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► To cite this version:

Allison Marie Loconto, Anne Sophie Poisot, Pilar Santacoloma, Marcello Vicovaro. Institutional Innovations: Learning how to link sustainable agriculture practices to local markets in developing countries. Conference on Global Sustainability and Local Foods, American University of Rome (AUR). ITA.; American University of Rome (AUR). ITA., Oct 2015, Rome, Italy. hal-02792026

HAL Id: hal-02792026

<https://hal.inrae.fr/hal-02792026>

Submitted on 5 Jun 2020

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Institutional Innovations: Learning how to link sustainable agriculture practices to local markets in developing countries.

1. 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 (Callon, 1991, Grin, Rotmans and Schot, 2010, Smith, Stirling and Berkhout, 2005). Studies of grassroots and social innovations are beginning to illustrate the importance of organizational and spatial arrangements, identities, mobilizations, knowledge and practices (Moulaert, 2013, Smith and Seyfang, 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 (FAO, 2013, IFOAM, 2008). 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. This study focuses on these institutional and market intermediaries by asking: *how do markets work to create incentives for the adoption of sustainable practices?*

2. 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. Proposals were evaluated according to the following selection criteria:

1. Relevance of the case to the request for proposals (describing an existing initiative, including sustainable practices, and including a link between sustainable practices and market)

2. Quality of the proposal
3. Time that the innovative approach has been in use (preferably more than two years)
4. Author's institutional affiliation, with preference given to those directly linked to the implementers of the innovative approach

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 organisations (10), southern researchers with implementing partners (4), an implementing donor organisation (1) and a northern researcher with the implementing organisation (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 are knowledgeable about the case and its context were identified to review the cases in 2014.

3. Results

The results from this study are presented in three sections. The first examines the sustainable practices that are adopted by the producers in each of the 15 studies. We find that the majority of farmers are implementing a form of agroecological practices, while the others are focused on good agricultural practices. However, we do see a lot of overlaps between the systems. The second section presents the markets that are used to link producers and consumers. We find a diversity of market channels in use, with the majority of the cases using equally short value chains and national retailer chains. We also note that consumer motivations for purchasing sustainable products can be summarized in order of importance as 1) Safe food, 2) Healthy food and 3) Rare ingredients (biodiversity). The third section focuses on the institutional innovations that employed across the 15 case studies. These innovations are participatory guarantee systems (PGS) in Bolivia, Colombia, India, Namibia, and the Philippines; Multi-actor innovation platforms (IP) in Bénin, Indonesia, Iran, Nigeria, Tanzania and Uganda; and Community Supported Agriculture (CSA) in Ecuador, Thailand and Trinidad. We found that each of these mechanisms has a different 'motor' of system innovation, whereby different actors in the system perform a variety of functions (including knowledge creation/sharing, resource mobilization and legitimacy) that set off the entrepreneurial activities in the system.

4. Discussion and Conclusions

The main research question of this study was to understand how the market-driven approaches enabled the adoption of sustainable practices. The case studies present evidence that these practices are indeed being used by the farmers included in their networks. Nonetheless, it is clear that institutional innovations are long term processes (emergence <5 years, developmental 5-20 years,

implementation >20 years). By analyzing the case studies according to the functions of innovation systems (Hekkert, et al., 2007), it is clear that knowledge creation and diffusion is fundamental to how these market-driven initiatives have been able to keep producers engaged in the adoption of these practices. The results also show that markets become sustainable because of the greater transparency in communication and engagement by producers and consumers in the value chain activities of developing technologies, certification and marketing, and not only in the sale of goods through market transactions. What is innovative about these cases is that we can identify the importance of network arrangements in all three processes, as well as a range of actors carrying out 'non-conventional' roles in these systems (e.g., farmer-auditors and consumer-auditors). These networks provide the knowledge (creation and training), markets, resources and policy support necessary for local networks that engage with national and international organizations. More importantly, however, they serve as spaces for dialogue around technologies and ways to commercialize products. Therefore, we can conclude that market-driven mechanisms for incentivizing sustainable practices require innovative approaches to experimentation on farms, training through 'learning by doing' and a reorganization of shared responsibilities among value chain actors.

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