

# Food Governance Transformation: Aligning Food Security with Sustainable Farming Practices in Developing Communities

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Published online: 25 March 2014  
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**Abstract** Conventional approaches used to improve farming practices and access to food in developing communities are underpinned by policy, technology, and the science of modernization. The focus has been on securing a sufficient quantity of food derived from extensive monocultures. This quantity focus is questioned in current food security debates, and alternative approaches are addressing the need to pay more attention to the quality of food as a commodity, the value chain of which should ensure the sustainability of farming practices and the well-being of small farmers and consumers. This article reviews agrodiversity and food sovereignty as the representative alternative approaches, which have led to innovative policy, technology, and science. In order to mainstream the alternative approaches and fully align food security with sustainable farming practices, more robust institutional innovations are necessary. The institutional innovations need to work to consolidate new values of food and develop the capacity of communities to engage in transformative change of food governance.

**Keywords** Agrodiversity · Food security · Food sovereignty · Sustainability · Institutional innovation · Governance · Transformative change · Policy · Technology · Science

## Introduction

According to the United Nations, the international development community has so far made significant progress towards the Millennium Development Goals and the World Food Summit hunger targets, which aim to “halve, between 1990

and 2015, the proportion of people who suffer from hunger” [1]. Nonetheless, during 2011–2013, 842 million people, or around one in eight people in the world, are estimated to be suffering from chronic hunger [2]. In addition, higher food prices in recent years have seriously aggravated poverty and hunger in developing communities, renewing the worldwide debate on food security. The current debate increasingly mentions the need to elaborate on new approaches to improve farming practices and poor people’s access to food, involving policy makers, scientists, and development professionals [3].

The call for new approaches suggests that conventional approaches to food security have their limitations and thus need to be reframed [4]. In a broader context of international development, it is often argued that the food security agenda cannot be separated from the ongoing agenda of sustainable development and the green economy, which increasingly emphasize the importance of environmental and social dimensions of economic development [5, 6]. In short, there is a recognized need to align food security with environmentally and socially sustainable farming practices.

Against this backdrop, this article reviews current debates on the new approaches to food security. It first examines the specific limitations presented by the conventional approaches such as the “Green Revolution” and then looks into representative alternative approaches, namely agrodiversity and food sovereignty. These alternative approaches define food as a commodity and assert that for its security the development of its value chain needs to be considered, which should generate some coupled benefits, ensuring sustainability of the natural environment and farming practice, and the well-being of small farmers and consumers. The focus on the commodity chain leads to innovative policy, technology, and science, which is implemented in developing communities.

Drawing on the innovation experience observed at national and international levels, this article argues that in order to

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mainstream the alternative approaches, more robust institutional innovations are imperative to foster multi-actor collaboration along the development of the commodity chain and to establish new values attached to food, and suggests that this innovation process requires transformative change of food governance. It concludes by outlining specific policy, technological, and scientific implications of this transformation.

## Reframing Approaches to Food Security

### Green Revolution

Conventional approaches used to improve food security have been based on the global application of a modernization model, typically referred to as the Green Revolution. The proponents of this model provide farmers with a technological package developed by scientists and agribusinesses, which consists of the so-called “miracle seeds” of a high-yielding crop variety, machinery, chemical fertilizers and pesticides [7]. The extensive use of this package induced a rapid growth of agricultural productivity based on monocultures, firstly in Asia and Latin America and then increasingly in Africa. Experts in international food policy studies assert that the Green Revolution represents “the successful adaptation and transfer of the same scientific revolution in agriculture that the industrial countries had already appropriated for themselves,” and that it needs to be continually applied to developing communities at a global scale [8]. Today, the Green Revolution advances itself as a new scientific and agribusiness approach to agricultural development, fostering technology of genetically modified organisms [9].

An underlying assumption that leads developing communities to adopt the Green Revolution is that increasing the quantity of crop production through industrialized monocultures would lower the food price and thus automatically contribute to the improvement of access to food and eradication of hunger. This assumption has generated controversy over the impact of such quantity-oriented approaches on environmental and social sustainability [7, 10]. As a result of the controversy, a variety of alternative approaches have emerged, mostly linked to leftist political movements [11] and emerging alternative food networks [12].

### Alternative Movements

In essence, the alternative approaches to reframing food security with reference to the sustainability concerns are propelled by active citizen participation. The emphasis on participation has shaped various alternative movements, which can take the specific form of a new peasant movement [13] or consumer movement [14]. These movements argue

that the policy and technology of food security must take into account environmental and human well-being, especially within rural communities where the food is produced [10]. They consider that increasing agricultural productivity through technological advancement is vital to secure sufficient amount of food for the poor, but emphasize that the mere focus on quantity will become counterproductive in the long run if it does not duly address the quality of the produced and distributed food as well as the quality of life of those who produce the food [7, 15].

In addressing quality, food is no longer simply a primary product produced at the subsistence level or distributed in the free market but a commodity whose value chain development involves a wide range of actors, connecting producers to consumers via wholesalers and retailers [16]. In other words, while in the modernization model food production and commercialization are largely dictated by scientists, agribusinesses and governments, in the alternative model, citizens as producers, traders, and consumers shape the commodity chains in such a way as to realize sustainability of farming practices and access to quality food [17].

The concerns for sustainability and quality, addressed through citizen participation, have been reshaping the science and technology of agricultural development. Scientists are increasingly promoting cultivation of diverse produce at a farm level in order to ensure agricultural sustainability with reference to biodiversity and environmental sustainability, which are found to prevent soil erosion and land degradation. In other words, farming is currently considered to be a “multi-functional social enterprise,” which generates multiple benefits for the small farmers [13]. Such farming practice is known as the practice of agrodiversity.

### Agrodiversity

In contrast to the modernization model that develops monocultures to affect the economy of scale, agrodiversity (or agroecology, see below) promotes multi-cropping farming systems, aiming to benefit small farmers whose land size is too small to benefit from the economy of scale. The small farmers are expected to “cultivate varieties that are locally bred” and maintain the agriculturally managed landscapes with little use of hired labor, chemicals, machinery, and fossil energy inputs [18]. While the definition of what constitutes a “small” farmer varies widely in developing communities, the term usually indicates householders or family farmers who produce a large part of their own subsistence and also participate in production for the market.

Small farmers as practitioners of agrodiversity exercise traditional knowledge on combining the mix of crop and livestock, fishery, or forestry [19, 20]. At the same time, in reality, they actively adopt and experiment with crop varieties bred on research stations. As a well-known

agricultural development scientist reflects, with popularization of participatory agricultural research and development, small farmers began to collaborate with scientists and fieldworkers to combine traditional and modern scientific knowledge [21]. The combination of different bodies of knowledge constitutes “local knowledge,” which is considered to be the principal driver of social development in developing communities [22].

The development of agrodiversity and local knowledge has two main implications for the current debates on reframing food security. First, it defines food as a part of small farmers’ livelihood and, thus, its diversification conceptually becomes an important strategy for risk management [23]. By cultivating diverse products, small farmers are able to withstand crop failure and thus secure minimum access to food even in times of crisis. This risk management aspect of agrodiversity also works to make visible the often neglected gender relations observed in farming, especially in Africa where the so-called “women’s crops” (i.e., crops produced by women, on less fertile land, such as groundnuts) significantly contribute to the household economy, largely shaped by men who have access to fertile land and engage in staple crop and livestock production [24].

In addition, in the recent context of climate change debates, agrodiversity underpinned by local “ecological” knowledge is known to facilitate small farmers to shape adaptive management strategies [25] and to make their farms resilient to external shocks such as extreme weather events including flood and droughts [26]. Recent calls for climate-smart agriculture considers agrodiversity to be an improved farming practice in the changed climate in developing communities [27]. In short, farming is not only about food production but about the well-being of the farmers and environment, potentially preventing soil erosion and land degradation.

Secondly, agrodiversity clarifies the need to pay attention to the institutional dimension of food security. Engaging in cultivating a variety of products both at subsistence and commercial levels, small farmers are a part of the larger sustainable food system and various commodity chains. This means that the farmers are conceptually aware of their rights to protect indigenous and genetic resources from the potential exploitation by large industries or governments [28]. Therefore, the power of small, and often poor and marginalized, farmers should be recognized as they decide on how to produce and consume agricultural products.

In order to further farmers’ empowerment by framing farming as a livelihood and a source of power, and also to consolidate the alignment between the farmers’ well-being and environmental well-being, agrodiversity is leading to the politically articulated “agroecology movement.” Today, it is considered to be a part of the new peasant movement that emphasizes “sovereignty” of the farmers over food policy, technology, and science [29].

## Food Sovereignty

In 1993, a global peasant movement called *La Via Campesina* was shaped in Belgium, joining various small farmer organizations from over 70 countries [30]. Three years later, it launched the food sovereignty agenda in order to promote agroecology and counter the new Green Revolution that began to spread genetically modified crop production around the world, led by large agribusinesses. The food sovereignty agenda in principle addresses “the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods and their right to define their own food and agriculture systems” [31]. Currently, the United Nations advocates this focus on rights, deploying a campaign to establish the “rights to food” agenda, and attempts to facilitate the translation of this international movement into national policies and technological development [32, 33].

Although still being inchoate, the rights-based food sovereignty agenda has resulted in some initiatives already [34]. In developing communities, the initiative first involves claiming agrarian reform to ensure the small farmers’ ownership of agricultural inputs, in particular land and seeds [35]. Then, communities can be mobilized to establish agrarian citizenship by which farmers and consumers can exercise their rights to create sustainable food systems [36].

For example, Brazil has clearly translated food sovereignty into a set of policies. Since the 1970s, the Brazilian Government has implemented agrarian reform settlements around the country, as peasant movements intensified. The small farmers who obtained land then needed to seek opportunities to increase their productivity and improve access to the market. As Brazil had long developed the extensive modernization model of agriculture, the market did not work to benefit the small farmers, who largely practiced agrodiversity. The peasant movements thus started to demand better agricultural services to improve their farming practice and commercialization. The leftist Government, which took power in the early 2000s, began to react to the demand. In 2003, the Ministry of Agrarian Development launched a “direct purchasing program” under which the Government purchases produce directly from small, family-based farmers, and the purchased products are provided for public feeding programs such as public school lunches. The farmers are expected to directly participate in tendering in the so-called “procurement market” without depending on intermediaries and having to engage in extensive monoculture, and provide fresh local produce to public institutions, which develop menus using the produce. In this way, farmers secure opportunities for improving their farming practices and commercializing their products [37, 38].

This Brazilian case suggests that, in practice, food sovereignty requires the creation of a new institutional arrangement such as the procurement market to reshape the commodity

chain. Indeed, procurement allows us to imagine potential pathways to reframe food security. In general, procurement is required “to timely meet user minimum needs with the delivery of best-value products or services, while ensuring the highest standards of integrity in order to values of products and services had been determined by a price which was set in a free market maintain the public’s trust and fulfil state and local government public policy objectives” [39]. Until the beginning of the 2000s, values of products and services had been determined by a price which was set in a free market, and governments often privatized the procurement operation. However, after the global financial crisis, the free-market principle of government procurement was revised. In 2011, the World Trade Organization (WTO), which gives guidelines for government procurement, declared that the procurement market led by the government needs to be expanded into food purchasing for public services. This move at the WTO was described as being “historical” since the international organization had been famous for being the principal promoter of the globalized free-market economy [40].

Operating outside the free market, food procurement entails creation of new values attached to food and the commodity chain. Green and fair trade products have emerged in this context. These products are imbued with environmental or social values based on the social aspirations of those who produce, distribute, and consume food, undergirded by their unique life histories [41]. The measures to set quality standards and certification work to institutionalize the new values, and private businesses are increasingly required to adopt these measures and become socially and developmentally responsible [42].

In sum, efforts to reframe food security are leading to the creation and institutionalization of new values attached to food. Mainstreaming this process requires more robust innovations in current institutions of governance, to make the food commodity chain attentive to the demands of producers, especially small farmers, as well as consumers. To this end, governments, businesses, scientists, and development actors must shape collaborative relationships.

### **Institutional Innovations**

A recent study on global governance of food security clarifies that, in spite of the renewed international development agenda to improve food security, decision-making powers at the international level, namely G20 countries, are extremely reluctant to engage in reforming the conventional approaches to food security, as the reform requires structural change in how the free market currently operates [43]. While citizen participation in the food commodity chain is becoming active in these countries, the food sovereignty agenda is still largely neglected from the world food security debate. On the other hand, even proponents of the need to innovate global food governance are largely focusing on consumer concerns in

developed countries, which undermine the importance of addressing food sovereignty as reframed food security and as what tightens the link between developing and developed communities [44].

In fact, as the Brazilian case has shown, “interstitial innovations” have been emerging from the existing alternative movements and responsive governments, which came to shape reflexive governance [45]. Institutional innovations indicate that, ultimately, there need to be institutional arrangements to recognize and take up such experiences of interstitial innovations and use the innovations to transform the larger context of food governance. In order to imagine the transformation, we need to explore different case studies on alternative movements and their roles in creating new values along food commodity chains. Recent studies have suggested that in order to make food governance more reflexive and “adaptive,” political capital needs to be distributed across different communities involved in production, distribution, and consumption of food [46].

More specifically, at the site of production, institutions to facilitate a participatory experiment of agrobiodiversity should be consolidated, through which scientists would engage with the small farmers in diffusing local knowledge [47]. The scientific legitimization of the small farmers’ knowledge and practice should then lead to adaptive technologies to improve the quality and quantity of produced food. Intermediating actors such as businesses need institutional arrangements to add value to the sustainability and quality of food, and this added value should ultimately benefit the farmers as well as consumers. At the site of consumption, institutional arrangements need to work to inform consumers of the benefit of new values attached to food. For example, food education has the potential to nurture new knowledge on the cultural background within which the food is produced and influences public health [48].

In other words, in order to mainstream the alternative approaches, we must envisage institutional innovations that will influence an entire food system and commodity chain, involving ordinary citizens and key actors in the agriculture, science, business, education, and health sectors. This indicates that the capacity of each development community to shape multi-actor collaboration needs to be advanced in order to fully connect good-quality food production with a larger context of sustainable consumption [49]. Such a capacity essentially indicates the reflexivity of each actor and community member to appreciate their own and other’s knowledge and experience and the need to share the reflection with others to decide on the next course of action [12]. The international development agenda for food security could be more engaging in supporting training and educational programs and multi-actor platforms at local and national levels to facilitate this reflexive process.

Though incrementally, the reflexivity-oriented institutional innovation will eventually lead to transformative change of



food governance [50]. Increasing numbers of studies are currently indicating the potential trend, as new food regimens are being imagined [51]. After all, full reframing of food security is only possible through transformation of the very structures that have been causing food insecurity in the first place.

## Conclusion

The principal objective of this article was to review conventional and alternative approaches to improving farming practices and access to food in developing communities by looking into the debates about food security. It showed that citizen participation in addressing sustainability and quality of food production and consumption has worked to contest the conventional, quantity-oriented agricultural development model and led to the shaping of alternative movements that actively align food security with sustainable farming practices. Particular attention was paid to agrodiversity and food sovereignty as representative alternative movements.

The article has shown that, while technology and the science of improving agricultural productivity continue to be at the core of food security debates, agrodiversity generates multiple benefits for small farmers. Thus, scientists and businesses need to take small farmers' traditional knowledge seriously and promote the technology that is adaptive to their developmental and environmental conditions. Facilitating the technological development, policy reform is necessary in order to put agrodiversity firmly in place.

In demanding this reform, food sovereignty has emerged as a strong driver to reframing the entire food security debate. Drawing on a review of food sovereignty in practice, the article argues that food security is indeed a multidimensional issue [2], and entails robust institutional innovations underpinned by reflexivity and knowledge sharing of citizens and a wide range of development actors. Current research on food security increasingly elaborates on various case studies of such reflexivity-oriented institutional innovations and envisages potential pathways to transform food governance. Researchers should collectively demand institutional innovation to advance the analyses of this transformative change so that we can more fruitfully engage in reframing the food security debate and contribute to the improvement of food practice more broadly.

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