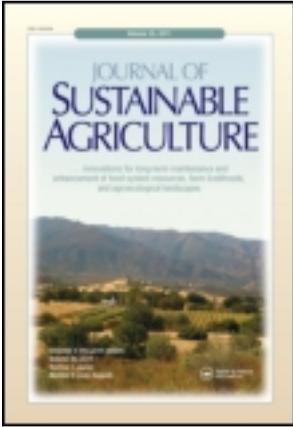


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## Agroecology, Food Sovereignty, and the New Green Revolution

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*In the face of recurrent global food crises, institutions of the corporate food regime propose a new Green Revolution coupled with a continuation of neoliberal economic policies. Because these are causes of the crises to begin with, this approach can worsen rather than end hunger. Building a countermovement depends in part on forging strong strategic alliances between agroecology and food sovereignty. Agroecologists face important choices between reformist and radical versions of agroecology. The former version attempts to co-opt agroecology into the Green Revolution; the latter centers agroecology within a politically transformative peasant movement for food sovereignty.*

**KEYWORDS** *agroecology, food sovereignty green revolution, neoliberalism, countermovement*

### HUNGER, THE CORPORATE FOOD REGIME, AND THE RETURN OF THE GREEN REVOLUTION

The global food crisis of 2008 returned in 2010 with devastating impacts on the world's poor—most of whom are peasant farmers (Collier 2008; Food and Agriculture Organization of the United Nations [FAO] 2011). Hunger resulted not from a lack of global food stocks but from food price inflation (Bailey 2011; Brown 2011). Volatility and high food prices have led institutions in the *corporate food regime* to call for a 70% increase in food production by 2050 (Conforti 2010; FAO 2011).

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A food regime is a “rule governed structure of production and consumption of food on a world scale” (quoted in in McMichael 2007). The present corporate food regime (McMichael 2009) is made up of the global food system’s government ministries, global institutions, agri-food monopolies, land grant universities, think tanks, and big philanthropy that generate the technologies, the discourse, and enforce the regime’s “rules” (e.g., free trade agreements, the U.S. Farm Bill and the European Common Agricultural Policy [CAP]).<sup>1</sup>

With the food crisis, international institutions produced a steady stream of assessments calling for investment in biotechnology and a new Green Revolution (Von Braun 2007; World Bank 2007; Bertini and Glickman 2008; Baulcombe et al. 2009; McIntire et al. 2009; Beddington 2011). With the notable exception of the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD)—these reports rest on several problematic suppositions: that grain-fed meat consumption will expand in emerging economies; that arable land will be diverted to agro-fuels; that financial speculation and price volatility in food commodities will continue unchecked; that production increases depend on transgenic, proprietary technologies and external inputs; and that liberalized, global trade is essential to food security.

These suppositions buttress the political-economic assertion behind the 70% by 2050 call: It is not proprietary, Green Revolution agriculture and liberalized global markets that have caused the food crises per se, but their inefficient or inadequate *application*. Therefore, the solution is to do more of the same, over a greater area, more efficiently.

As Amin (2011) indicates, this neoliberal strategy is,

[Supported] by the “absolute and superior rationale” of economic management based on the private and exclusive ownership of the means of production. . . . According to this principle, land and labor become merchandise like any other commodity, and are transferable at the market price in order to guarantee their best use for their owners and for society as a whole. This is nothing but a mere tautology, yet it is the one upon which all critical economic discourse is based.

Faced with stagnant global economic growth, this paradigm views the peasantry as a site for “accumulation by dispossession” (Harvey 2005, 137), and as a sector for potential market expansion. Because their numbers are growing at 8% a year, market access to the 2.5 billion farmers at the “base of the pyramid” has become attractive for global capital (World Economic Forum; Boston Consulting Group 2009).

As in the 1960–1980s, capital’s key to the peasantry’s land, factor, and commodity markets is, once again, the Green Revolution. Similar to the role once played by the Ford and Rockefeller foundations, the Bill and Melinda Gates Foundation is the Green Revolution’s new philanthropic

flagship, tasked with resurrecting the Consultative Group on International Agricultural Research (CGIAR) and obtaining broad social, financial, and government agreement (Holt-Giménez 2008; Patel et al. 2009). The new “Doubly Green Revolution” (Conway 1997), retains the same proprietary genetic foundations as the original Green Revolution, but has added transgenic technologies, global markets, environmental concerns, and a leading role for the private sector. The U.S. Agency for International Development’s Feed the Future, the Gates Foundation’s Alliance for a Green Revolution in Africa (AGRA), and industry’s New Vision for African Agriculture initiatives, for example, feature value chains, public-private partnerships, micro-finance, village “agro-dealers” and smallholder contract farming (Gates Foundation 2008; World Economic Forum 2009).

Widespread social, environmental, and agricultural critiques of the Green Revolution notwithstanding (see Freebairn 1995; Bello 2009; Holt-Giménez et al. 2009; Magdoff and Tokar 2010; Soil Association 2010; Toulmin et al. 2011; Winders 2009; Wittman et al. 2010), food regime institutions have steadily converged around the new Green Revolution agenda.

#### PEASANT AGRICULTURE AND AGROECOLOGY: A MEANS AND A BARRIER FOR THE GREEN REVOLUTION

The planet’s smallholders and the practice of agroecology both constitute *a means and a barrier* to the expansion of capitalist agriculture. Smallholders subsidize capitalist agriculture with cheap labor and supply a vast, low-end factor market. This functional dualism between peasant and capital-intensive agriculture accelerates industrial expansion, resulting in the differentiation and displacement of the peasantry and the subsumption of peasant agriculture to capitalist agriculture (De Janvry 1981). At the same time, family labor, small farm size, diversified farming and knowledge systems, and smallholder’s pluriactive livelihood strategies preserve peasant farming systems, presenting barriers and competition for capitalist agriculture (Wilken 1988; Netting 1993), and resulting in the “persistence of the peasantry” (Edelman 2000, 14; see also van der Ploeg 2010).

Traditional agriculture was the cultural and ecological basis for the development of agroecology as a science (Altieri 1995; Gliessman 2007). Because it is rooted in smallholder systems and relies on agroecosystem management rather than external inputs, agroecology is also a barrier to Green Revolution technologies. Agroecology is knowledge intensive (rather than capital intensive), tends toward small, highly diversified farms, and emphasizes the ability of local communities to generate and scale-up innovations through farmer-to-farmer research and extension approaches (Holt-Giménez 2006).

The first Green Revolution drew in millions of smallholders, many of whom were forced out of farming by larger, better capitalized farmers, or

went bankrupt after their soils became sterile and subsidized credit disappeared (see Hewitt de Alcántara 1976; Shiva 1991). Over 70% of the world's agrobiodiversity—largely held in situ in smallholder agroecosystems—was lost from farming (FAO 2009). When smallholder farms began crashing under Green Revolution methods in the 1970s, many farmers turned to agroecology in an effort to restore soil organic matter, conserve water, restore agrobiodiversity, and manage pests (Altieri 2004). Since the early 1980s, hundreds of nongovernmental organizations (NGOs) in Africa, Latin America, and Asia have promoted thousands of agroecology projects that incorporate elements of traditional knowledge and modern agroecological science (Pretty 1995; Altieri et al. 1998; Uphoff 2002). With the growing food, fuel, and climate crises, the importance of the ecological and social services provided by agroecological peasant agriculture are becoming widely recognized (Holt-Giménez 2002; De Schutter 2010).

In Latin America, the expansion of agroecology has produced cognitive, technological, and sociopolitical innovations, intimately linked to new political scenarios such as the emergence of progressive governments in Ecuador, Bolivia, and Brazil, and peasants/indigenous resistance movements (Ruiz-Rosado 2006; Toledo 1995). Thus, agroecology's "epistemological, technical and social revolution" is mutually constitutive with social movements and political processes "from below" (Altieri and Toledo 2011, 587).

While the Green Revolution has been "greening" itself since its highly publicized renewal (Consultative Group on International Agricultural Research 1997), its champions have criticized agroecology's alleged low productivity and for not "scaling up." These criticisms ignore the evidence demonstrating the high productivity and resilience of agroecologically managed peasant agriculture (Pretty 1995; Holt-Giménez 2002; Badgley et al. 2009; Pretty and Hine 2000), and forget that scaling up the first Green Revolution required the massive structural mobilization of state and private-sector resources (Jennings 1988).

While agroecology has spread widely through the efforts of NGOs, farmers' movements and university projects, it remains marginal to official agricultural development plans and is dwarfed by the resources provided to the Green Revolution. In contrast, the remarkable scaling up of agroecology in Cuba stems, in large part, from the government's strong structural support (Rosset et al. 2011). Asking "Why can't agroecology scale up?" begs the question, "What is holding agroecology back?"

## THE GREEN REVOLUTION AND AGROECOLOGY: MARRIAGE OR FUNCTIONAL DUALISM?

Given its popularity and its potential, some governments, universities, and even big philanthropy are selectively incorporating technical aspects of agroecology that do not challenge the politics of the Green Revolution.

Some organic farmers (Roland and Adamchak 2009) and ecologists (Foley 2011) suggest that a marriage between agroecology, organic farming, and biotechnology can close yield gaps while reducing industrial agriculture's environmental footprint through sustainable intensification, for example, increasing efficiency of inputs and/or deploying climate-smart genetic varieties (Royal Society 2009). The Gates Foundation (2008) is adding-on integrated soil fertility management to its. Advocates for these approaches suggest that because of the severity of the food crisis, we need all solutions that is, productive genetically modified organisms (GMOs) and unproductive (but greener) agroecological practices (Gates 2009). Invariably, agroecology receives a fraction of the funding provided to Green Revolution technologies (GM Freeze 2011). Agroecology is further subordinated to conventional agriculture by revisionist academic projects that erase its history, stripping it of its political content (e.g., Tomich et al. 2011). By co-opting agroecology, relegating it to the margins of science and niche markets of the corporate food regime, these strategies advance a form of "functional dualism" (De Janvry 1981, 174)

## AGROECOLOGY AND FOOD SOVEREIGNTY MOVEMENTS

A new Green Revolution could conceivably concentrate food production on some 50,000 industrial farms worldwide (Amin 2011). Given the best land, subsidized inputs, and favorable market access, these farms could produce the world's food (although not very sustainably). But how would 2.5 billion displaced smallholders buy this food? The alternative—smallholder-driven agroecological agriculture—was recognized by the authors of the International Agricultural Assessment of Knowledge Science and Technology for Development (IAASTD) as the best strategy for rebuilding agriculture and ending rural poverty and hunger,

[The wealth] of agricultural knowledge, science, and technology (AKST) the world has built up . . . should be targeted toward agroecology strategies that combine productivity with protecting natural resources like soils, water, forests, and biodiversity. In particular, the research and development efforts must now target and include in a participatory manner small-scale and family farmers, since they make up the major part of the poor and hungry, while they also represent the major part of the stewards for the environment. Agricultural practices like organic, biodynamic, conservation, and agroecological are . . . options that address the main constraints to food and nutrition security as well as food sovereignty issues. (Herren and Hilmi 2011)

To be an effective strategy, major changes must be made in policies, institutions, and research priorities to create an enabling environment for peasant-based, agroecological development. This transformation will likely

require a combination of extensive on-the-ground agroecological practice *and* strong political will to overcome opposition and co-optation from the Green Revolution.

### What Could Bring About the Political Will?

Smallholders working with movements like *Campesino a Campesino* (Farmer to Farmer) of Latin America, and NGO networks for farmer-led sustainable agriculture like Participatory Land Use Management (PELUM) of Africa, have restored degraded farmland using highly effective agroecological practices on hundreds of thousands of acres of land (Holt-Giménez 2006; Wilson 2011).

At the same time, peasant organizations fighting for agrarian reform have confronted commodity dumping, market-based land reform and more recently, extensive land grabs (Rosset et al. 2006; Borras and Franco 2012). The international peasant federation La Via Campesina has called for *food sovereignty*, “The right of people’s to healthy and culturally appropriate food, produced through ecologically sound and sustainable methods, and their right to define their own food and agricultural systems” (quoted in Patel 2009, 666). The cross-border globalization of these movements (Keck and Sikkink 1998) responds in part to the intensification of capital’s enclosures and is partly a strategic decision to engage in global advocacy (Borras 2004).

The need for structural support for smallholders in locally based agroecology networks, and the globalized agrarian demands of the food sovereignty movement are complementary areas of strategic synergy (Holt-Giménez et al. 2010). The food crisis is drawing them toward convergence.

When NGO federation PELUM brought over 300 farmer-extensionists to Johannesburg to speak on agroecology at the World Summit on Sustainable Development, farmers formed the Eastern and Southern Africa Farmers Forum to address agrarian issues (Wilson 2011). Following the Rome food crisis meeting in 2008, La Via Campesina met in Mozambique where they signed a declaration for a smallholder’s agroecological solution to the food crisis. Developments like this (and many others) suggest that the international call for food sovereignty is beginning to take root in smallholder agroecology networks. Similarly, La Via Campesina is steadily spreading agroecological approaches throughout its own farmer organizations (Martínez-Torres and Rosset 2010; Via Campesina 2010).

As local networks for agroecological practice merge with the transnational agrarian movements for food sovereignty they generate massive social pressure—pressure that is needed to tip the scales of political will in favor of food sovereignty and agroecology. This pressure can take the form of constitutional reform, for example, Ecuador’s food sovereignty law (Patel 2009), grassroots campaigns and civil society declarations linking agroecological practice to political practice (La Via Campesina 2012) or the

adoption of agroecology as a development strategy for example Brazilian Landless Worker's Movement's schools and training programs.

However, this convergence faces historical divisions between agrarian-based farmer organizations and the NGO-based agroecology networks. The latter are more easily co-opted into technical and apolitical approaches to agricultural development. This has led long-time agroecology practitioners to call for a shift in NGO behavior and priorities, from technology-led agendas, to strategies that support farmer-led political organizations (Batta et al. 2011).

The call for strategic alliances also comes from peasant leaders. Alberto Gómez of Mexico's National Union of Peasant Organizations (UNORCA) affirms, "We have to form alliances with technicians or with NGOs that complement our activities . . . our struggle is not only in the political arena, in movement building, it's also about building local alternatives. It is about creating a different context for agriculture and peasant life. In this sense there are complementarities" (quoted in Holt-Giménez et al. 2010, 228).

## DISCUSSION

Like the capitalist economic system, the corporate food regime goes through periods of *liberalization* characterized by unregulated markets and massive capital concentration, followed by devastating busts and social upheaval. These are followed by *reformist* periods in which markets are regulated in an effort to restabilize the regime. While these phases appear politically distinct, they are actually two sides of the same system. As Polanyi (1944) observed, if unregulated capitalist markets ran rampant indefinitely, they would eventually destroy the social and natural resource base of capitalist production. However, necessary reforms do not result from the good intentions of reformists. As liberal markets undermine society and environment, social conditions deteriorate, giving rise to strong countermovements that force governments to reform their markets and institutions.

Holt-Giménez and Shattuck (2011) identify Neoliberal and Reformist trends within the corporate food regime. Both share a power base rooted in G-8 governments (United Kingdom, United States, France, Italy, Germany, Japan, Canada, and Russia), multilateral institutions, monopoly corporations, and big philanthropy. The neoliberal trend is hegemonic, grounded in economic liberalism, driven by corporate agri-food monopolies, and managed by institutions such as the U.S. Department of Agriculture (under Secretary of Agriculture Tom Vilsack), the CAP, the World Trade Organization, the private sector financing arm of the World Bank (International Finance Corporation), and the International Monetary Fund's. The reformist trend is much weaker and managed by subordinate branches of the same institutions (e.g., Deputy Secretary of Agriculture Kathleen Merrigan, and the public sector financing arm of the World Bank).

While the mission of reform is to mitigate the excesses of the market, its “job” is identical to that of the neoliberal trend: the reproduction of the corporate food regime. Reformists call for mild reforms like social safety nets, fair trade and organic niche markets, and apolitical, technology-focused renderings of agroecology.

Global food movements are characterized by two major trends: progressive and radical. Many actors within the progressive trend advance practical alternatives to industrial agri-foods, such as sustainable, agroecological, and organic agriculture. The radical trend also calls for practical alternatives, but focuses more on structural reforms to markets and property regimes, and class-based, redistributive demands for land, water, and resources, that is, food sovereignty (Holt-Giménez and Shattuck 2011).

Partly due to its academic and NGO-based history, agroecology has largely resided within the progressive trend. As such, agroecology is exposed to financial and political cooptation from the food regime’s reformist projects. Nonetheless, many agroecologists work with radical peasant organizations and identify with food sovereignty. Radical, movement-based agroecology is shunned by the food regime in favor of de-politicized and project-based agroecology that is easily subsumed under Green Revolution agendas. Given the political and financial power of the corporate food regime, many academic programs and NGOs “follow the money” in difficult economic times, de-politicizing their work and accommodating to Green Revolution and global market objectives. However, the unchecked neoliberal expansion of industrial agriculture also radicalizes agriculture (and agroecology) on the ground, as smallholders fight for survival.

## CONCLUSION: PREVENTING COOPTATION, STRENGTHENING AGROECOLOGY

The functional dualism of capitalist agriculture utilizes the new Green Revolution to convert smallholders and agroecology into means (rather than barriers) for the expansion of industrial agriculture. The resulting neoliberal enclosure of seeds, land, and markets will likely destroy the livelihoods of most of the planet’s 2.5 billion smallholders, further reduce agro biodiversity and severely weaken global agroecosystem resilience. These developments will increase global hunger and limit our ability to mitigate and cope with climate change.

Agroecology has a pivotal role to play in the future of our food systems. If agroecology is co-opted by reformist trends in the Green Revolution, the corporate food regime will likely be strengthened, the countermovement weakened, and substantive reforms to the corporate food regime unlikely. However, if agroecologists build strategic alliances with Radical food sovereignty struggles, the countermovement to the corporate food

regime could be strengthened. A strong countermovement could generate considerable political will for the transformative reform of our food systems. The livelihoods of smallholders, the elimination of hunger, the restoration of the planet's agrobiodiversity and agroecosystem resilience would all be better served under this scenario.

## NOTE

1. The construction of the corporate food regime began in the 1960s with the Green Revolution that spread the high-external input, industrial model of agricultural production to the Global South. The World Bank and International Monetary Fund's structural adjustment policies (SAPs) followed in the 1980s, privatizing state agencies, removing barriers to northern capital flows, and dumping subsidized grain into the Global South. The free trade agreements of the 1990s and the World Trade Organization enshrined SAPs within international treaties. The cumulative result was massive peasant displacement, the consolidation of the global agri-food oligopolies and a shift in the global flow of food: While developing countries produced a billion dollar yearly surplus in the 1970s, by 2004, they were importing US\$ 11 billion a year (Holt-Giménez et al., 2009).

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