to create incentives for the adoption of sustainable practices* (Loconto et al., 2016). This chapter presents a summary of the core results of this study, with a specific focus on the six African experiences included in the study. First, we summarize the study methodology and present the concept of ‘institutional innovations’. Second, we introduce the six African experiences from Benin, Namibia, Nigeria, Tanzania and Uganda and present the core elements of the innovative mechanisms that are at work in these cases (multi-actor innovation platforms (IP) and participatory guarantee systems (PGS)). We conclude with the policy

recommendations that were developed through a participatory researcher-practitioner workshop that was held in Bogotá, Colombia in 2015.

Methods

Following a case study method of qualitative research (Maxwell, 2005), in 2013, the authors launched a call for case study proposals on institutional innovations that link sustainable practices with markets for sustainable products. We received 87 proposals, of which 42 were considered relevant for the study. We then evaluated these based on 10 criteria that ranged from geographical priority to quality and innovativeness. Fifteen detailed case studies were finally selected on innovative approaches (public, private and/or civil society) designed to link sustainable agriculture practices with markets for sustainable products in developing countries across the globe (4 Latin American, 6 African and 5 Asian). The authors are primarily the implementing organizations (10), southern researchers with implementing partners (4), an implementing donor organization (1) and a northern researcher with the implementing organization (1) – put differently, the innovators themselves.

Since the focus of the study was on understanding how institutions are changing in order to accommodate the linkages between sustainable agricultural practices and markets for their products, we categorized the cases according to the sustainable practices and institutional innovations for linking farmers to markets. The cases included more than 32 different sustainable agriculture practices, which were identified by the case study authors as part of organic farming systems (ten), IPM approaches (two), and integrated production systems (IPS) (three). The bias towards organic agriculture in our case studies is a selection bias that comes from the distribution of the call for case studies, which was sent through FAO; organic, sustainability standards; and academic networks where there is generally greater attention paid to organic farming than to other sustainable agriculture techniques.¹

The case development process was iterative where the authors developed a structured outline with guiding analytical questions for the case studies. The first drafts received detailed comments by the authors and followed up consisted of either field visits (for 8 of the cases in 2014), where the authors conducted interviews with the case study authors and the other institutional actors who were identified in each case, or by video conference with the authors. In the six cases where field visits were not possible, peer reviewers who were knowledgeable about the case and its context were identified to review the cases in 2014-2015.

Institutional Innovations in Africa

We developed an analytical framework that helps to characterize the 15 case studies as innovations, and to determine the roles of different actors in providing the functions that make these institutional innovations work as incentives to transition to sustainable agriculture. By

¹ We announced the call through the following LISTSERVs: FAO departmental lists, ISEAL IMPACTS, IFOAM (PGS list), INRA (UMR Sad-Apt, UR SenS), CIRAD, EGFAR, Altersyal, Rural Finance Learning Centre, ISA RC40 (Research Committee on Agriculture), Food for the Cities, PRODARNET, Global FFS Review, E-forum 2, POET Com, East African Organic Movement Organizations.

focusing on the actors and strategic realignments (Callon, 1986; Genus and Coles, 2008), institutional innovation is a process of designing and redesigning how actors see the problems of sustainability in their local contexts and the mechanisms they use to mobilize and guide their collective action in the market. In other words, *institutional innovations are when people and organizations (actors) strategically mobilize others through network relationships in order to redesign or replace institutions.*

Analyzing institutional innovations according to four dynamic processes (problem framing, building networks, enacting institutional arrangements and collective action) (Hargrave and Van De Ven, 2006) provides us with an account of why actors have innovated and how these innovations in market-related institutions have been able to incentivize the use of sustainable agriculture practices on the farm. In order to analyze how market-driven mechanisms were created, we combined this descriptive analysis with the analysis of Hekkert *et al.* (2007) of “*innovation system functions*” (Entrepreneurship, Knowledge creation, Knowledge sharing, Guiding the innovative process, Creating spaces for market exchanges, Resources mobilization, and Legitimation activities). This enables us to describe both how actors build *networks* and *enact institutional arrangements* by identifying actors and the roles they play in the functioning of these networks. The main focus of the approach of Hekkert *et al.* (2007) is through the analysis of resource availability and mobilization. In this context, resources are not only financial, but also human, social, physical, political and natural. By identifying these functions, it can be seen how actors are mobilizing different strategies that effectively redefine the institutions. The six cases that we collected from Africa are illustrative of innovation platforms (IPs) and participatory guarantee systems (PGS).

Innovation Platforms

An IP is a “multi-actor configuration deliberately set up to facilitate and undertake various activities around identified agricultural innovation challenges and opportunities, at different levels in agricultural systems (e.g. village, country, sector or value chain)” (Kilelu *et al.*, 2013: p. 66). Put differently, stakeholders in IPs gather together to facilitate and plan activities connected with the adoption of a specific agricultural technology. The IP begins with partnerships located within local research, training or extension bodies and includes farmers. It uses national and international knowledge to promote organic or sustainable agriculture practices. Initial legitimacy comes from outside of the group, usually related to the technology, then builds internally among the actors. The focus in these cases is on specific technologies and farmer-led experimentation. Since the focus is on introducing specific technologies to the production system, new local markets are created as an outlet for the new sustainable supply, usually in the form of on-farm sales. We observe changes seen in the rules for training, extension, production, and the allocation of responsibilities among these actors, thus qualifying the IP as an institutional innovation.

There is no set configuration for an IP – it can be centralized or decentralized and focus on research and/or development activities. We see examples of this among the four African IP case studies. The Songhai Centre in Benin, the community-based farming scheme in Nigeria and the Kangulumira Area Cooperative Enterprise (KACE) in Uganda are centralized models focused on research, extension services, training and development. In the United Republic of Tanzania, national-level government agencies collaborate with TRIT, private companies and NGOs to

develop new technologies, exchange knowledge and provide services to smallholder farmers for RA-certified production practices.

Songhai Centre in Benin: An Innovation Platform promoting an integrated development model

Adapted from: Gaston Agossou, Gualbert Gbehounou, Godfrey Nzamujo, Anne-Sophie Poisot, Allison Loconto, and Caterina Batello, 'Songhai Model model of Integrated integrated Productionproduction in Benin' in Loconto et al. 2016.

In 1985 a Dominican priest, together with others Africans partners, founded the Songhai Centre. During the following years, three more facilities had been created around Benin. Through the construction of an innovative community that leverages on cardinal values of courage, creativity, sense of the common good, discipline and solidarity among African young people, the Centre promoted a system of integrated development both to develop a sustainable, effective and competitive agricultural system, and to provide services and trainings to young agro-entrepreneurs. Songhai Centre implemented a production model composed of three basic factors: primary production, agribusiness and services. Primary production included annual crops, perennial crops, livestock and fish farming. This integrated farm system provided synergies and technical complementarities among the production nodes. The agribusiness activities included the transformation of agricultural products as well as waste recycling. Songhai agro-processing units not only create employment but also create a market for sustainable products produced by farmers. To sell its products, Songhai Centre developed a marketing plan that takes into account consumer requirements and focuses on direct communication, direct sales and a network of distributors. The Centre was also able to directly manage logistics and supply book outlets, supermarkets and wholesalers with its trucks. Furthermore, by developing a Songhai label for all products, consumers identified Songhai products as more sustainable. As part of the integrated development model, one of biggest tasks of the center was to provide trainings and extension services to young agro-entrepreneurs in order to strengthen their capabilities. The approach used for business training was that of learning by doing. During 30 years, Songhai Centre trained 7,500 people and the beneficiary population can be estimated at more than 100,000 people. Furthermore, the center annually received more than 20,000 visitors, mostly from Benin and near countries, who came to learn more about Songhai integrated development model.

The Community-based-farming scheme (COBFAS) in Nigeria: Linking Universities with the surrounding communities.

Adapted from: Joseph Atungwu, Mure U. Agbonlahor, Isaac O.O. Aiyelaagbe and Victor Olowe, "Community-based farming scheme in Nigeria: enhancing sustainable agriculture" in Loconto et al. 2016.

This innovation began in 1988 when the Government of Nigeria established two specialized agriculture-based universities, including the Federal University of Agriculture, Abeokuta (FUNAAB) with the triple mandate of teaching, research and extension. In 2008, taking advantage of the enabling environment created for sustainable agriculture issues that had developed in the country before this date, FUNAAB, together with the Government of the United Kingdom and Coventry University (UK), conceived the Work, Earn, Learn Programme (WELP). In 2009, the curriculum for teaching organic agriculture at the B.A. level in higher education institutions in Nigeria was revised to give it a West African regional outlook. This motivated FUNAAB to initiate an innovative strategy by taking the WELP experience and establishing COBFAS in December 2010. The COBFAS approach involves lectures, practical skills acquisition sessions, practical attachments with farmers and operation of an organic produce

kiosk that sells trainee produce (e.g. vegetables, fruit, medicinal plants, and poultry). Under COBFAS, FUNAAB provides the institutional framework and support for the students to undertake the one-year mandatory internship in four rural/peri-urban communities in Ogun state. Annually, student trainees farm on 180 ha provided by the host communities free of charge. The student training programme is a blend between traditional and modern agriculture so that students gain hands-on experience in farm management in the rural setting where most Nigerian farmers live. Interactions between the students and farmers at community level provide avenues for technology verification and updating knowledge on farm management in such a way that smallholder farmers adopt sustainable agricultural practices that increase their capacities to access high-value markets for their produce. The scheme is a new way of training agricultural students by exposing them to the challenges of agriculture in Nigeria. It is innovative because the students work alongside rural farmers and compare notes on technologies and entrepreneurship. To date, more than 80 students (modern future farmers) have been trained through these programs.

A Cooperative approach to expanding the organic pineapple market

Adapted from: Sylvia Nalubwama, Stephen Anecho, Muhammad Kiggundu, Norman Kwikiriza and Yahaya Wafana, "Role of cooperatives in linking sustainable agro-ecological farming practices to markets. Kangulumira Area Cooperative Enterprise (KACE) in Uganda" in Loconto et al. 2016.

Kangulumira Area Cooperative Enterprise (KACE) was established in 2003. The objectives of its formation were to: (i) organize small producers to enhance market opportunities; (ii) train farmers on sustainable farming practices; (iii) create linkages with development partners; and (iv) engage farmers in a credit and savings scheme. It was envisaged that through KACE farmers would access better markets and bargain collectively for better prices for their organic pineapple produce. It was also envisaged that through KACE farmers could obtain training on sustainable production and be linked to preferential markets. KACE currently comprises 32 smallholder farmer groups, also known as rural producer organizations (RPOs), which includes a total of 3,234 individual farmers: 1,068 male adults, 687 male youth; and 973 female adults and 506 female youth. The cooperative gives pineapple farmers avenues for bulking, processing and marketing their produce. KACE works in partnership with other institutions, and works through committees to extend services to its members. Over time, the cooperative has provided demonstrable results in providing a viable avenue for greater developmental impact in terms of improved farmer incomes and livelihoods. This has been a result of various factors such as a strong internal control system, organic premium prices, fair-trade certification, improved productivity resulting from sustainable agro-ecological practices, organized marketing and product value addition. KACE enables its members to diversify their products through processing and enabling them to access local markets for fresh pineapples and pineapple wine, and regional and international markets for their dried pineapples.

Tea sector in Tanzania: Private actors implementing the adoption of sustainable standard for export markets

Adapted from: Filbert Kavia, 'Institutional collaboration for sustainable agriculture: learning from the tea sector in the southern highlands of Tanzania' in Loconto et al. 2016.

The institutional innovation showed private actors in the tea industries that, starting from 2009, conducted trainings and extension programs to implement Rainforest Alliance (RA) certification

among smallholder tea farmers. Smallholders, that are organized in groups through the Tanzanian Smallholder Tea Development Agency (TSHTDA), delivered their leaf to one of the 9 tea processing factories certified by Rainforest Alliance standards (RA) owned by 3 private companies on a contract farming basis (MTC, UNILEVER, & WATCO). The mission of the companies was to provide effective management services to smallholder groups for efficient production, processing and marketing of high quality teas through the Rainforest Alliance (RA) standard thus strengthening and increasing their sustainable suppliers. Companies, that create a market for sustainable smallholders, were motivated in upscale and embed smallholder farmers into sustainable tea production through RA standards for export markets because RA standard increase product quantity and quality and enhanced market recognition of responsible farming (and thus RA certified teas). This helped the companies to maintain their markets and tap into new markets and thus one of the ways for the companies to maintain and improve their market.

Participatory Guarantee Systems

PGS are networks created within local communities and consist of farmers, researchers, public sector officials, food service providers and consumers. They are “locally focused quality assurance systems. They certify producers’ [farming practices] based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange”. The role of this type of network is to create a local system of production and consumption whereby multiple stakeholders experiment with sustainable agriculture technologies (Rosegrant et al., 2014), but also collectively ensure that the techniques are adopted by setting standards and verifying their compliance (i.e. governance arrangements) (IFOAM, 2008). PGS therefore both ensure the diffusion of the innovation and are the means through which the innovation process is governed. PGS emerged as an experiment in organic agriculture in the 1970s in the United States of America, Japan and Brazil, but are now found in 26 countries around the world. In developing countries, they arose in response to protests against the dominant paradigm of standard setting by corporate and northern NGO actors using third-party certification systems, which were seen as too costly for many small-scale producers and not applicable to local agro-ecological and sociotechnical conditions. PGS serve to provide a direct guarantee, through the formation of a market, for sustainably produced food and agriculture products. Each PGS is different, as the model promotes local adaptation. In Uganda, the FreshVeggies PGS is a private initiative applying the regional East African Organic Product Standard and its corresponding Kilimo Hai label, and adapting the regionally recognized PGS model. The Namibian Organic PGS is also a private initiative, which is based on the Namibian Organic Associations’ private standard and uses the private label.

The PGS motor of change begins with partnerships between farmers, consumers and intermediaries (including service providers, organic movements). It uses local and national knowledge (and harmonized international organic standards). Alternatively from the IP model, the initial legitimacy comes from within the group, then outside recognition is received from private and public actors. The technology focus of the PGS is the collective creation of an alternative form of certification (based on free or low-cost peer review) and farmer-led experimentation. New local markets are created based on direct contact with consumers: farm visits, farmers’ markets, internet sales and supermarkets. The very nature of the PGS mechanism that extends beyond the classical supply chain links (e.g. researchers and public officials are not usually considered part of the supply chain) in order to create a unique link between producers

and consumers. These work together in the maintenance of PGS, and thus the PGS mechanism itself becomes the market. In other words, the creation of a market is not the principal objective of PGS actors, but rather an outcome of their activities. Producers involved in PGS often sell their products through third-party certified organic markets or through conventional markets. With the involvement of consumers, researchers and public officials within PGS, these actors also begin to purchase products from farmer members of PGS. Thus, new markets emerge as an outcome of setting up a new means for producers, consumers and other interested parties to certify sustainable practices. There is also evidence in the case studies that market outlets go beyond the members of PGS (even to national-level markets). Finally, changes are seen in the rules for organic production, internal organization and the sharing of roles and responsibilities among different people within the groups, which exemplify how the PGS is an institutional innovation.

Developing a PGS that can work for large-scale and small-scale alike

Adapted from: Manjo Smith and Stephen Barrow, "Namibian Organic Association's Participatory Guarantee System" in Loconto et al. 2016.

The development of the Namibian Organic Association's PGS was based on a requirement to formalize the sector. Consumers wanted to make informed purchasing decisions and required labelled organic food, while farmers wanted to receive recognition for the fact that their products are different from conventional products. PGS addressed the situation in which, without appropriate Namibian legislation, standards and a certification structure, the organic market was exposed to misleading claims and subsequent abuse of consumers' trust in organic food. The organic production sector and domestic market were too small to justify the general promotion and adoption of third-party certification. Consequently, NOA initiated a project in mid-2009 aimed at the formation and implementation of IFOAM's concept of PGS. This alternative to third-party certification was attractive given its local nature and reduced costs compared with sourcing international third-party certification, as well as its being an effective basis for the development and dissemination of Namibian specific organic knowledge and experience. This specific knowledge is based on concepts of holistic resource management in large-scale grasslands and small-scale farming in drought-prone environments. This innovation resulted in the fact that NOA PGS is unique within Namibia in all aspects. It was a chance to formalize the concept of organics, to obtain "buy-in" from producers, retailers, farmers' markets and consumers alike within a physically and numerically small, widely spread community. It was also an opportunity to adopt a leading role in the development of organic agriculture, promoting sustainable, climate-smart agriculture to government and the formal agricultural sector. NOA received official IFOAM PGS recognition in March 2013, which means that this PGS is endorsed by IFOAM because it operates in accordance with IFOAM's key PGS elements and features, and integrity vis-à-vis the principles of organic agriculture is verified.

Delivering Fresh Fruits and Veggies to the Urban Centre

Adapted from: Julie M. Nakalanda and Irene B. Kugonza, "Facilitating social networks by linking smallholder organic farmers in Uganda to markets for sustainable products. The Freshveggies Participatory Guarantee System" in Loconto et al. 2016.

After working with several smallholder farming communities in different parts of the country and experiencing the challenges of low yields and incomes; poor access to markets; failure to realize required marketable volumes; dominance of third-party certification models for export such as

internal control systems (ICS); low levels of farmers' participation in decision-making; and no member ownership by farmers, the founder of Freshveggies was inspired by the PGS approach during training organized by the National Organic Agriculture Movement of Uganda (NOGAMU). Freshveggies is a loose network of organic smallholder farmers working in autonomous community groups in the peri-urban areas of Kampala under a common production and marketing model. They handle small volumes but, because of growing demand, they are in the process of expanding their producer network. The initiative began as a response to promote healthy feeding and sustainable farming practices among members, but also to promote sustainable household incomes from sales and delivery of fresh organic produce to consumers in the Kampala business district and those in areas where member farmers are located. In addition to in-house training and collective sales, Freshveggies PGS offers information on nutritional values of different products and may provide recipe suggestions for clients. In Wakiso (on the outskirts of Kampala), members carry fresh food crops, fruit and vegetables from their fields to the main office/collection point on a weekly basis. Those with bulky supplies can be helped by the provisional supply vehicle. From other locations (Bushenyi, Kayunga, etc.), they order produce directly from participating farmers, who send it via trusted transporters (using public transportation), who deliver to other collection centres from which Freshveggies packs/redistributes according to the orders placed. At each cluster level, there is a marketing team of three people in charge of sales, rejects and payment records for individual members. The delivery team makes office and home deliveries, invoices sales and/or receives cash payments or sometimes mobile money via available cell phone networks.

Conclusions

When examining these institutional innovations in Africa, our first finding is that the innovations are particularly good at creating greater communication between producers and consumers. The actors (private, civic and public) have been successful in identifying and communicating market demand for specific 'qualities' of sustainable products (e.g., safe, organic, GAP), which is important for the emergence of local markets.

With regards to the multi-Actor IPs, it is clear that flexible platforms facilitate collective problem solving around technologies. The incentives are found in the creation of local networks that integrate knowledge (creation and sharing), markets, resources and policy support at multiple levels (municipal, national, international trade). For the PGS, it is clear that the alternative certification mechanisms reduce the costs of compliance with standards for smallholder and marginalized farmers. One very important feature of PGS renders the underlying organic standards much more inclusive, that is the inclusion of smallholders not only as a producer in a value chain, but as an auditor and researcher in a food system. This type of inclusion increases trust between actors in these systems, which improves the market relations. Finally, shifting roles and sharing responsibilities between producers, consumers, researchers, intermediaries and public officials fosters a culture of reciprocity, which builds upon a notion of solidarity, but provides the opportunity for a wider variety of actors to participate in the creation of local markets for sustainable practices.

As a result, incentives for adopting sustainable practices can come from the autonomy created when local actors develop innovative rules for market interactions. Local actors rely upon social values (e.g., trustworthiness, health (nutrition and safety), food sovereignty, youth development,

farmer and community livelihoods) to adapt sustainable practices to local contexts and create new market outlets for their products, which are core components of institutional innovations. Even when private actors (farmers, consumers, cooperatives, firms, etc.) are leading the innovations, partnerships with public actors and civil society are fundamental for legitimating political and physical spaces where sustainable agricultural knowledge, practices and products are exchanged through market interactions.

Policies that are conducive to these types of innovations need to have flexibility built into different levels of governance. The following five policy recommendations were developed in a participatory workshop with the case study authors in 2015 (FAO, 2016):

1. Promote learning-by-doing to enhance technical and market knowledge
2. Strengthen farmers' innovations in strategic market negotiation
3. Encourage communication and trust among farmers, intermediaries and consumers, starting in the field
4. Improve public infrastructure for value chain logistics
5. Legitimate innovative initiatives so that they can be scaled up

Finally, it is important to remember that these are long-term processes that require significant commitments and collaboration from all stakeholders

References

- Callon M. (1986) Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Brieuc Bay. In: Law J (ed) *Power, Action and Belief. A New Sociology of Knowledge?* London: Routledge & Kegan Paul, 196-233.
- Callon M. (1991) Techno-economic networks and irreversibility. In: Law J (ed) *A Sociology of Monsters: essays on power, technology and domination*. London: Routledge, 132-163.
- FAO. (2013) Lessons learnt from field projects on voluntary standards: Synthesis of results. In: FAO-UNEP Sustainable Food Systems Programme (ed) *Workshop on Voluntary Standards for Sustainable Food Systems: Challenges and Opportunities*. Rome, Italy, 10-11 June 2013: Food and Agriculture Organization of the United Nations, 1-27.
- FAO. (2016) How do markets encourage the adoption of sustainable practices? The role of institutional innovation in developing countries. Policy Brief. Rome: Food and Agriculture Organization of the United Nations.
- Genus A and Coles A-M. (2008) Rethinking the multi-level perspective of technological transitions. *Research Policy* 37: 1436-1445.
- Grin J, Rotmans J and Schot JW. (2010) *Transitions to sustainable development : new directions in the study of long term transformative change*, New York: Routledge.
- Hamann R and April K. (2013) On the role and capabilities of collaborative intermediary organisations in urban sustainability transitions. *Journal of Cleaner Production* 50: 12-21.
- Hargrave TJ and Van De Ven AH. (2006) A Collective Action Model of Institutional Innovation. *Academy of Management Review* 31: 864-888.
- Hekkert MP, Suurs RAA, Negro SO, et al. (2007) Functions of innovation systems: A new approach for analysing technological change. *Technological Forecasting & Social Change* 74: 413-432.

- HLPE. (2012) Investing in smallholder agriculture for food and nutrition security. V0 - DRAFT A zero-draft consultation paper. *A report by the High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security*. Rome: Food and Agriculture Organization of the United Nations.
- IFOAM. (2008) Participatory Guarantee Systems: Case studies from BRAZIL, INDIA, NEW ZEALAND, USA and FRANCE. Bonn, Germany: International Forum for Organic Agriculture Movements (IFOAM).
- Kilelu CW, Klerkx L and Leeuwis C. (2013) Unravelling the role of innovation platforms in supporting co-evolution of innovation: Contributions and tensions in a smallholder dairy development programme. *Agricultural Systems* 118: 65-77.
- Klerkx L and Leeuwis C. (2009) Establishment and embedding of innovation brokers at different innovation system levels: Insights from the Dutch agricultural sector. *Technological Forecasting and Social Change* 76: 849-860.
- Loconto A, Poisot AS and Santacoloma P. (2016) Innovative markets for sustainable agriculture: Exploring how innovations in market institutions encourage sustainable agriculture in developing countries Rome: Food and Agriculture Organization of the United Nations.
- Lyson TA and Welsh R. (1993) The Production Function, Crop Diversity, and the Debate Between Conventional and Sustainable Agriculture¹. *Rural Sociology* 58: 424-439.
- Moulaert F. (2013) *The International Handbook on Social Innovation: Collective Action, Social Learning and Transdisciplinary Research*: Edward Elgar.
- Rosegrant MW, Koo J, Cenacchi N, et al. (2014) *Food security in a world of natural resource scarcity : the role of agricultural technologies*, Washington, DC: International Food Policy Research Institute.
- Smith A and Seyfang G. (2013) Constructing grassroots innovations for sustainability. *Global Environmental Change* 23: 827-829.
- Smith A, Stirling A and Berkhout F. (2005) The governance of sustainable socio-technical transitions. *Research Policy* 34: 1491-1510.
- Steyaert P, Cerf M, Barbier M, et al. (2014) Intermediary activities: does effectiveness matter? *SISA2 International Workshop*. Paris, France.
- Vorley B. (2013) *Meeting small-scale farmers in their markets: understanding and improving the institutions and governance of informal agrifood trade*, London/The Hague/La Paz: IIED/HIVOS/Mainumby.