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Chapter 1

Introduction

Allison Loconto, Anne Sophie Poisot and Pilar Santacoloma

1.1 CONTEXT

When looking forward to the 2050 horizon, the world is faced with the complex problem of a growing and increasingly urban population that will create an even faster growing demand for food (FAO, 2012b). This is coupled with environmental and climate pressures that threaten agricultural productivity and current land use practices (IPCC, 2014), which render the need for equitable, socially, environmentally and economically sustainable development all the more pressing (IAASTD, 2009). To address these concerns, FAO is building a common vision for sustainable food and agriculture and promoting save and grow methods (FAO, 2011a) and technologies for production that are based on “an ecosystem approach that draws on nature’s contributions to crop growth” (FAO, 2014a).

Over the years, convincing evidence has accumulated, indicating that agricultural production can be intensified in a sustainable manner (Conway, 2012; FAO, 2011a). In other words, growth in production and farmer incomes can be achieved at lower environmental costs. For example, integrated pest management (IPM) reduces the use of synthetic pesticides and improves natural biological pest control as an ecosystem service. Although these and other sustainable agricultural practices are slowly spreading, there is a need to increase and improve the provision of goods and services from agriculture, forestry and fisheries in a way that ensures not only environmental, but also economic and social sustainability.¹

“Sustainability, therefore, is much more than ensuring protection of the natural resource base. To be sustainable, agriculture must meet the needs of present and future generations for its products and services, while ensuring profitability, environmental health, and social and economic equity. Sustainable agriculture would contribute to all four pillars of food security – availability, access, utilization and stability – in a manner that is environmentally, economically and socially responsible over time.”

(FAO, 1988; 2014a, p. 12)

¹ We refer to the Bruntland definition of sustainable development that focuses on the three pillars of social, economic and environmental sustainability in order to meet the needs of today without compromising those of future generations.

Nonetheless, how to farm sustainably remains open to debate. The definition of sustainable practices differs greatly from one agro-ecosystem to the next, and between stakeholder groups, making a global definition challenging or even undesirable to standardize. Moreover, some academics question the relationship between some of the proposed solutions to farming in the face of other societal grand challenges related to the food system, such as food security for all (cf. Elzen *et al.*, 2011; Garnett *et al.*, 2013; Levin *et al.*, 2012). Because of the lack of consensus on this issue, sustainable agriculture provides a priority area for making iterative improvements, or incremental innovation, to current agrifood systems (Busch, 2012; Grin, Rotmans and Schot, 2010). Specifically, sustainable agrifood systems are needed to ensure that the negative environmental effects of production are limited while also providing economic benefits and socially appropriate solutions to the challenges of food security (FAO, 2014a,b). However, within the space of political commitment to sustainable agriculture, more evidence is needed on how farmers and organizations transition towards practising sustainable agriculture and, more specifically, what the motivations and driving forces are for them to do so.

1.2 JUSTIFICATION

Among the range of incentives that might motivate farmers to adopt more sustainable practices, we focus here on the role that *markets* could play in the transition towards sustainable agriculture. We view markets as the “collective devices that allow compromises to be reached, not only on the nature of goods to produce and distribute but also on the value to be given to them” (Callon and Muniesa, 2005). In other words, markets are the rules-based exchanges of value in specific contexts where the rules can come from public regulations, private contracts, civic norms or cultural customs (Callon, 1998). This means that we are studying the rules of exchange and the actors who are part of these exchanges. Put simply, our objects of analysis are the new market institutions that enable the exchange of sustainably produced food.

Policy pressures to urge “climate-smart” agricultural solutions, and the rise of consumer demand for “sustainable” products (e.g. organic, fairtrade, “green” labels) have created market outlets for sustainable food, textiles and energy in developed countries. Indeed, multistakeholder sustainability standards and their accompanying systems of certification have been referred to as “one of the most innovative and startling institutional designs of the past 50 years” (Cashore, Auld and Newsom, 2004, p. 4). Often emerging from alternative agrifood networks (Allen *et al.*, 2003; Bowen and Mutersbaugh, 2014; Goodman, 2004; Goodman, DuPuis and Goodman, 2012), sustainability standards have become increasingly institutionalized through

“We must learn from farmers’ experience [...]. At the end of the day, sustainable intensification will be the result of the collective action of millions of small-scale farmers, who through their daily decisions determine the trajectory of agricultural ecosystems across the world.”

José Graziano da Silva, Director-General, Food and Agriculture Organization of the United Nations (FAO), February 2014

growing collaboration and recognition among a range of actors and existing institutions (Loconto and Fouilleux, 2014). This demand has provided opportunities for some commercial producers in lesser developed countries (LDCs) to become included in global value chains for sustainable products (Blackman and Rivera, 2011; FAO, 2007, 2008, 2014c). While studies show that access to global value chains can incentivize the adoption of good and sustainable agricultural practices, the investment needed and the risks involved in focusing on export crops often make these value chains undesirable or unachievable for many producers (ITC, 2011a,b). Instead, FAO (2014c) found that institutional arrangements, including the current rules in place and the support activities of extension agents and Non-governmental Organizations (NGOs) as well as the resources that were mobilized through these arrangements, were most often the determining factor in whether or not small-scale producers gained access to these markets. This poses the question as to whether global value chains provide the only market incentives for producers in developing countries to adopt sustainable practices. Therefore, we ask, *are there other market mechanisms that can link sustainable practices with local or domestic markets?*

A small, but emerging, body of research suggests that demand for sustainable products is rising in the domestic markets in LDCs (e.g. Adasme-Berrios *et al.*, 2011; Ahmad and Juhdi, 2010; Aryal *et al.*, 2009; Oudewater *et al.*, 2013; Roitner-Schobesberger *et al.*, 2008; Sherwood *et al.*, 2013). Some studies show that markets for sustainably produced food in developing countries is an elite phenomenon, relegated to niche, upscale markets for socially and environmentally conscious consumers (Adasme-Berrios *et al.*, 2011; Ahmad and Juhdi, 2010; Aryal *et al.*, 2009; Li, 2014; Roitner-Schobesberger, 2008; Sacchi, Caputo and Nayga, 2015), which reflects the beginning of the organic movement in developed country markets. In China, which is now the third largest single market for organic products in the world, the demand has been linked to food safety concerns (Li, 2014; Willer and Lernoud, 2015). However, the International Federation of Organic Agriculture Movements (IFOAM) claims that the value of the organic consumer market in regions outside the European Union (EU) and the United States of America reached US\$6 billion in 2013 (of the US\$72 billion for the global market) (Willer and Lernoud, 2015). Based on FAO's experience in field projects, there seems to be a number of little studied initiatives that are providing sustainable products for developing country markets (FAO, 2015a; FAO/UNEP, 2014).

While small and certainly not mainstream, we believe that there is scope for exploring how these markets work and what role they actually play in the decisions that producers make to farm sustainably, because it is at the small scale that we can identify types of innovations that may become the norm for the future. For example, recent experimentation in food systems that rely upon sustainable production methods pushes the boundaries of the traditional roles of institutional and market intermediaries. Both old and new actors are taking on a wider range of roles in linking farmers with markets for their produce (Vorley, 2013). These intermediaries are part of local infrastructural and institutional environments and include a range of organizations that provide support for producers to learn sustainable techniques and to market sustainably produced products and services. For example, within organic agriculture systems, one approach is the participatory guarantee system (PGS), in which the oversight systems are created by producers, researchers and

consumers who collectively ensure that agreed 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. There are also a number of instances where public research and farmer advisory services are beginning to incorporate marketing aspects in farmer field school (FFS) methodology – a participatory farmer education approach focusing on agro-ecosystems and sustainable agriculture and used in over 90 countries. Private traders are also beginning to invest upstream in their value chains to provide infrastructural and organizational support for small-scale producers. In recent years, a number of innovations in business models, value chain organization, institutional arrangements and farmer support services in LDCs have been recognized as possibly providing incentives to producers in developing countries for increasing food production using sustainable practices, and improving the provision of sustainable goods to local consumers (FAO, 2010, 2011a, 2012a).

These examples suggest that the strengthening of local infrastructure and institutions is important for enabling small and medium producers and enterprises in LDCs to increase their share of value for sustainably farmed products. However, a gap remains in the literature on these innovations in LDCs and particularly on how successful they are in promoting the adoption of sustainable practices for local and domestic markets. To fill this gap, FAO undertook a survey of innovative institutional approaches that enable markets in developing countries to act as incentives for the local adaptation (and use) of sustainable practices. To that end, we launched a call for proposals on detailed case studies on innovative approaches (public, private and/or civil society) designed to link sustainable crop production practices with local markets for sustainable products in developing countries. This book presents 15 case studies that explain small- and medium-scale initiatives in 14 different countries and enable us to answer the core research question of this book: *how do markets work to create incentives for the adoption of sustainable practices in developing countries?*

1.3 INSTITUTIONAL ARRANGEMENTS IN INNOVATION PROCESSES

The question of why farmers adopt or adapt new technologies and different methods of farming is well explored in the literature on innovations and farming systems, yet it remains a complex question to this day (Bingen, Serrano and Howard, 2003; Darnhofer, Gibbon and Dedieu, 2012; Dixon *et al.*, 2001; FAO, 2014a; Pamuk, Bulte and Adekunle, 2014). The classic model of the diffusion of innovation (Rogers, 2003 [1962]) separates knowledge and technology production from their diffusion by creating two distinct institutional domains, where the second follows the first in a linear pattern. The commercialization of products that are cultivated with new technologies are often considered in separate studies that focus on market dynamics without necessarily linking these to the institutions that enable the innovation process to unfold. Following advances made in science and technology studies, we consider that an innovation occurs when “new ideas, new technical devices or new forms of organization meet their users” (Joly, 2011, p. 3). In other words, it is a journey of back and forth interactions between technologies and those people who are involved in various stages of their development and use (Van de Ven, 1999).

In the case of sustainable agriculture, a suite of knowledge, skills, practices, technologies and organizational arrangements must be mobilized for farmers to be able to practise sustainable intensification. Many of these technologies are based on “old” knowledge or tradition, but they are new in the sense that they may be new combinations of old techniques or they have not been used by a particular farmer or farming system before.

Let us take integrated pest management (IPM) as an example. In order to be able to introduce IPM on a farm, farmers must first believe that using IPM will bring a benefit to the farm (i.e. resolve a pest issue, enable the farmer to meet market or regulatory requirements, reduce costs, etc.) or they must be willing to try. Second, farmers must be able to acquire the knowledge necessary about interactions between different types of plants and pests or between insects themselves; they need to acquire skills to observe the agro-ecosystem and scout pest and beneficial insects in the field. It will be necessary to implement a series of agronomic practices such as intercropping or associations with repellent plants. Some technical devices can be introduced here that will help in the detection of pests, as well as biocontrol agents, biopesticides or low-toxicity pesticides to help with pest management. To gain access to these devices, farmers often need finance and the ability to purchase, rent or share different technologies and inputs. Finally, information about what the new technologies can do must be shared and farmers must learn how to use these technologies. In developing countries, this type of learning is increasingly encouraged through FFS and other experiential methodologies that require the engagement of farmers, researchers, extension workers and NGOs. These schools use a portion of a farmer’s field to dedicate to practical experiments and may require a reorganiza-

KEY CONCEPTS

Institutions. We follow Ostrom’s definition of institutions (2009, p. 3) as “formal and informal rules that are, in fact, followed by most affected individuals. Such rules structure incentives in human exchange, whether political, social or economic. Incentives include the rewards and punishments that are perceived by individuals to be related to their actions and those of others”. Institutions are both the structures that constrain action and the resources that enable actors to make changes in society (DiMaggio and Powell, 1991).

Institutional arrangements “are the policies, systems and processes that organizations use to legislate, plan and manage their activities efficiently and to effectively coordinate with others in order to fulfil their mandates” (UNDP, 2015).

Institutional innovations are new rules and ways of organizing the relationships between different actors in a system. They take place when people and organizations (actors) strategically mobilize others through network relationships in order to repair or replace institutions. They help redefine sustainable practices locally and bring together actors in food systems who have not traditionally worked together (cf. Hargrave and Van de Ven, 2006).

tion of the physical farm landscape as well as the type of people and organizations entering this space on a daily basis. FFS provide a space for joint learning, dialogue, cooperation and coproduction of knowledge, whose impact has extended far beyond agricultural production – reducing conflicts within households and communities, stimulating individual and community empowerment and significantly improving livelihoods.

In other words, “innovation is not limited to technological innovation. In fact, most so-called technological innovations are really sociotechnical innovations, because organizational competencies, business-to-business linkages and value chains and industry structures more broadly have to be renewed as well” (Felt *et al.*, 2007, p. 21). In sum, we argue that innovations are essentially collective and require a system or network of individuals and organizations in order to ensure that new practices and processes are successfully adopted (Akrich *et al.*, 2002; Schumpeter, 1962 [1934]). Since we take this recognition of the interdependencies between technological and organizational innovations as a fundamental aspect of innovation processes, we claim that we will find answers to the question about why farmers adopt new practices if we look at the institutional relationships.

A common approach in the literature is to understand why innovations or new technologies are not adopted (e.g. Vanloqueren and Baret, 2008). Our approach explores why innovations have taken place, specifically by looking at why and how changes in market institutions seem to have played an important role in this change. Edquist and Johnson (1997, p. 51) argue that institutions serve three main functions in an innovation system: “reducing uncertainty by providing information, managing conflicts and cooperation, and providing incentives for innovation,” which are not always monetary. There is a tradition of work in economics that tries to understand the appropriate incentives for encouraging the adoption of new rules for food and agriculture (e.g. Henson and Holt, 2000). Indeed, a significant amount of the literature focuses on how incentives can be provided through institutional arrangements. For example, some scholars focus on the ways in which informal regulation (Pargal and Wheeler, 1996) and community pressure (Blackman and Bannister, 1998) can work as incentives.

Ostrom (2009) reminds us that “institutions are defined as formal and informal rules that are, in fact, followed by most affected individuals. Such rules structure incentives in human exchange, whether political, social or economic. Incentives include the rewards and punishments that are perceived by individuals to be related to their actions and those of others” (Ostrom *et al.*, 2001, p. xiv). Vitale (2010) demonstrates that there is an interdependent relationship between incentives and institutions where “institutions replace incentives in the actors’ plan of action. Here, institutions play a constituent role in individual interests: incentives only work with appropriate institutional constraints” (p. 61). In the case of market incentives and institutions, one could say that the money received from the sale of a product is both the institution of the market (the rule agreed upon by the parties as the legitimate form of compensation for exchange) and the incentive for action (monetary reward for production). What we look at in this book are other types of market institutions and incentives – specifically organizational ones. In other words, we show that when new rules and legitimate relationships for producing and exchanging goods that have been sustainably produced are put into place, the ability to participate in

the group and make changes to the rules provide the incentives to producers and consumers for following them. This theoretical framework enables us to look at the institutions that structure the case study networks and the actors who are important in carrying out a variety of functions within these systems to promote production and marketing of sustainable agriculture. In sum, institutional arrangements and the actors who construct them are important for explaining how markets work to incentivize the local definition and adoption of sustainable agriculture practices.

1.4 STUDY METHODOLOGY

This study is based on collaborative work between INRA (French National Institute for Agricultural Research) and FAO under the project entitled: “Responsible innovation in sustainable agrifood systems – explorations of the intersections between voluntary standards and value chains”. Funding for the study came from FAO’s regular budget under Strategic Objective 4: “Enable more inclusive and efficient agricultural and food systems at local, national and international levels”; the EU through the EC/FAO Programme: Improved Global Governance for Hunger Reduction (GCP/INT/130/EC); and the Res-AGorA project (Responsible Research and Innovation in a Distributed Anticipatory Governance Frame: a Constructive Socio-normative Approach) under the EU’s Seventh Framework Programme for research, technological development and demonstration (grant no. 321427).

We adopted a case study methodology (Yin, 1984) for this book. Data collection was initiated through a call for case study proposals on innovations in linking sustainable practices with markets in developing countries. We received 87 proposals, from which we selected 15 cases written by the innovative actors/organizations. Case studies were selected during a two-round selection process. First, all 87 proposals were evaluated, based on the following discriminating criteria: (i) they were focused on crop agriculture; (ii) described an existing initiative in a developing country; and (iii) included a clear link between sustainable practices and the market. Within our call, we requested the authors to explain why they thought their practices were sustainable (according to what metrics) and what sustainability meant in their context. In selecting the cases, we selected those that followed practices in line with those recognized in the FAO *Save and grow* publication (2011b). Hence, we were able to keep the sustainable practices within a range of techniques that are well documented in the literature as meeting this FAO definition of sustainability; nevertheless, these practices vary from case to case and are explored in the concluding chapter.

The first round of elimination left us with a shortlist of 42 case studies. These case studies were examined further, based on ten additional criteria (with weighted values) that allowed a qualitative assessment of the proposed case studies. We prioritized those cases written by the innovators themselves and those that have been in successful operation for more than five years, which provided primary data for looking at the institutionalization process and exciting new organizational designs.²

² The evaluation criteria were the following: EU priority country [ACP country] (0=No, 1=Yes); priority country for EC project GCP/INT/130/EC [the Niger, Mali, Burkina Faso, Ethiopia, Kenya, Somalia, South Sudan, Uganda, Mozambique, Guatemala] (0=No, 1=Yes); priority case for FAO/INRA field visit (0=No, 1=Yes); already published (0=Yes, 1=No); submitting party

By working directly with the innovators, we were able to apply participatory qualitative research methods to this study, which more accurately capture dynamic processes than quantitative surveys (DeWalt and DeWalt, 2002). There were a total of 31 points possible for each case and we selected 16 cases that had attained between 24 and 29 points. The authors of each of these 16 cases were requested to elaborate their cases into 6 000-word chapters that focused on a description of the history of the innovation, sustainable practices used and mechanisms for ensuring their adaptation and use, markets for products and enabling institutional context.

We received 15 completed case studies and one of these was dropped from the study because the full write-up did not meet our original criteria for sustainable practices and markets. As a result, we selected an additional case from the short list to reach a total of 15 case studies. We took into account geographic balance in our selection and in the end we arrived at four cases from Latin America and the Caribbean (Bolivia [Plurinational State of], Colombia, Ecuador, Trinidad and Tobago); six cases from Africa (Benin, Namibia, Nigeria, Uganda [two], United Republic of Tanzania); and five cases from the Near East, Asia and the Pacific (India, Indonesia, Islamic Republic of Iran, the Philippines, Thailand). The authors are primarily the implementing organizations (ten), southern researchers together with implementing partners (four), an implementing donor organization (one) and a northern researcher with implementing organization (one).

Since the focus of the study is 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 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.³ We recognize that certified organic agriculture represents only 0.98 percent of total agricultural land and thus is still very much a niche in the agricultural landscape. However, the percentage of studies focusing on organic (69 percent) reflects its unequal representation in the distribution of sustainable agriculture practices found in the first round

(5=implementing org., 4=southern researcher with implementing co-author, 3=implementing donor, 2=southern researcher, 1=northern researcher with implementing co-author, 0=northern researcher); sustainability over time (2= >5 years, 1= 2–5 years, 0= <2 years); fit with the purpose of the call (1–5, 5= closest fit); feasibility (1–5, 1=not feasible, 2= not likely feasible, 3= maybe, 4=feasible, 5=highly feasible); quality (1–5, 5=excellent quality); innovative (1–5, 5=most exciting new idea). Maximum score possible was 31 points.

³ 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.

of submissions (46 percent) and the shortlist (62 percent) of eligible case studies. Moreover, the countries with the largest numbers of organic certified producers are India, Uganda and Mexico, and the percentage of total agricultural land increased by an average of 6.5 percent in Africa and Asia in 2013 (Willer and Lernoud, 2015, p. 43). Therefore, this method of sustainable production is becoming more visible in developing countries as compared with others (see FAO, 2015b). Moreover, we recognize that there is important analytical value found in exploring microlevel experiments, particularly those that have expanded beyond their original area of influence, which is undoubtedly the case of organic agriculture.

The institutional innovations examined in the study include participatory guarantee systems (PGS) (six), multistakeholder innovation platforms (IPs) (six), and community-supported agriculture (CSA) (three). We came up with these categories following analysis of the cases; they were not criteria for inclusion in the study. Each category of innovation is a type of mechanism that was identified based on an analysis of the role of actors in fulfilling various functions in an innovation system (see final chapter). The cases are thus classified as one of these three types of institutional innovations; the grouping of cases by institutional innovation enables us to conduct intercase comparisons that are important in the meta-analysis level of case studies (Yin, 1984).

The case development process has been an iterative, qualitative case study approach (Yin, 1984), where the book editors developed a structured outline with guiding analytical questions for the case studies. Within the case study approach, we relied upon triangulation to ensure the reliability and validity of the data. This included review of secondary literature on the cases (previously published reports and Web sites), discourse analysis of the texts written by the chapter authors (to conduct the functional analysis), field visits, key informant interviews and expert peer review.

Elaboration of the cases was carried out in four phases. The first drafts received detailed comments by the book editors and the first revision of the text follow-up consisted of either field visits (for eight of the cases), where the book editors conducted interviews with case study authors and other important actors between November 2013 and May 2015, or by video conference interviews with the authors. Each case study included in this book went through a single-blind peer review process by the three editors of the book, which itself went through a rigorous peer review process. The eight cases that received field visits were reviewed by the editorial team and in the six cases where field visits were not possible, peer reviewers from each case study country who were knowledgeable about the case and its context were identified to review the cases. A single-blind peer review was conducted whereby peer reviewers completed standardized evaluations not only of the quality of the text, but also of the veracity of the presentation of the case, based on the peer reviewer's direct knowledge of the innovation. In a third phase of the project, we facilitated an online discussion forum with the case study authors and those people who had submitted proposals to our original call. In June 2015, we conducted a workshop with the case study authors, where they presented their cases and discussed the innovative institutional mechanisms they had developed (Vicovaro *et al.*, 2015). With this rigorous method of triangulation, we avoided any bias related to the innovators' interpretation of the data presented in each case.

1.5 ORGANIZATION OF THE BOOK

What makes this study unique is its approach to using a case study methodology, and its authors. Based on the originally requested 1 000-word abstract, we selected case studies that were written by the “innovators” themselves. This approach allowed us to engage with the innovators in an iterative way and to work together over the span of two years to write up their experiences in a reflexive manner. The result is a rich volume of experiences that provide details and reflections on the types of sustainable practices used in each case. This approach allowed the authors to explain what sustainability means in their specific context and provided them with the space to explain the intricacies of institutional change. As is evident in the following sections of this book, institutional innovation is a long process.

We have organized the book theoretically, according to the conceptualization of institutional innovations. Hargrave and Van de Ven (2006) refer to collective action processes as the contested political process through which innovations emerge. These processes include the ways in which solutions are framed, how the network of actors is engaged and the political and market opportunities that exist at a particular moment. There are generally *three phases* that can be distinguished in the progress of collective action in an institutional innovation: *emergence* (pioneering innovative ideas), *development* (developing the innovation so that the institutions can be easily differentiated from conventional approaches) and *convergence* (where a critical mass of actors are converging around the new rules, frames of reference and activities) (cf. Hargrave and Van de Ven, 2006). We can thus discuss whether these innovations are currently considered legitimate solutions by the range of involved stakeholders to the problem of unsustainable agricultural practices. We have organized the book into three sections that group together those case studies that can be considered to be at these different stages.

The first section presents those innovations that are still in an emergent stage, where their market linkages and institutional arrangements are not yet stabilized. The Indonesian, Namibian and Nigerian cases are considered to be in the phase of emergence because sustainable agriculture practices are in the process of being introduced, the horizontal network linkages are not fully integrated with other initiatives nationwide, the size of the initiatives (in terms of numbers of producers and consumer involved) are still somewhat limited, or the political project driven by the innovators has not yet achieved institutional change beyond their local contexts and close networks. These case studies are important to analyse because they provide three experiences that are quite innovative, particularly in terms of the actors involved and the different types of roles they are taking up in terms of linking research with market construction. Since these cases are at the emergent stage, they provide insights into the challenges faced when introducing institutional innovations for sustainable agriculture.

The second section contains the majority of our cases. Building on the language from innovation studies, we characterize the status of nine of the institutional innovations in our survey as being in an “era of incremental change” (Anderson and Tushman, 1990) or in the developmental phase. Based on a timeline from their official creation, the innovations have been in existence for ten to 15 years. Their forms and governance structures have converged over time towards more formalized organizations with delegation of rights and responsibilities assigned to

professional staff (in most cases). They have markets, mostly at local level, which they supply consistently. They have gained public recognition of their sustainable practices, which have been achieved through the mobilization of networks. Private recognition, in terms of consumers and market actors, is also developing alongside public sector recognition and is actually the driving force for pursuing political solutions that can facilitate access to market outlets.

In the third section, we see the cases in Benin, the Plurinational State of Bolivia and the United Republic of Tanzania as entering into the convergence phase, which means they have reached a critical mass of adherents in public, private and civil society sectors of their countries. In Benin, the Songhai Centre model of integrated production has been in existence for over 20 years. The agricultural methods are well established with a strong training curriculum. Their model has been replicated outside the country and, in 2014, Songhai received political commitment from the government to establish Songhai centres in each district of the country. In Bolivia, there has been continued investment by public and civic actors over the past 20 years in the promotion of organic crops. Ten years ago, a new national agency was created to provide training and support for the development of PGS, and to manage institutional linkages with the food safety authority. Biofairs (organic farmers' markets) have become a mainstay in a number of urban centres, and activities are ongoing to link PGS producers with school feeding programmes in rural areas. The government has also made commitments to finance organic extension officers at municipal level. In the United Republic of Tanzania, the sustainable agriculture network (SAN) methods that are required for Rainforest Alliance (RA) certification have only been taught over the past five years, but the institutional actors in the tea sector have been collaborating for almost 20 years. Moreover, we see changes in national regulations and mandates for both public and private actors through collaboration in sustainable agriculture practices. The current policy of government agencies is to ensure that all smallholder tea farmers in the country will be practising RA-certified sustainable agriculture over the next five years. This is supported by the private sector and farmers, since sustainable tea has become a *de facto* mandatory market requirement in the global tea industry (Loconto, 2010, 2014).

The concluding chapter is a meta-analysis of the 15 experiences presented in this book. The authors focus their analysis on how the different innovative mechanisms work in terms of an innovation system. Using an analytical framework that combines the analysis of institutional innovation dynamics (Hargrave and Van de Ven, 2006) with that of the functions of innovation systems (Hekkert *et al.*, 2007), they explain the roles of different public, private and civil society actors in effectively creating market incentives for local definition and adoption of sustainable farming practices. One of the key conclusions of this analysis is that, while the incentives come through market demand and are valued through a price mechanism, it is the way in which the market linkages are created (e.g. through autonomous market strategies and establishing flexible rules) that provides the true incentives. These market linkages bring knowledge (creation and training), markets, resources and policy support into local networks that engage with national and international organizations. The purpose of these linkages is typically not only to create a market, but rather to create a collective entity that provides ecosystem and cultural services beyond the market. In this way, these institutional innovations provide spaces for

dialogue around technologies and ways to commercialize products, which are fundamental to a strong functioning of an innovation system (Hekkert *et al.*, 2007).

These conclusions are used to draw lessons about how markets can be mobilized to support local adaptation and use of sustainable practices. For instance, policy-makers can create enabling environments by promoting multilevel support for these local initiatives within national institutions. It is clear that municipal-level governments have an important role to play, both in promoting these initiatives and by providing physical and political spaces for them to flourish.

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