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# Agroecological Innovation

## Decentralizing Knowledge and Democratizing Brazil's Agrifood Economy

Modernist agendas to centralize and standardize knowledge have facilitated the dual exploitation of people and nature, while instrumentally framing them as labor and natural resources, respectively. Neocolonial regimes have centralized extractivist strategies to plunder the land, especially through minerals and agro-industrial primary products for export. Claims to modernize production through technoscientific knowledge have sanitized this plunder as efficient, enlightened progress. It appropriates, marginalizes, or devalues other knowledges, meanwhile obscuring their epistemic contribution. This capitalist modernity extends an earlier coloniality imposing exploitative relationships; in response, subaltern voices and practices often contest them (Mignolo 2000).

As Linda Martín Alcoff notes: Resource-extraction agendas transform economies, political-legal institutions, and the organization of labor, thus rupturing earlier social identities and communal relations. An extractivist epistemology treats its epistemic resource as separable from its origin. Moreover, even knowledge can become a commodity with exchange value, whose exclusive rights can be contractually defined, protected, and enforced (Alcoff 2022, 213; reprinted in this volume as chapter 1).

*Epistemic extractivism* describes how modern science has appropriated knowledge and erased the historical memory of its noncapitalist sources, while also preempting alternative futures (Grosfoguel 2019). Such plunder has often marginalized subaltern social groups or even eliminated them. This has destroyed the knowledge of peasant, indigenous, and Afro-descendant

groups. “This epistemicide is the death of peoples. The university owes an historical debt for having produced this epistemicide” (de Sousa Santos 2009, 123).

As a further stage since the 1980s, the old concept of efficiency has become debased by serving external values of neoliberal globalization rather than local needs. Moreover, “the discursive hegemonic model of neoliberalism, protected by modernization and efficiency, has demanded that the university adapt to it” (de Sousa Santos 2009, 94). Consequently, the university has been a focal point of struggles over knowledge politics.

For contesting modern science as a monoculture, a key concept has been *ecología de saberes*, ecology of knowledge. This promotes dynamic interactions among plural, heterogeneous knowledges, without undermining their autonomy (de Sousa Santos 2007, 85). Articulating diverse knowledges helps to imagine alternative forms of awareness and life (de Sousa Santos 2009, 14).

A new opportunity came with Bolivia’s 2009 Constitution for a plural-national state, recognizing indigenous peasant cultures and communitarian economies. The Constitution provided for decentralizing the nation-state through the regional departments, which could create more favorable conditions for research agendas to accommodate local demands (de Sousa Santos 2009, 82–83). As it turned out, this happened only in departments whose governments accommodated peasant movements, while others promoted neocolonial agendas with their hegemonic knowledges.

Alongside its extractivist agenda, epistemic centralization has provoked widespread resistance, counterhegemonic concepts, and alternative agendas. As one form, epistemic decentralization expresses efforts to shift epistemic agency from the centered networks, institutions, and technologies to the peripheries. This often happens through socioenvironmental conflicts and/or socio-technical controversies. They decentralize local knowledge, activate citizens and governments, and contribute to the production of sociopolitical changes that generate decentralized agendas linking local priorities with global agendas (introduction, this volume).

Through such efforts, the global has been given counterhegemonic meanings, linking social movements transnationally. The center/periphery binary originally highlighted neocolonial relationships between the Global North and South. That binary has increasingly described neocolonial relationships within countries, as their governments have extended or replicated northern extractivist agendas in their own country. Decolonial responses have linked various resistances within and across countries.

Neocolonial epistemic politics have been contested and theorized, especially in Latin America (as in citations above). Counterhegemonic concepts emerged there over several decades from networks of social movements, practitioners, and academics; they jointly contributed to Latin American critical thought. This has critically analyzed the Eurocentric neocolonial meanings and roles of hegemonic concepts, such as modernity, modernization, technology, innovation, territorial development, nature protection, and so on. To counter their role, decolonial counterhegemonic concepts have been elaborated (e.g., Haesbaert 2021; Lander 2001; Miguelo and Walsh 2008).

Latin American critical thought links three perspectives: the close relationships between humans and the land they inhabit, countering the terra nullius justification for colonialism; the prime importance of traditional knowledge for current alternatives; and the relationship between agroecological practices and decolonial struggle (Rosset et al. 2021). Indeed, an agroecology-based solidarity economy has devised counterhegemonic agendas for decentralizing and democratizing knowledge. Such efforts have influenced some government policies, state agencies, and their support measures, with wider lessons for institutional strategies, as this chapter demonstrates for Brazil.

This chapter deals with three research questions: (1) How has the neocolonial modernization project, along with its epistemic centralization, encountered popular resistance, especially from solidarity economy networks? (2) How have they counterposed alternative agendas and gained some influence within institutions? (3) Toward an agroecology-based solidarity economy, how does agroecological innovation attempt to democratize the economy and decentralize knowledge?

Here those questions will be answered for Brazil in its Latin American context. This chapter has the following structure. The first section discusses Latin America's solidarity economy agenda as a means to link economic democratization and epistemic decentralization, especially from a decolonial perspective. The second section covers rival agrifood agendas: agro-industrial versus agroecological, especially in Brazil. The third section describes Brazil's convergence between *economia solidaria* and agroecological innovation, linking democratization with decentralization. The conclusion answers the research questions.

The chapter emphasizes Latin American concepts, especially from Brazil. The author searched for the terms *epistemic* and *decentralization*,

which have a rich history over the past two decades. These concepts have provided a basis for EcoSol-agroecology agendas. Quotes and paraphrases should help readers to understand the connection. All those sources have been translated by the author.

### *Economía Solidaria* (EcoSol): Decentralizing Knowledge

Solidarity economy movements have promoted a worldwide agenda to transform economic activity and knowledge along democratic lines (Utting 2018). These movements have promoted mutual aid activities seeking to improve livelihoods, while bypassing profit-driven middlemen and markets. This agenda develops “a framework for *horizontal* relations between persons and social collectives in their quest to satisfy their common needs.” The agenda emphasizes women’s leadership toward overcoming women’s socioeconomic inequalities, especially in the informal economy (RIPESS 2015, 2–5; see also RIPESS 2012).

This agenda faces major obstacles, especially the *homo economicus* model, Cartesian dichotomy, and logical-positivist epistemology. All these constrain our abilities to understand economic alternatives based on other rationalities. Hence the need for an epistemological transformation alongside a practical one. This must go beyond the stereotypical binary of rational/affective capacities (Dash 2014, 2016), and likewise beyond the “iron cage” of instrumental rationality (Leff 2009). This denotes instrumental decision-making based on rational calculation of what would be materially beneficial. The term *iron cage* comes from Talcott Parsons’s loose translation of “a shell as hard as steel” from Max Weber’s (1930) book, *The Protestant Ethic and the Spirit of Capitalism*.

In Latin America the solidarity economy is called *Economía Social y Solidaria* (ESS), or often EcoSol for short. The EcoSol agenda has built cooperative relationships among economic activities, while gaining collective capacities for democratic self-management (dos Santos and Carneiro 2008; Schütztz and Gaiger 2006; Singer and Souza 2000). This alternative also depends on mobilizations demanding better public services, support measures, and labor protections (Coraggio 2016, 24).

Short supply chains, often called *circuitos curtos*, bring producers closer to consumers while avoiding profit-driven middlemen. The term *curto* (short) denotes the social proximity of mutual aid and reciprocity. This agenda has given

practical meaning to calls for epistemic decentralization through alternatives to the dominant capital-intensive modernization model of development.

Early on, Brazil's EcoSol movement contributed to the wider movement against the military junta of 1964–85. Looking beyond the junta, the movement sought to ensure a continuous democratization process, seeing decentralization as a crucial means. This aim was somewhat accommodated by a state commitment to multilevel democratization. The postjunta Constitution affirmed “political-economic decentralization, encompassing the coordination and general norms in the federal sphere and the coordination and execution of the respective programs in the state and municipal spheres, as well as social assistance charities” (Brazil 1988, Article 204).

Democratizing social assistance would accommodate criticisms of the prevalent *assistencialista* approach, which perpetuated the needy condition of the people receiving assistance. Critics counterposed a solidaristic approach helping beneficiaries to gain autonomy to follow their own pathway. As a turning point, the 1993 Lei Orgânica de Assistência Social (LOAS) reformed social assistance according to the Constitution's principles of democratization and decentralization. The challenge to establish democratic, horizontal forms was taken up by the network of public policy managers advocating a solidarity economy (Rede de Gestores 2008).

Knowledge exchange among diverse cultures has been crucial for a solidarity economy: “To elaborate proposals that contribute to an EcoSol public politics requires us to observe the diverse complexity of experiments that express and, at the same time, represent means to cultivate and make enjoyable the diverse forms of production and its understanding, based on diverse cultural patterns, which otherwise define the necessities, abandon the materialistic and instrumental culture, and establish other relationships between human beings and nature. The alternative sources of knowledge are stimulated by alternative sources of production” (de Sousa Santos and Rodriguez 2002).

From a critical epistemological perspective, the concept of social management points toward management organization from the bottom up through horizontal decision-making (Monje-Reyes 2011, 705). “Examining the epistemological bases of the solidarity economy and its articulating conceptual link to socio-politico-economic decentralization, its conceptual link is workers' participation in their own decisions about production and distribution of its results. Therefore it is a form of productive organization highly linked with participatory and protagonistic democracy of the social subjects” (Monje-Reyes 2011, 720–21).

Influenced by indigenous and subaltern cultures, this Latin American epistemology is often called *sentipensante*, combining the heart (*corazón*) with the thought process (Fals-Borda 2008). Here the heart constitutes the ontological core of a worldview proper to Latin American epistemologies. Those aspects have been conceptualized as the epistemic paradigm of the countryside (Barbosa 2016), involving defense of territories and of Tierra Madre, in both a communal and agroecological sense (Barbosa 2019). This cultivates agrobiodiversity together with ethno-cultural diversity (Leff 2001). This inner connection is conceptualized as agro-socio-biodiversity, rich knowledge systems that are maintained by farmers' everyday social role in generating and managing biodiversity; this helps to resist its degradation by agribusiness (Schmitt 2018, 2, 10).

The EcoSol-agroecology convergence has been informed likewise by the Andean concept of *vivir bien*: that humans should live in harmony with each other and with Tierra Madre, respecting her rights. The concept originates from indigenous Andean languages (Bolivia 2009). It counters reductionist binaries, such as nature/culture and subject/object, which pervade the European/northern thought underlying the dominant agrifood system (Rosset et al. 2021, 638–39). *Vivir bien* promotes an ideal future, linking and inspiring current practices that resist the dominant forces threatening such harmony.

## Rival Agrifood Models

The above perspectives link economic democracy and epistemic decentralization of producers for a decolonial empowerment vis-à-vis the dominant agrifood system. All this provides a deep cultural basis for EcoSol-agroecology agendas in Latin America, amid conflicts between rival agrifood systems. This section sketches how the dominant model has provoked resistance and such alternatives there, especially in Brazil.

### *Contested Agro-Industrial Food System: Inequitable Modernization*

As the global context for such conflicts, the agricultural modernization agenda has fundamentally transformed farmers' relationships with nature, land, and consumers. It has shifted farmers' practices toward more complex technological tools and institutional arrangements seeking a competitive advantage in distant markets. State and corporate structures have centrally

planned a societal change that conceives farmers and their communities as passive receptacles for new ways to do agriculture—rather than as social actors bringing their own projects, capacities, and trajectories (Long and van der Ploeg 2011; van der Ploeg and van Dijk 1995).

The dominant system structures production for a competitive advantage in distant anonymous markets. It combines capital-intensive innovation, a techno-diffusionist centralized model of expert knowledge, resource plunder, and globalized supply chains for standard commodity crops. This system has undermined producers' livelihoods, exhausted natural resources, and degraded food quality via ultra-processing, especially in the Global South.

Whenever small-scale producers have attempted to imitate or accommodate this model, male farmers have more easily accessed loans to buy technology packages and then awaited payments for the harvest. But they face structural disadvantages in competing on the same terms; they lose much of the value added to profit-driven middlemen. Some have incurred long-term debt and abandoned farming.

Throughout Latin America in particular, agro-industrial systems have led farmers into capital-intensive monocultures and agrochemical inputs, degrading the natural resource base. In many places, such systems have undermined small-scale producers, their livelihoods, traditional knowledge, land rights, and locally developed biodiverse seeds (PIADAL 2013). Despite this damage, Latin American governments have generally promoted such systems.

Brazil's agri-modernization agenda has had several stages. During 1964–85, the military junta promoted technology packages and loans benefiting mainly larger-scale farmers to increase productivity for export markets; this so-called conservative modernization constrained the agrarian reform objectives to broaden land tenure. In the early 1990s, the postjunta government identified 2.4 million agricultural units able to achieve a “family farm transition” to modern agriculture by imitating large-scale agro-industrial methods. It categorized approximately half the family farms as “transition family farming,” that is, conducive to modernization (Guanziroli, Buainain, and Sabbato 2013).

From 1995 onward, Brazil's PRONAF (National Program for Strengthening Family Farming) funded and encouraged such peasants to imitate the capital-intensive methods of large farms. Through chemical-intensive technology packages, PRONAF meant to increase productivity, alleviate poverty, and enhance food security. This techno-diffusionist development model has dominated rural extension services. Agricultural knowledge

always comes from producers, yet techno-diffusionism reserves this capacity to a few experts, thus wasting the cognitive capacities inherent in everyone. This resulted in technological dependence, which “translates into cultural dependence, immobilizing local autonomous innovation capacities, thus diminishing the manoeuvre-room of rural families and communities for self-determination through a permanent implementation of their technical-economic strategies” (ANA 2007, 7).

Benefiting from those policies, Brazil’s large agro-industrial chemical-intensive farms hold most of the land but produce mainly export commodities (IBGE 2006, 2017). By contrast, Brazil’s 4.4 million family farms comprise 85 percent of agricultural establishments; they use less than 25 percent of the agricultural land to produce 70 percent of the food consumed nationally. Some have adopted capital-intensive methods similar to agribusiness, yet most still continue traditional practices. Such smallholders still produce most of the food that is sold by wholesalers through supermarket chains and outdoor markets; those middlemen keep consumers separate from producers, who lose much of the sale price.

This outcome has been analyzed as a “new unequal modernization,” aggravating social exclusion and regional inequalities (Tonneau, de Aquino, and Teixeira 2005). Most peasants have faced structural constraints in gaining the promised benefits. Hence various studies have recommended more appropriate support measures for the majority of farmers who cannot or will not follow the capital-intensive agri-modernization pathway (Cabral et al. 2016; Medina et al. 2015).

### *Agroecological Alternatives as Epistemic Decentralization in Latin America*

Given the many harms from the hegemonic system, more peasants have been rejecting the prevalent language of modernization, efficiency, productivity, economies of scale, trade liberalization, free markets, and so on. They seek relative autonomy from competitive markets for credit, inputs, and outputs (Rosset and Martínez-Torres 2012, 17). Such movements have opposed a rural development model that seeks to industrialize agriculture and thus “modernise the countryside to bring it out of backwardness,” as Caporal and Costabeber (2004, 6) put it sarcastically.

As a significant alternative to the hegemonic system, preindustrial cultivation methods have been reconceptualized and popularized as agroecological. These have been improved through agro-innovations in-



**Figure 7.1** “Ecology of Knowledge: Science, Culture and Art,” poster, 2019. The illustration shows how agroecology movements seek to democratize knowledge and agrifood systems. Source: XI Congresso Brasileiro de Agroecologia, Universidade Federal de Sergipe (UFS).

tegrating traditional and modern scientific knowledge of agroecosystems, which depend on biodiverse ecological relationships within and beyond a farm. As an organizational innovation, short supply chains have built closer relations between small-scale agroecological producers and consumers, who thereby support the production methods.

These agroecological initiatives exemplify territorial markets that specialize in selling food that is produced, distributed, and consumed within a specific territory (Kay 2016). Such arrangements that serve local food needs also strengthen livelihoods of local food producers, processors, and vendors. Meanwhile, they reduce participants’ dependence on transnational corporations that dominate and concentrate global supply chains (HLPE 2020). Policy support measures are necessary for smallholders to access and create congenial markets, so that traditional methods can gain better access to the food value chain, argues the FAO’s High-Level Expert Panel (HLPE 2013; 2019, 110).

Agroecology agendas reframe those issues. Their narratives motivate farm families to improve their traditional cultivation methods, or else to undertake difficult shifts away from agro-industrial methods, both understood as an agroecological transformation. Knowledge-intensive artisanal agroecological methods use locally available resources, toward an agriculture that is socioenvironmentally and economically sustainable (Caporal and Costabe-

ber 2004, 79). This needs strategies that decentralize productive processes so that they are “compatible with the ecological conditions and capacities to incorporate ethnic identities and their respective cultural values” (83).

Such methods reproduce biodiverse seeds, maintain wider biodiversity for crop resilience, and recycle nutrients, together minimizing environmental harm. These practices likewise enhance livelihoods by avoiding external inputs and so minimizing costs. This continent-wide agenda eventually became grounded in social agrarian agendas and social movements, especially in resistance to capitalist modernization, that is, dependence on technology packages of the Green Revolution (Altieri 2002; Altieri and Nicholls 2008; Altieri and Toledo 2011).

Such efforts by peasant and civil society movements have been informed by an epistemic decentralization. While such agrofood alternatives have arisen globally, Latin American ones have many special characteristics. First, an epistemic understanding of territory confers an identitarian ethos in the political narrative of indigenous and peasant movements; they defend land, nature, and common goods, recognizing territory as a space for the reproduction of life. Second, a biocultural memory of traditional knowledges often underlies efforts to preserve native seeds, conserve soils, make sustainable use of water, and recover ancestral agroecological practices. Third, rural social movements deploy agroecology as a banner of collective struggle, cultural (re)construction, and a political project defending its territories for food sovereignty (Rosset et al. 2021).

### *Brazil's Extension Services: Epistemic-Organizational Shift*

In the 1980s a distinctive agroecology movement was first arising, organized around grassroots groups called *Comunidades Eclesiais de Base* (CEBS). To obtain appropriate advice, they sought changes in the agricultural extension services. The encounter between them and CEBS “was done through a real epistemological shock” as regards their political commitment to the peasantry and to its popular wisdom for local development. At that time, technical advisors were mostly professionals who had been trained academically in techniques for expanding capitalist agri-production. They had difficulties in detaching themselves from the productivist model. And they lacked the conceptual tools to understand ecological aspects of family farming (ANA 2007, 11).

Jumping ahead a couple decades: After the 2003 general election, a significant shift came from the government led by the *Partido dos Trabalhadores* (PT). In response to social movements, the Brazilian state gradually

established or shifted technical assistance services to support agroecological practices. Since 2004, the Programa Nacional de Assistência Técnica e Extensão Rural (PRONATER or PNATER) has promoted farm-level experiments with technologies more appropriate for smallholders, including agroecological methods (Schmitt et al. 2017, 88–89). Even for such methods, however, agri-extension services largely continued the techno-diffusionist approach for various reasons, for example, because some internal forces sought to maintain it, or because staff formalized agroecological methods as separate techniques (ANA 2007, 9).

Indeed, when small-scale farmers received subsidies or loans under the Programa Mais Alimentos, they bought machinery and equipment, stimulating them to cultivate larger areas with more external inputs (Mussoi 2011, 182). Agroecology was often adopted as a simple input substitute for technology packages of the Green Revolution (256). When providing support measures to small-scale farmers, often the state research agency Empresa Brasileira de Pesquisa Agropecuária (Embrapa) promoted a portfolio of agroecology technologies, thus perpetuating the techno-diffusionist approach (Petersen, Mussoi, and Dal Soglio 2013, 110, 112). This likewise extended a centralized vertical regime of professional experts, now in greater conflict with agroecology support networks.

Analogous tensions arose within Brazil's agri-research institute, Embrapa. It extended the dominant techno-diffusionist perspective from the Global North, as a basis for independent agro-innovations that would help agriculture to increase productivity and so gain export markets. Although dedicated mainly to research and development, a techno-diffusionist perspective became more explicit and active in 2009 through a new Technology Transfer Directorate. This set up decentralized units but still within a vertical techno-diffusionist perspective. There ensued a long debate over whether Embrapa's role should be technology transfer or knowledge sharing; the latter meant a horizontal process involving agri-extensionists and farmers who were generating innovation (Borsatto, Bergamasco, and Bianchini 2017). A horizontal knowledge-sharing approach emerged, especially from Embrapa's agroecology research units, which were being established or expanded during the first PT-led government (Borsatto, Bergamasco, and Bianchini 2017; ANA 2007, 150).

For both research and extension services, a cultural shift happened by several means. The Articulação Nacional de Agroecologia (ANA) investigated and facilitated a decentralization process, in both the episodic and organizational senses. For its first major report on the shift and

its difficulties, the investigation process reflected on the concrete practices of agroecological advice. On a national scale, this was being decentralized by some advisory agencies, involving farmers' organizations whose members received technical advice. Agencies made such improvements through diverse pathways (ANA 2007, 15).

As a key impetus and capacity for such a change, civil society groups had long criticized the hegemonic diffusionist model and developed horizontal alternatives (ANA 2007, 9). Drawing on the concept of *ecologia de saberes* (de Sousa Santos 2007), they promoted *diálogo de saberes*, toward a "dialogue capacity and collective learning." This has developed a peasant-based expertise, reinforcing their demands for rural extension services that do likewise. This enhances sustainability by improving everyday practices, rather than by providing external techniques (Caporal and Costabeber 2004, 120; see also Delgado and Rist 2016; Holt-Giménez 2006).

An agroecological peasant-based perspective made more visible the cultural heritages of various regions, as seen in diverse food customs, cultivars, and herbal home remedies based on them (ANA 2007, 133). In some places, food-processing units were being decentralized by farmers' cooperatives. This facilitated the greater use of the rich biodiversity of native plants (ANA 2007, 149).

Such biodiversity soon encompassed Plantas Alimentícias Não Convencionais (PANCS, nonconventional food plants), which valorize agrobiodiversity and its related sociocultural diversity (GVC 2015). The PANCS provide means to produce herbal medicines and/or traditional foods. More generally, fruits are lightly processed into tasty products that have a longer shelf life and gain more income. This avoids waste, which befalls approximately 40 percent of fresh food in Brazil.

### Brazil's EcoSol-Agroecology Agenda as Collective Capacities

Since the 1990s, Brazil's peasant and civil society movements have been demanding state measures to support traditional farming skills, biodiverse resources, fairer market access, and collective capacities for cooperative organizations. Over the past decade, social movements previously promoting either EcoSol or agroecology converged toward integrating them. Women have played central roles in both social movements, as well as in their convergence; Brazil exemplifies women's continent-wide role (SOF

2015; Zuluaga et al. 2018). With decolonial feminist perspectives, they have contested the epistemic basis of the dominant agri-technoscience and brought epistemological innovation (Zuluaga et al. 2018). These efforts both depend on and build support networks for collective capacities, as shown in this section.

### *EcoSol-Agroecology Convergence*

The ANA has brought together diverse social movements, nongovernmental agencies (NGOs), and policy managers promoting agroecological alternatives to the dominant agrifood system. As a turning point, in 2011 the ANA co-organized an event to merge the agendas for agroecology and the solidarity economy (FBES 2011; Schmitt 2020, 39). As a key role, agroecology could help conserve natural and cultural heritages, as well as build local networks of a solidarity economy (ANA 2012, 3). Conversely, agroecology was being incorporated into the EcoSol agenda (FBES 2012).

That convergence of social movements was accommodated by the 2003–16 governments led by the PT. After a decade, its 2013 Plano Nacional de Agroecologia e Produção Orgânica (PLANAPO) brought together many relevant policies, including solidarity economy (CIAPO 2013, 16). Conversely, its solidarity economy policy emphasized such a basis for technical training in agroecology (CNES 2015, 16, 32).

For example, the Fome Zero (Zero Hunger) campaign was structured in ways that created new markets for small-scale peasant farmers. Secure land tenure was granted to many more land occupations, whose settlers began to adopt agroecological methods. Agroecological knowledge exchange has helped peasants to better use locally available natural resources rather than external inputs, thus countering the dominant agri-modernization process (van der Ploeg, Ye, and Schneider 2012, 134, 147).

Toward an agrifood solidarity economy, in the 1990s several civil society organizations began promoting organic certification through the Sistema Participativo de Garantia (SPG). These systems remain under producers' control, rather than relying on expensive third-party *auditoria* systems (Schmitt et al. 2017, 85; Schwab and Collado 2017, 2). The PT government eventually accommodated such proposals through a new model, Organização de Controle Social (OCS): each cooperative has “a relationship of organization, commitment and trust amongst the participants”; this system aims at “stimulating a direct relationship between the producer and final consumer” (MAPA 2007, 3; see also MAPA 2008). Alongside the lower

**Figure 7.2** Logo of Fórum Brasileiro de Economia Solidária (FBES), illustrating Brazil's social movements for *economia solidária*. See <https://fbes.org.br/>.



**Figure 7.3** Logo of Articulação Nacional de Agroecologia (ANA), an organization connecting Brazil's social movements for agroecology with policymakers. See <https://agroecologia.org.br/>.



cost, peasants have preferred this system as less bureaucratic than professional third-party certification.

In each initiative, small-scale producers cooperatively build the OCS-SPG system through their own local norms. Solidaristic participation of all stakeholders ensures the quality of the production process and the final product. At each stage, documentation of the process builds credibility (Ecovida 2003). Their collective capacities have been built through various NGOs, such as the Assessoria e Serviços a Projetos em Agricultura Alternativa (AS-PTA) and the Rede de Agroecologia Ecovida. Organic certification helps small-scale farmers to gain advantageous institutional markets through state procurement programs.

For capacity building, the Programa de Aquisição de Alimentos (PAA) brought together small-scale family farmers (especially women) to learn cooperative skills for collective marketing. A major opportunity has been public procurement programs, especially the Programa Nacional de Alimentação Escolar (PNAE), which has purchased food for school meals. Under PNAE, public institutions pay a 30 percent premium price for organic and agroecological products, making these methods economically more viable for producers. The program aims to promote the biophysical development, learning, and training in healthy food habits of students, especially to fulfill their nutritional needs during the school term (Brazil 2009). Those local procurement programs have favored agroecological products from small family farms (CIAPO 2013). Such programs have helped farmers to strengthen their self-esteem, improve their agroecological methods, and diversify their production (Grisa et al. 2009).

Originating in the wider EcoSol movement, *social technology* denotes a design and use promoting social aims such as collective capabilities, inclusion, and socioeconomic equity (Dagnino 2010; Fressoli and Dias 2014; ITS 2004; Serafim, de Jesus, and Faria 2013; Pires and Novaes 2016, 116). Artisanal skills are adapted in new ways, rather than replaced by technology (Dagnino 2010). Through social technology, production methods are cheaply developed, consolidated, and appropriated by the producers, as a basis for replicating them elsewhere.

The concept of social technology was popularized through new institutions. With funds from the Banco do Brasil, the Instituto de Tecnologia Social stimulated such innovations in many areas, including agroecology. A new model, the Incubadora de Tecnologia Social (ITS), has promoted production-consumption chains valorizing agrobiodiversity as products of socio-biodiversity, alongside youth participation and more equal gender relations. Agroecological initiatives have taken up these concepts and networks to improve production methods, as well as to limit or remediate pollution from agro-industry.

The above concepts have been further elaborated as socioenvironmental technology, which has been defined along lines of sustainable development, namely techniques facilitating practices that are environmentally sound, socially just, economically viable, culturally acceptable, and easily replicable. Such innovations aim to use locally available resources, exchange knowledge, use appropriate didactic tools, create knowledge multipliers, and spread environmental responsibility (IAM 2016).

Knowledge exchange networks have been broadened to encompass all those sociotechnical aspects, as exemplified by the Programa Ecoforte (ANA, 2019b). “The knowledges associated with these experiences are shared and enriched as a common good and source of mutual learning” (Schmitt 2020, 23). The *sentipensante* epistemology has been extended to socioenvironmental technologies, while also reclaiming territory for resource conservation.

### *EcoSol-Agroecology Support Networks*

At most outdoor food markets, called *feiras livres*, stallholders obtain products through a wholesale intermediary; the products have anonymous sources. By contrast, agroecological initiatives have established *circuitos curtos* (short supply chains) for reaching consumers, on the basis that their purchases support cooperative work organization and environmentally

**Figure 7.4** Logo of Ação Coletiva de Comida Verdade (Collective Action for Real Food), a group founded during the COVID-19 pandemic to support provision of *comida de verdade* (real food). See <https://acaocoletivacomidaverdade.wordpress.com/>.



sustainable practices. Agroecological farmers have organized distinctive *feiras do agricultor* (farmers' markets), which describe their products under various terms such as *real food* (*comida de verdade*) or *peasant food*, indicating that they were produced without pesticides. Often the municipality provides suitable facilities.

Agroecological farmers also sell their products through food baskets for subscribers of community-supported agriculture. Schemes are organized either by farmers or by “conscientious consumers” promoting consumer education about agroecological methods (Matte and Preiss 2019). Civil society groups such as EcoSol have provided advice on establishing those short supply chains. Small-scale farmers thereby bypass conventional markets, rather than being pushed into a futile competition for low prices per se.

*Circuitos curtos* involve several functions: “At a territorial scale, the networks take on different functions, which relate to several roles: [to?] managing knowledge; to articulating between production, food processing and commercialization; to strengthening sociocultural identities; to generating credibility for product quality; and to coordinating public policies, among others” (Schmitt 2020, 82). Such networks are “organizations acting in a given territory and interacting through a participatory, cooperative dynamic,” broader than formal cooperatives (71). They create synergies across activities, thus enhancing the effects of public policies, while also proposing how to improve them (12–13).

Such solidaristic markets, collective self-certification schemes, and their public credibility have been facilitated by national support networks

such as Rede Ecovida. Since 2006, its member-producers have coordinated long-distance transport networks for flexibly moving products from places where they are in surplus, thus maximizing producers' income and consumers' food diversity (van der Ploeg, Ye, and Schneider 2012, 158–59; see also Schmitt 2020). Participants periodically agree on product swaps, their prices and operational costs to be shared (Magnanti 2008).

*Bem viver* both expresses and inspires capacities to use endogenous resources to strengthen social wealth. Through strategic management of such resources, peasant agriculture establishes a coproduction between nature and social institutions. This helps them to reproduce social values in ways relatively autonomous from markets (Petersen, Mussoi, and Dal Soglio 2013). *Circuitos curtos* build consumer support for nature conservation and culturally diverse foods (Schmitt 2020, 71).

The modernization process has inflicted multiple damages necessitating more remedial care activities, while placing the major burden upon women. In response, feminist initiatives have sought to share, revalorize, and domesticate women's roles in social reproduction (Hillenkamp, Guérin, and Verschuur 2014, 18; 2017, 52). Going beyond the false alternatives of unpaid or waged labor, EcoSol activities have made women's care roles more visible and valorized (ActionAid Brasil 2010).

All this has been an impetus for women to join or lead EcoSol-agroecology alternatives. Playing a central role, the Sempreviva Organização Feminista (SOF) is a civil society organization promoting a triple agenda of "social movement, transformation and feminism." It has stimulated or organized many training activities, including technical skills in agroecological production and collective marketing. It situates agroecology within a wider struggle of women for control over their bodies, livelihoods, and territory (Lobo 2021).

According to SOF, "The solidarity economy continues in traditional communities (indigenous, quilombolas and peasant) when their labour and territorial management are organized with respect for everyone and Nature" (Nobre, Faria, and Moreno 2015, 18). Crucial for democratic self-management, "horizontality must be seen as a political commitment and as a process not exempt from contradictions, for example, the group's difficulty in making decisions" amid various specializations of its members (Nobre, Faria, and Moreno 2015, 32). In these ways, feminist approaches seek to overcome class, gender, and ethnic-racial inequalities through alternative economies that build resistance to capitalist, patriarchal domination.

Through women's leadership in EcoSol-agroecology initiatives, they have exercised more decision-making over family income and agroecosystem resources (ActionAid Brasil 2010, 272). Such initiatives have become larger and more diverse, while also contesting gender stereotypes and overcoming inequalities (Schmitt 2020, 277). Sometimes called *protagonismo feminino*, women's leadership has enlivened such initiatives while reconfiguring women's roles in family agriculture (ANA 2019b, 21). The concept of *protagonismo feminino* has inspired women's networks in EcoSol-agroecology networks.

Horizontal nonmonetary resource flows build social reciprocity, social capital, and a capacity for joint activity and care in production processes. All this can protect or build a local culture and thus a communitarian sense of belonging (Schmitt 2020, 273, citing Sabourin 2011). Such practices draw on mutual-aid traditions, known as *mutirão*, which go beyond their traditional social base.

Likewise central to a solidarity economy, the concept of *homo situs* denotes a "recomposed man," who identifies with a place as a symbolic site of belonging. Diverse contributions are integrated into a "composite culture of social networks and belonging" (Zaoual 2010, 31, 34). In this sense, *circuitos curtos* depend on "a geographical and relational proximity between producers and consumers" (Darolt, Lamine, and Brandenburg 2013, 10). As a more comprehensive framework, common aims activate many forms of proximity: organizational, institutional, and cultural (Calgaro, da Silva, and Santos 2022; Levidow, Sansolo, and Schiavinatto 2022; AgroEcos 2022).

This agenda aims to decentralize the governance of agrifood systems (Schmitt 2020, 262). "A decentralization of power implies a construction of greater local autonomy in relation to vertical regulatory mechanisms imposed by the Food Empires," that is, the globalized agro-industrial system (Schmitt 2020, 271). In all those ways, EcoSol-agroecology initiatives devise "creative strategies to mobilise resources, capacities and connections in producing new forms of organizing labour." In particular, they develop capacities to generate employment and access finance, toward "a greater autonomy in the face of markets" (Schmitt 2010, 56, 60).

#### *Policy Changes between 2016 and 2024*

Since 2016, Brazil's right-wing federal governments have degraded or dismantled support measures for a solidaristic agroecology (Niederle et al. 2019; Sabourin, Craviotti, and Milhorance 2020). Budgets were reduced

for measures run by the National Institute of Colonization and Agrarian Reform (INCRA), likewise for territorial development policies (PRONAT), which formerly had decentralized management by state and nonstate local actors (Sabourin, Craviotti, and Milhorange 2020). Some support measures were shifted to forms that exclude civil society and transfer control to agribusiness interests (Niederle, dos Santos, and Montiero 2021).

Resisting such changes, civil society countermovements reaffirmed an agenda for “political agroecology” as a form of political ecology (van der Ploeg 2021). They have campaigned for bottom-up support measures from municipal and state authorities. Within wider solidaristic networks for artisanal production, agroecology initiatives have promoted policy agendas and new statutes for municipal management of EcoSol policies (Rede de Gestores 2021). They have obtained such support in many localities, promoting horizontal *diálogos de saberes*, also called *ecologia de saberes* (de Sousa Santos 2007, 2009). In all those ways, civil society networks sought to revive or establish decentralized modes, initially at regional and state levels.

After the 2020 COVID-19 pandemic began, hygiene restrictions and labor shortages disrupted supply chains worldwide. Policy elites sought to restore, stabilize, and extend global commodity chains of the agro-industrial system (Clapp and Moseley 2020). Nevertheless, in many places mutual aid networks were extended or initiated to fill gaps in food provision, especially for vulnerable individuals. Although much was surplus from dominant food chains, some came from agroecological production. From a global perspective, “embedded, inclusive, often informal and unruly, economies, rooted in mutualism and solidarity, have flourished. . . . Food provisioning has seen a remarkable upsurge of solidarity and grassroots activism” (Leach et al. 2021, 7).

Did those solidaristic practices simply fill a temporary gap in the dominant system? Or did they also strengthen the basis for a broader long-term alternative? When the COVID-19 pandemic disrupted food supply chains and raised fears about virus contamination, many Brazilian consumers became more interested in food safety and quality. A Brazilian state agency provided information on local sources of healthy food, that is, produced with no agrochemicals and minimal processing (IDEC 2020).

EcoSol-agroecology networks made creative adaptations to maintain or even expand close relationships with consumers. Alongside virus protection and disinfection kits, means have included drive-through markets, alternative pickup points, box schemes, home deliveries, and so on. Predating the

pandemic, community-supported agriculture was expanded through more subscriptions and new schemes, linking urban consumers with peri-urban or distant agroecological producers. These adaptations extended collective capacities that had previously been developed for *circuitos curtos*, as is well documented in Brazil (Calgaro, da Silva, and Santos 2022; Levidow, Sansolo, and Schiavinatto 2022). Such adaptations there have analogies in many countries of Latin America (see, e.g., Craviotti, Viteri, and Quinteros 2021; RIMISP 2020).

During Brazil's COVID-19 pandemic, *comida de verdade* (real food) became a more prominent slogan, signaling that pesticide-free agroecological methods were supporting people's health (ABA 2020). Hygiene requirements led to widespread school closures, jeopardizing agroecological purchases under the PNAE. So there were efforts to redirect the subsidy toward home deliveries, especially for vulnerable families, thus also maintaining producers' livelihoods (de Amorim, Ribeiro, and Bandoni 2020).

Collective marketing of agroecological products has been led mainly by women's associations (at least in Latin America). During the pandemic many such initiatives adapted to the hygiene requirements rather than suspending operations. They expanded virtual means for organizing and publicizing their activities. Members renewed their prepandemic bonds that had been built by talking, singing, reading poems, dancing, praying, embracing each other, and so on. This experience and memory facilitated agile adaptations by women's initiatives, strengthening their social resilience and inclusive role. This process occurred mainly at a local, informal, interpersonal level, thus remaining little known, according to a study by a feminist network. Likewise, thanks to interpersonal trust and familiarity, members agreed to be interviewed online for the study (SOF 2021, 31, 76).

As this illustrates, *sentipensante* capacities enabled agroecological initiatives to continue and likewise enabled activists to research the process. Such decentralized initiatives were linked with each other through solidaristic knowledge exchange, especially local or regional solidarity networks encompassing diverse artisanal activities. Through all these means, they built a collective capacity to design and implement adaptations during the pandemic.

*Circuitos curtos* have been resignifying traditional rural foods, especially in urban contexts during the pandemic. Agroecological products revive popular memory of agrifood traditions, thus restoring links between food knowledges and flavors, alliteratively called *saberes e sabores*. Going beyond economic relations, these efforts build affective sociocultural

meanings that connect people from diverse backgrounds and localities (Menezes and Almeida 2021, 8, 92). The *feira do agricultor* has become “an opportune moment to amplify the debate over access to healthy food, and the educative role stimulated by proximity between farmer and consumer” (Menezes and Almeida 2021, 20).

Responding to the COVID-19 difficulties, all these efforts have used the opportunity for solidaristic aims. They strengthened the basis for a different future, rather than a return to normal. This ambition resonated with a continent-wide slogan against the neoliberal order: “No return to normality because normality was the problem!” (Fonseca 2020). After the 2022 general election brought back Luiz Inácio Lula da Silva to the presidency, his new government made several institutional improvements. It reestablished a Ministry for Agrarian Development and Family Agriculture (MDA) with new programs. The larger Agriculture Ministry added support measures for nonchemical production methods (MAPA 2022).

Moreover, it mainstreamed support measures for *circuitos curtos*, accommodating some demands from social movements and NGOs. In particular, it expanded the Programa Brasil Mais Cooperativo, which already was promoting cooperatives for collective marketing, especially for school meals. Its instruments encompass cooperation agreements and their decentralized implementation.

The government likewise revived the subsidy programs and agri-extension service (MAPA 2023b). The Family Agriculture Secretariat initiated a section for Cooperativismo e Soberania Alimentar (food sovereignty), in turn establishing the Mais Gestão program to strengthen family farmers’ capacities for accessing markets (MDA 2023). However, *cooperativismo* encompasses a long-lasting conflict between capitalist enterprises versus solidaristic ones (see, e.g., Pelegrini, Shiki, and Shiki 2015).

The government extended a previous program, Bioeconomia Brasil Sociobiodiversidade, to promote sustainable development, people’s well-being, and income generation. It has supported traditional communities and their small-scale enterprises sustainably using natural resources. It aims to conserve sociobiodiversity while using this basis for product supply chains, including herbal products, traditional foods, and Amazonian biomass (MAPA 2023a; ANA 2019a).

Such programs have offered new opportunities for an agroecological transformation, but alongside tensions with the hegemonic regime. The bioeconomy concept has featured long-time tension between the dominant

capital-intensive form versus agroecological forms (Levidow, Birch, and Papaioannou 2013; Schmid, Padel, and Levidow 2012; TNI 2015). According to some Brazilian critics, agribusiness seeks a new extractivist frontier in forests, while marginalizing the Indigenous people who have cared for them (see, e.g., Coelho, 2023). Along those lines, the Lula government's agenda was criticized for bioeconomy resource appropriation lacking any relevance to agroecology. To shape public policies for agroecology, it will be necessary to expand popular participation, as well as to "conscientize the stomach, mind and heart" (ANA 2023).

For such alternatives, opportunities have come from two new programs, aiming especially to eliminate Brazil's widespread hunger and malnutrition, while also raising incomes of small-scale farmers. Plan Safra for Family Agriculture has aimed to increase production of healthy, pesticide-free food. Fresh or minimally processed foods would supply a basic food basket for distribution especially to vulnerable and needy families. The Solidarity Kitchens program has aimed to prepare and serve such food in cooperation with civil society groups.

The government has sought to expand agroecology by relaunching PLANAPO (CIAPO 2013). But this step was delayed by disputes over constraining agrochemicals. Within and beyond the government, agribusiness interests were defending intensive pesticide usage, including agrichemicals banned by the EU. Critics have diagnosed this threat as "chemical colonialism," highlighting Brazil's subaltern role in global export markets, regulatory regimes, and expert knowledge (ANA 2024; Bombardi 2023).

## Conclusion

As the broader context, Latin America has had a sharp conflict between rival agendas. On one side, the hegemonic regime imposes a neocolonial plunder of people and nature by reducing them to labor and natural resources. Seeking global markets, this agenda is based on a centralized model of expert knowledge. On the other side, emerging from resistance, solidaristic alternatives promote a decentralized knowledge for democratizing the economy.

The latter effort has emerged jointly from social movements, practitioners, and academics, who together generated a decolonial framework known as Latin American critical thought. Some contributors have

organized around networks for a solidarity economy or *economía solidaria* (EcoSol). Decentralized knowledge relates to solidaristic economic forms (de Sousa Santos and Rodríguez 2002). Socioeconomic decentralization needs workers' participation in their own decisions about production and distribution of its results, based on democratic self-governance (Monje-Reyes 2011, 720–21). EcoSol has had special prominence in Brazil, where such networks emerged from 1980s antijunta struggles, seeking both to democratize the economy and to decentralize knowledge.

Eventually, solidarity economy (EcoSol) movements converged with those promoting agroecological alternatives to the hegemonic agro-industrial system. These EcoSol-agroecology networks have decentralized and democratized knowledge by combining several sources, such as rural agrifood heritages, indigenous cultures, women's leadership, and mutual-aid traditions. Agroecosystems facilitate biodiverse resources, nutrient recycling, aesthetic qualities, and nutritional value.

By contrast with supermarket chains, *circuitos curtos* (short supply chains) have spread consumer knowledge about agroecological alternatives, while strengthening support for agroecological production methods. Pursuing these aims, initiatives build more secure livelihoods autonomous from exploitation and middlemen, while developing knowledge-exchange networks among groups devising such alternatives. In so doing, they contest and potentially overcome their subaltern role. This agenda has become especially prominent in Latin America, incorporating indigenous decolonial perspectives.

Agroecological innovation elaborates socioenvironmental technologies that are cheaply reproducible and easily adaptable to diverse contexts. Farmer–civil society partnerships draw on such local experiences for agroecological knowledge that can be generalized across diverse contexts. This convergence more effectively resists the dominant techno-diffusionist agri-modernization model.

In Brazil, the EcoSol-agroecology agenda demanded and gained state support measures for collective capacity building, especially during the left-wing governments of 2003–16. This agenda has strengthened *circuitos curtos*, which build consumer support for agroecological production methods and their results in artisanal products. Stimulated by feminist networks, women in particular found opportunities to gain or improve livelihoods through solidaristic cooperation. These efforts have sought to overcome inequalities of social class, gender, and race/ethnicity.

Between 2016 and 2020, Brazil's right-wing governments reduced or abolished those state support measures. Nevertheless, EcoSol-agroecology initiatives have continued through their prior collective capacities and knowledge-exchange processes (*diálogo de saberes*). Such capacities were extended to new initiatives through solidarity networks and some local authorities. They have sought to extend or revive horizontal decentralized knowledge networks that had already built collective capacities. Moreover, these strengthened demands for support measures on a territorial-regional basis, a bottom-up means to keep such measures accountable to solidarity networks. In this way, the network could build a regionalism from below, complementing efforts elsewhere in Latin America (Rosset et al. 2021). This strategy provided a basis to demand horizontal support measures in the new Lula administration from 2022 onward. Yet such efforts encountered many obstacles and internal conflicts (see previous section).

In all those ways, EcoSol networks have made a dual effort to democratize the economy and decentralize knowledge through epistemic alternatives. This linkage recasts the global dimension as social movements exchanging knowledges and strategies for counterhegemonic, decolonial aims. This brings a potential for a postcapitalist socioeconomic transformation, contrary to the hegemonic capitalist transformation through the centralized techno-diffusionist model.

Outcomes will depend on many struggles such as: civil society networks shaping and decentralizing EcoSol-agroecology support measures; state agencies gaining greater political-technical capacities for such measures; popular resistance against the hegemonic agrifood regime alongside its neocolonial extractivist basis; and a contest over this regime's capital-intensive epistemic centralization.

## Note

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