# Global standards and local knowledge building: Upgrading small producers in developing countries

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**Local knowledge building is a crucial factor for upgrading small producers and improving their market competitiveness and livelihoods. The rise of global standards affecting food safety and environmental sustainability in agriculture sparks debates on the impact on smallholders in developing countries. This article presents a perspective on the links of international standards to knowledge and institution building for developing the capabilities of small producers. Interacting with global practices, indigenous private and public actors create local institutions to develop capabilities for product and process innovations that contribute to economic development and enhance food security. Local innovation depends on collective strategic efforts through increasing networks among small producers and other organizations, including firms, nongovernmental organizations, and government, that foster knowledge circulation and bring diverse resources and support to build local capabilities.**

development process | institutional change

A large body of literature presents debates on the impact of international standards on developing country producers. A wide array of public and private standards or codes of practice governing production are a growing feature on the global landscape (1–5). Some scholars show how standards can act as barriers to developing country exports (6, 7). Others argue that stringent safety and environmental standards marginalize poorer producers, excluding them from new markets (8–10). These norms may also act as barriers to entry for small-scale farms, owing to the high cost of complying with new code requirements (2, 10, 11). Given the widespread poverty in these countries, new norms may require considerable changes and investments beyond their reach. Other research indicates that some small-scale producers have successfully adopted certification systems that address social and environmental conditions (12, 13) and food safety standards that upgrade and enhance their competitiveness in agriculture and agro-industry (6, 14, 15). There is sufficient evidence for both the negative and positive impacts of standards.

Much less attention has been given, however, to understanding how standards can link to knowledge and institution building as part of strategies for developing the capabilities of small producers. What characterizes the experiences whereby standards facilitate local institution building and encourage smallholders' development and innovation? Existing research establishes three useful departure points for this discussion on standards and smallholders. First, the development literature (16, 17) focuses on the importance of enhancing capabilities at all levels to facilitate development. One set of these capabilities involves improving small producers' products or production methods, especially to facilitate their ability to survive and compete in markets, to generate household income, and to raise productivity.

Second, capabilities are intricately related to knowledge building (18–20). The successful transformation of many firms and organizations in developing economies has involved knowledge flows by adapting foreign practices that lead to local innovation (20–24). In the case of technological capabilities, the literature establishes that beyond acquiring machinery or equipment, it is the ability to search for, use, adapt, and change existing knowledge and to put it in practice that is crucial (25). Knowledge is more than mere transfer of facts and data; rather, it means developing new competence to perform novel ways of working (26–28). This knowledge building contributes to improved or new products, processes, and organizations, all aspects typically associated with upgrading (29–32).

Third, it is widely accepted in the literatures on sustainability (33) and economic development (34, 35) that institutions play a crucial role in providing enabling conditions for development. Similarly, a large body of literature highlights that institutions governing local production systems affect the possibilities for sustaining enterprise development and growth (36–38). In particular, those institutions that facilitate knowledge flows that build local producers' capabilities are needed for sustaining growth in developing countries. Standards, as conventions, rules, and shared expectations, are part of the variety of institutions coordinating productive activity.

Using insights from the existing literature, this article suggests that international standards facilitate interaction between different local and global practices, which indigenous actors use to create new knowledge and innovations that improve small producers' capabilities. As standards encompass technological knowledge (39), they reflect existing or changing production practices and organization (40). For example, the ability to meet an international standard, such as Hazard Analysis and Critical Control Points (HACCP), involves production capabilities or competence. Capability building efforts for economic development usually draw upon local and foreign practices (21, 22, 24, 41). Local actors make use of international standards to access global knowledge and to create new institutions locally that help to coordinate organizational and productive improvements. By guiding interactions among small producers, and between government, business, and non governmental organizations (NGOs), standards assist the identification of problems and shortcomings and the coordination of strategies to build capabilities for upgrading.

## Case Studies on Interactions Between Standards and Smallholders Upgrading Processes

The cases that follow illustrate the potential for initiating upgrading processes among small producers through active support guided by new standards. Drawing on prior research for this discussion, one set of cases focuses on food safety and the other on environmentally sustainable production. Several published case studies conducted by the author and others address how efforts to achieve sustainability or increase food safety interact with capability building among local producers. These studies use evidence derived using ethnographic methods, including observations and field interviews, published material, and internal reports. Given the high prevalence of rural poverty, at-

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tention focuses on smaller and poorer producers and enterprises in agriculture and agro-processing industries (42).

**Food Safety Standards.** Food scandals, consumer health concerns, and NGO campaigns have pressured firms and governments worldwide to expand safety measures in the food supply chain. Although government regulation was predominant in the past, more recently private standards, with an international orientation and a focus on the production process, have grown dramatically (43). In Europe companies have invested billions in adopting process control systems related to HACCP standards (44). Private firms incorporate HACCP as a total quality management principle to guide their evaluation of hazards in food production, shifting the focus away from the final testing at inspection centers to the production site.

Although most initiatives to strengthen food safety come out of advanced economies in the European Union (EU) and North America, safety concerns are a major problem for population health in developing countries. Malnutrition is not only related to reduced caloric access but also to food quality and safety (42). Food contaminants, such as microbial pathogens, parasites, mycotoxins, and antibiotic and pesticide residues, can make people sick, limit nutritional intake, and increase the risk of chronic diseases from compromised immunity (45). In the developing world, contaminated foods are a major cause of mortality and morbidity due to gastrointestinal diseases, especially among children (46). Bacteria and parasites result in major problems such as diarrhea, often linked to the death of children younger than 5 y. Repeated episodes of food-borne diseases are one of the most important underlying factors for malnutrition in developing countries, with a serious impact on growth and immunity of infants and children (46). Improving food safety contributes to the food security goal of improved health and nutrition. The practices underlying international food safety standards are primary methods to reduce the disease burden and improve food security in developing countries.

International food safety standards usually include dimensions such as hygienic practices, minimum temperature levels, maximum bacterial limits, and absence of residues from drugs, chemicals, or animal diseases. The technological requirements associated with new standards are significant and put pressure on producers to improve their knowledge and innovate locally to be competitive. For example, preservation, humidity control, cold chain maintenance, reducing pesticide use, and increasing nutrition content, which increasingly drive food production, all involve using new technological know-how and scientific research.

Studies note that the cost burden to make changes to improve safety tend to be pushed down from the standard adopters toward the suppliers, notably primary production producers in developing countries (43). Current international food safety standards differ from present practice among low-income producers, whereby weak or nonexistent sanitation and food safety government mandates are commonplace (11, 42, 47). For example, in the case of Nicaraguan small dairy producers, they typically do milking in unhygienic, muddy corrals, lack tests or control for cattle diseases (including mastitis, tuberculosis, and brucellosis), and have no refrigeration centers, resulting in milk products with bacterial counts 10 times higher than the allowable international standard (40). Their low-income context presents problems related to the lack of potable water, access to electricity, sewage systems, and educational and agricultural services, among others. A study done in Brazil reveals that access to refrigerated storage, taken for granted in Europe, the United States, or in urbanized areas, is often missing in the rural zones where smallholders produce (11). In Kenya, HACCP requirements for fish exports to the EU made evident the lack of hygienic practices, rudimentary or nonexistent basic infrastructure, and insufficient training (48). Producing under these conditions inhibits or prevents their ability to meet health and food safety norms.

In the above cases, as is common in others (10, 32, 43), small producers experience economic crisis, and often failure, given that their starting point is far from the expected global norm. In Brazil, the introduction of higher food safety standards in dairy products, which required control of water quality, pesticides, temperature, and the use of cooling systems, had significant technological and managerial implications for smallholders. During the 1997–2000 period, the number of producers supplying milk to processing centers declined by 35%, and there was a 55% average size (liters per day per farm) increase, indicating consolidation (11). Small producers and local cooperatives could not finance the major investments required in cooling tanks for milk collection. The Brazilian government provided inadequate support, and local farmers could not compete with the foreign investors in the domestic market (49). Similarly, in Nicaragua, dairy producers of Nueva Guinea, a major dairy-producing region, lost their foreign market in 1998, when neighboring countries adopted government regulation in compliance with HACCP standards, and they could not meet this new requirement (40).

The discussion of the impact of global standards on smallholders and their response is usually portrayed in terms of winners and losers or success and failure. In this view, the failures are enduringly unsuccessful, and others are essentially successful from the start. The longitudinal evidence from several cases, however, indicates something different. Producers who show an inability to upgrade initially, at a later time manage to improve their collective capabilities and eventually upgrade and transform their production and local economies. This variation over time suggests the need to better understand the interaction between developing country producers, standards, and economic development, and the local innovation process.

In the Nicaragua dairy case, for example, after a major local crisis, within a national context ridden with poverty and political conflict, the Nueva Guinea producers eventually improved their milk production methods and successfully adopted the global HACCP standards (40). The foreign norm helped to make explicit what problems needed attention, and many public and private actors began to collaborate in the problem-solving effort. In this sense, the HACCP routines tied to stricter food safety norms engaged the small producers in the creation of new local institutions to jointly coordinate their upgrading.

New local institutions based on HACCP standards required the adoption of new practices among Nicaraguan small-scale producers (40). For example, controlling for cattle diseases became a new local norm. They began to conduct weekly and monthly tests to control for tuberculosis, brucellosis, and mastitis. They initiated programs to eliminate them in their herds. This required new knowledge as small producers had to build skills to detect and control for cattle diseases. This, in turn, led to the establishment of new training programs. In the past, small producers guessed blindly at cattle diseases and what to do about them.

Similarly, a new local norm established reduced acceptable product bacterial levels and the requirement to monitor contamination. This created the need for a local microbiological laboratory in this rural zone. A foreign aid organization funded its construction. The new testing procedures helped to reveal problems and to enhance producers' understanding of the logic of controlling for temperature and eliminating bacterial and chemical contamination. These changes ultimately enabled them to process cheese for export markets, as well as to supply milk to local high-end markets, resulting in improved income yields.

The standard helped local producers, governments, and NGOs to identify problems and gaps in the existing local production system and to guide the collective effort for new skill acquisition, training, infrastructure investments, and production methods. As important, the increasing interactions to overcome problems with product quality fostered the creation of a cooperative or-

ganization that integrated 250 small producers. The joint efforts of the producers' association as well as public and private organizations contributed to establish new, collectively owned laboratories and veterinary services. Moreover, the farmers created new ties with a local university to develop extension programs. With government and foreign aid, they expanded water and electricity infrastructure. The increased interactions among producers and other agencies, private and public, local and foreign, fostered knowledge flows by creating a space for what the organizational learning literature refers to as "productive dialogue," discussing consequences, making changes, and creating new local knowledge (27). This flow of information and resources helped local producers to build capabilities.

Studies on the Brazilian dairy industry also indicate that the government created new national norms guided by international standards (50). This institutional change in the dairy industry sparked reorganizing among private and public actors to build their capabilities. After Brazil significantly reformed its public food safety standards, the government's initial response was inadequate, but it later created public financing and specialized services to assist small dairy producers (49). At the same time, dairy cooperatives began to build their managerial capacity and service provision for their members to increase their production for local and foreign markets. Besides investing in new processing plants, cooperatives organized new services and elaborated a strategic development plan in conjunction with Embrapa (Brazilian Agricultural Research Organization) to build their capabilities (50). Whereas in the 1990s many cooperatives of small producers struggled and failed, by the early 2000s some had become successful domestically and abroad. Itambe, which integrates 32 local cooperatives with 7,000 small dairy farmers, has developed new procurement processes, state-of-the-art facilities, and new services for its producer-members (50). It now ranks among the 12 largest dairy companies in Brazil.

Likewise, many studies on the effects of food safety standards on smallholders in Africa, Asia, and Latin America indicate that positive changes occur as new local organizations leverage new knowledge to provide adequate infrastructure and resources (6, 8, 45). For example, in Guatemala, the ability to face a problem with cyclospora, a protozoan parasite, eventually involved the collective action of the producers' organization jointly with the Guatemalan government, the US Food and Drug Administration, Health Canada, and the Canadian Food Inspection Agency (51). At the beginning none of the local producers, or the local government, knew the underlying problem or how to address it. Portrayed initially as a trade barrier for Guatemalan produce, the continued reoccurrence of the problem led the association and the government to eventually develop technical assistance and traceability programs that also benefited the production of other crops, thereby expanding local private and public capabilities.

Similarly, reduction of pesticide residues in vegetable production and their impact on consumers and workers are major concerns. For example, since the 1990s, snow pea exports from Guatemala have been plagued by detentions and rejections at US ports because of pesticide residues or even the pests themselves (52). Thousands of small producers are involved in producing snow peas. By adopting new chemical hazard norms, the Guatemalan government developed integrated pest management (IPM) research and technical assistance programs to reduce pesticide use, to eliminate residues on snow peas, and to enhance product quality. The IPM program has on-farm research and training components that cover practices such as pest identification and monitoring, trap cropping, and soil disinfection. Using and diffusing new knowledge, these producers organized into cooperatives that provide services and training and quality-control programs.

Finally, the creation of new local institutions in interaction with HACCP food safety standards is also visible in fish and fishery products in Kenya. In the late 1990s, Lake Victoria fisheries faced an export ban to the EU due to major deficiencies in hygiene standards, unsafe residues, weak government capacity, outdated laboratories, poorly trained personnel, and substandard production processes (48). After several unsuccessful attempts and a local crisis, the Kenyan government and local producers jointly began to uncover the problems and how to address them. They established new local norms and created laboratory testing capacity, as well as new physical infrastructure including potable water, toilets, cold rooms, and electricity, all unavailable before. In addition, the government organized training of fisheries and inspection personnel. At the enterprise level, one of the major changes was the formation of the Association of Fish Processors and Exporters of Kenya. Guided by new local norms, public and private actors coordinated a demanding reorganization and upgrading. Since 2000, Kenya has successfully exported to the EU.

Successful growth in Kenya's fisheries, however, reveals other developmental challenges. The local Nile perch boom, along with increased export demand, contributed to overfishing, which in turn has resulted in declining biodiversity and productivity (53). The production system created did not give attention to environmental management, which made the Kenyan fisheries unsustainable. Local fish consumption has declined, and rural malnutrition has increased owing to reduced fish supply (53). The connection between sustainable production and food security issues apparent in this case follows.

**Sustainability Standards.** Since the 1990s, environmental activists have promoted the creation of new sustainability standards targeting private companies, calling for greater corporate social responsibility, often in response to the lack of national or international legislation (3). Such actions have led to the creation of new standards that define expectations for more socially and environmentally sustainable production processes in global supply chains in forestry, mining, agribusiness (i.e., coffee and cocoa), fisheries, garment, and footwear, among others. Today, ≈300 codes govern major global economic sectors (1). Although widely diverse, nearly all are industry or product specific. A large body of literature already discusses the business responses, their legitimacy, and enforcement capacity (1).

These usually involve complex partnerships and alliances between firms, NGOs, and sometimes governments. These codes also affect food production as consumers pay increasing attention to issues such as environmental impact, organic production, and fair trade. As global firms adopt such codes they require certification as a condition for doing business with suppliers in developing countries. This affects smallholders because they must also change their practices to be included in the upgraded or "clean" supply chains.

Research has shown that environmental degradation threatens the livelihoods of small-scale producers and is linked to poverty (12, 13). Depletion of forests, farmlands, watersheds, biodiversity, and soil erosion undermine productive conditions and economic survival. Hence, many goals underlying sustainability standards closely connect with sustainable development issues, including access to water supply, clean production systems, food security and agriculture, and poverty reduction with environmental protection. Transition to sustainable production, however, often involves complex agro-ecological knowledge (54), created in North America and the EU, deeply intertwined with technological innovation that then leads to product and process specifications.

The connections between biodiversity conservation and food security are apparent in coffee production, which has been the focus of current strategies for advancing a sustainable product. In Mexico and Central America, an estimated 85% of Central America's coffee farmers are micro and small-scale producers (55); similarly, 92% of all Mexican coffee farms are very small (13). In a study of small coffee producers in El Salvador (56),

shaded coffee agro-forestry allows production with minimal environmental degradation, while providing firewood and fruit such as bananas and plantains. In Mexico, two thirds of the coffee landscape involves small farmers growing corn, beans, or other food crops together or adjacent to coffee plots (57). The ability of these small producers to use new knowledge on sustainable agricultural production is essential for ensuring their livelihoods and future and expanded market opportunities.

A typical sustainability code results from a partnership between private companies and NGOs to develop and enforce new environmental standards (1, 12, 58). For example, the partnership between Starbucks and the NGO Conservation International resulted in a new set of sustainable coffee standards aligned with biodiversity conservation goals (2). Local organizations, including farmers and government groups, participated in the definition and promotion of best environmental management practices, producing in 2004 the *Coffee and Farmer Equity Practices*. These norms for coffee production included standards for soil management, water, waste and pollution management, energy and pesticide use, as well as biodiversity conservation for each respective stage of growing and processing. These norms embed knowledge of complex biological, physical, chemical, and ecological interactions with implications for managing agricultural production.

The knowledge inherent in these new norms is visible in the conversion to a more sustainable agricultural production. When Central American farmers made the transition from conventional to sustainable coffee farming practices, they required new knowledge on soil structure and processes (54). For example, although some local knowledge existed on leaf litter, understanding of moisture influence, nutrient uptake, and soil organisms was lacking. Similarly, there are major challenges related to managing weed, insect, and pathogen populations that require understanding of natural population-regulating mechanisms and new pest management practices. All of these involve agricultural sciences, which are highly developed in North America and Europe. These examples illustrate that beyond establishing a code or regulation, it is another dimension to put it into practice and bring about the changes required, particularly at the producer level.

The challenges and requirements that sustainability standards pose for smallholders are both a potential barrier and a source for upgrading and innovation. Research capacity in local universities, extension services, and professionals is often lacking. Moreover, small-scale farmers generally do not have access to technical assistance and extension services, which the conversion to sustainable agriculture requires to improve product quality and production efficiency (2). At the same time, new standards can foment strategies and new relations aimed at building local capabilities.

In the case of the Conservation International and Starbucks partnership, efforts focused on assisting small producer upgrading; generating support from a variety of private and public organizations; and facilitating the emergence of local financial and technical assistance services that could assist the implementation of the new norms (2). Their joint activities included providing direct technical assistance and creating local services by offering training courses to local technicians and producers on quality control, organic farming methods, tree planting, pulping, and business management. Conservation International, along with local Mexican organizations, provided farmers with technical assistance to improve agricultural techniques, resulting in increased crop yields and less reliance on fertilizers and pesticides. Central to a strategy that actively supported the process of achieving sustainability in the coffee supply chain was the development of expertise in technologies related to soil management and field-crop production through local research and extension services, private and public.

Improving the capacity of small-scale producers to remain competitive depends on creating conditions that facilitate their ability to achieve environmental upgrading. Studies indicate that collective local organizing and varied network interactions are essential to support the process of adopting sustainable agricultural practices (57). In El Salvador and Nicaragua, small producers organized in cooperatives have been at the forefront in developing their internal systems for providing assistance, control, and monitoring of the environmental improvement process (59). Similarly, in Mexico, small producer organizations introduced quality control at every stage of their coffee production (57).

In Vietnam, the creation of farmer field schools for rice management to teach new pest control methods led to reduced pesticide use (60). Small farmers organized into groups as they implemented the changes in their farm practices. This kind of initiative has also helped farmers reintroduce food sources, such as fish protein. In Bangladesh, pesticides had eliminated fish from rice paddies. With new practices that drastically reduced pesticide use, thousands of small farmers reintroduced fish into the rice paddies (60). Changing to more sustainable production has occurred in concert with the creation of local networks of producers and increased food security.

The coordination challenges involved in changing environmental or food safety practices cannot be underestimated. In the Kenyan fisheries case discussed above, there have been major challenges in bringing firms together (48). The governments of Kenya, Tanzania, and Uganda formed committees with their fisheries departments and research institutes to improve the management of Lake Victoria. The new local norms created from interaction with international standards, and the changes in local practices, highlight that cooperation and coordination are essential to build collective capabilities to achieve success.

## How Global Standards Interact with Local Institutions and Knowledge Building

Given the rise of standards governing global agro-industry and agriculture, there is an argument that the competitiveness of small producers in developing economies would increase if all trade barriers were eliminated. This view converges with the idea that trade liberalization is the main remedy for ensuring free competition and growth. Development experience, however, provides contrary evidence that counters this view. The data indicate that developing countries in Latin America had lower growth rates despite major macroreforms that eliminated subsidies and tariffs, whereas many enterprises in Asia and Latin America have done well despite facing regimes of strong trade barriers (61).

Moreover, developing country producers do not automatically gain market access when developed countries eliminate trade barriers. First, entrepreneurs seeking to enter new markets must demonstrate the ability to produce products according to customer expectations. Increasingly, these include not only final product characteristics but also the production process. Under current international business governance, buyer expectations are no longer the exclusive domain of firms or governments but of NGOs and social movements that place priority on improved consumer safety, labor, and environmental standards. In a context of open borders, the lack of strategies to improve in these areas can be detrimental to smallholders if they are not provided the services and other support to improve their current products and production methods.

As important, if the ability to produce new or improved products and processes is a key determinant of competitiveness and growth of firms in general and small producers in particular, these innovative capabilities do not develop automatically. A large body of literature establishes that capability development depends on expanding knowledge flows and competence-building through a broad range of institutions, beyond narrow science or macroeconomic policies (62). Some of this knowledge is tacit, demanding interaction between people and organizations locally and internationally. Institutions that support an interactive dynamic between private and public actors help to create collective

resources available to local producers and to enhance indigenous capabilities.

Furthermore, these cases highlight that although discussions on standards tend to focus on regulatory dimensions, an important aspect from a development perspective is the way that local producers and public actors engage in constructing new local institutions and learning new knowledge in interaction with global norms to build indigenous capabilities. The literature on clusters in developing countries has highlighted the importance of external linkages for upgrading quality and environmental standards (24, 29). The discovery, use, and adaptation of foreign practices for local innovation have been used in the past for building local capabilities and transforming developing societies (21, 22, 25, 40). Foreign sources of know-how have also been important for innovation by small enterprises (22, 40). The inflows of knowledge from both local and foreign sources are essential components. The role of standards, however, in building local institutions and knowledge in developing economies has received less attention.

The local capability building process crucial for upgrading small producers can draw upon the technological knowledge embedded in global standards related to food safety and environmental sustainability. Standards help to define and address performance shortcomings in current indigenous products and processes. The cases discussed suggest that standards facilitate the crossing of global and indigenous knowledge boundaries, which local actors leverage to build new local institutions and capabilities. They are intermediaries of practical knowledge initiated in another place, which can be passed along (63). This is not a mechanical transfer of know-how but rather an intelligent process whereby local producers use and access the different expertise from other firms and organizations to transform their own (27). New capabilities translate into novel food products for consumers or production methods that protect the environment. What matters is not the mere transfer or imposition of a global standard but the ability to use the knowledge embedded in foreign norms as local producers create their own local institutions and organizations to build their collective capability.

Knowledge circulation depends on the emergence of networks among small producers and of different public and private organizations. All of the cases discussed show frequent formation or reorganization of associations, cooperatives, or other networks of public and private organizations to create technical services and training programs and provide financing and infrastructure, all guided by new norms that foster product and process innovation. The connections formed between local and foreign organizations, including firms, governments, and NGOs, can facilitate the flow of knowledge emerging in different parts of the world. Existing research indicates that by being part of these networks, small producers in rural areas can overcome isolation, identify resources, and solve problems, while enabling collective understanding and reworking of old and new practices (40).

Although organizing cooperative organizations among small producers is not a new phenomenon, what seems different in these cases is their focus on knowledge building for local product and process innovations. The combination of local collective organizing in interaction with global practice helps to create new local institutions to support local knowledge building. The standards serve to reveal problem areas, and this information, in turn, is useful to define strategies to overcome them. The ability of small producers to use new knowledge and to innovate locally depends on increasing the connections among them and different specialized organizations, such as public service providers. Services develop as gaps with new norms become explicit. The networks with varied expertise facilitate learning by creating horizontal relations between producers, as well as links to organizations that can act as knowledge bridges between different communities and knowledge resources (14, 30). The findings from these cases support a growing literature on developing economies pointing to the role of these networks in dealing with the uncertainties and pressures of new norms and of producing new products (22, 29–31, 35).

As important, institutions that facilitate coordination of changes are central for building the capabilities of smallholders in developing countries. As local producers and organizations adjust, adapt, and innovate, the coordination of efforts by multiple actors is necessary to assemble resources and create new infrastructure, services, training, laboratories, and on-farm and processing methods, all associated with the transformation of smallholders' conditions. Because local innovation involves a multiplicity of actors, institutions have a central role in coordinating production and economic activity (36) and in the development process (61). These cases indicate that success depends on achieving the dynamic interaction between producers and private and public organizations, and that standards act as institutions for coordinating this strategic collective action.

The role of standards as institutions that facilitate the coordination needed to upgrade smallholders raises the question of why success occurs in some instances and not others. The cases indicate that it is not the simple imposition of a foreign standard that accounts for the local innovation that may unfold. The foreign norm by itself does not produce upgrading. Given the variation over time in the ability of producers to succeed or fail in the face of the same foreign standards, this suggests that an external force alone is insufficient to explain the institutional and organizational changes observed in the successful innovation of smallholders. Neither does some preexisting condition suffice to explain success: producers in the same local context experience failure and upgrading over time. This suggests that a fruitful approach for development thinking is to focus on institutional change; that is, on the possibilities for people and organizations to change and create new institutions and networks that support capability building.

A focus on institutional change places more attention on the indigenous strategic effort to improve, upgrade, and change the local production system. Instead of being dependent on externally given or preexisting institutions, this view suggests that development involves active institutional reform or transformation in each specific context. This analysis of global standards indicates that they help to reveal existing gaps and problems and to guide the change effort. In their specific context, local actors, private and public, adjust interactively their indigenous norms in relation to foreign models available to them. They progressively develop an understanding of how to change their local practices and then begin to create organizations or to reorganize existing ones to support the innovative dynamic. There is nothing automatic, or predetermined, to successfully adjust and innovate in relation to new and evolving global standards. The cases indicate, however, that local actors collectively and deliberately change and build local institutions to coordinate improvements in production and organizations in their specific context. This is similar to what has been observed in many studies of successful development experiences (21–23, 29, 35).

Finally, although current thinking indicates that institutions influence significantly whether a country or region develops, the discussion is often limited to national-level frameworks. The ideas presented in this article suggest that the space for institutional change at smaller levels, including regional and organizational, is equally important to enhance capabilities and development. Food safety norms can spark local innovations that reduce nutritional and other health risks through food-borne illnesses. The products of smallholders become more competitive and thereby increase their household income. Environmental sustainability greatly affects agricultural productivity and the assets of the poor in rural areas. As institutions, standards become intertwined with changes in private and public organizations that provide crucial services to smallholders, thus contributing to overcome contextual constraints and to facilitate development.

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