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Agroecology as a territory in dispute: between institutionality and social movements

Omar Felipe Giraldo  and Peter M. Rosset 

Agroecology is in fashion, and now constitutes a territory in dispute between social movements and institutionality. This new conjuncture offers a constellation of opportunities that social movements can avail themselves of to promote changes in the food system. Yet there is an enormous risk that agroecology will be co-opted, institutionalized, colonized and stripped of its political content. In this paper, we analyze this quandary in terms of political ecology: will agroecology end up as merely offering a few more tools for the toolbox of industrial agriculture, to fine tune an agribusiness system that is being restructured in the midst of a civilizational crisis or, alternatively, will it be strengthened as a politically mobilizing option for building alternatives to development? We interpret the contemporary dispute over agroecology through the lenses of contested material and immaterial territories, political ecology, and the first and second contradictions of capital.

Keywords: agroecology; political ecology; contested territories; contradictions of capital; accumulation by dispossession; alternatives to development; FAO

Popular pressure has caused many multilateral institutions, governments, universities and research centers, some NGOs [non-governmental organizations], corporations and others, to finally recognize ‘agroecology’. However, they have tried to redefine it as a narrow set of technologies, to offer some tools that appear to ease the sustainability crisis of industrial food production, while the existing structures of power remain unchallenged. This co-optation of agroecology to fine-tune the industrial food system, while paying lip service to the environmental discourse, has various names, including ‘climate smart agriculture’, ‘sustainable-’ or ‘ecological-intensification’, industrial monoculture production of ‘organic’ food, etc. For us, these are not agroecology: we reject them, and we will fight to expose and block this insidious appropriation of agroecology. The real solutions to the crises of the climate, malnutrition, etc., will not come from conforming to the industrial model. We must transform it and build our own local food systems that create new rural–urban links, based on truly agroecological food production by peasants, artisanal fishers, pastoralists, indigenous peoples, urban farmers, etc. We cannot allow agroecology to be a tool of the industrial food production model: we see it as the essential alternative to that model, and as the means of transforming how we produce and consume food into something better for humanity and our Mother Earth.

– Declaration of the International Forum for Agroecology at Nyéléni (LVC 2015a)

Introduction: contested material and immaterial territories

Theorists of contested or disputed territories argue that social classes and relationships generate territories and spaces that are reproduced under conditions of conflict, which gives rise

to spaces of domination and spaces of resistance. Territorial contestation is carried out in all possible dimensions: economic, social, political, cultural, theoretical and ideological. In the case of rural areas, this gives rise to disputes between grassroots social movements and agribusiness, mining companies, and other forms of extractive capitalism and their allies in government over both *material* and *immaterial* territories (Fernandes 2009, 2008a, 2008b; Rosset and Martínez-Torres 2012). The dispute over material territories refers to the struggle to access, control, use and shape, or configure land and physical territory. Immaterial territory refers to the terrain of ideas, of theoretical constructs, and there are no contested material territories that are not associated with contestation over immaterial territories. The dispute over real and tangible territories and the resources they contain necessarily goes hand in hand with the dispute over immaterial territories, or the space of ideology and ideas. Disputes over immaterial territories are characterized by the formulation and defense of concepts, theories, paradigms and explanations. Thus, the power to interpret and to determine the definition and content of concepts is itself a territory in dispute. Rosset and Martínez-Torres (2012) and Martínez-Torres and Rosset (2014) argue that agroecology itself a terrain or territory that is disputed both materially ('agroecology as farming') and immaterially ('agroecology as framing'). This essay focusses on the recent intensification and evidencing of this dispute.

The dispute for agroecology

Agroecology has gone from being ignored, ridiculed and/or excluded by the large institutions that preside over world agriculture to being recognized as *one* of the possible alternatives available to address the crises caused by the Green Revolution.¹ Until recently, the institutions that have steered agricultural policy throughout the world had not recognized agroecology, either as a realm of scientific enquiry or as a social practice and movement (Wezel et al. 2009). In fact, beyond being neglected, during the past 40 years those who have promoted agroecology have had to defy power structures in all spheres, including, obviously, the institutions that for decades promoted industrial agriculture throughout the world as the panacea to alleviate hunger and poverty. Yet, in 2014, the fact that this context had changed radically became apparent when some of these same institutions began to address agroecology with interest following the International Symposium on Agroecology for Food Security and Nutrition,² organized that year in Rome by the Food and Agriculture Organization of the United Nations (FAO). However, rather than picking up on the transformational potential of agroecology, they mostly see it as offering technical options to make industrial agriculture less unsustainable (LVC 2015a), creating a real threat of co-optation.

This new situation has created a dilemma for agroecologists:³ give in to being co-opted and captured, or take advantage of the opening of political opportunities to push forward the transformation of the prevailing agro-extractive model (Levidow et al. 2014; Holt-Giménez and Altieri 2016). Although institutions are not monoliths and do allow for internal debates, this scenario can be framed, for simplicity, as a two-sided struggle. Governmental

¹This contribution is partly based on an earlier paper published in Spanish (Giraldo and Rosset 2016).

²See <http://www.fao.org/about/meetings/afns/en/>

³By 'agroecologists', we refer loosely to those farmer-practitioners, academics, researchers and social movements (*sensu* Wezel et al. 2009) who have been promoting agroecology since before it came into fashion.

institutions, international agencies and private companies are on one side, while the varied social movements and academic allies who defend agroecology as the only viable option for radically transforming the mainstream food and agriculture system are on the other side (Table 1). The question is whether agroecology will be stripped of all but its most simplistic technical content and left as an empty concept that can mean almost anything to anyone, much as happened decades earlier with ‘sustainable development’ (Lélé 1991).

As an heuristic tool to illustrate the larger dichotomy, we contrast the FAO process that began publicly in Rome in 2014 with the global FAO symposium, and continued in 2015 and 2016 with continental and regional FAO forums, with the process leading up to, during and after the International Forum for Agroecology, held at Nyéléni, Mali in 2015.⁴ The Nyéléni Forum was organized by the International Planning Committee for Food Sovereignty (IPC), a representative body composed of social movements and other civil society actors, that grew out of parallel spaces at World Food Summits, and lobbies and engages with FAO to push for food sovereignty.⁵ At Nyéléni,

delegates representing diverse organizations and international movements of small-scale food producers and consumers, including peasants, indigenous peoples and communities (together with hunters and gatherers), family farmers, rural workers, herders and pastoralists, fisherfolk and urban people ... gathered ... to come to a common understanding of agroecology as a key element in the construction of food sovereignty, and to develop joint strategies to promote agroecology and defend it from co-optation. (LVC 2015a)⁶

One space in which the larger dispute plays out was created when the FAO began discussing agroecology. The governments of France and Brazil supported a nascent agroecology process (though with wildly different notions of agroecology), while the United States and its allies were against holding the international symposium. The ensuing compromise eliminated any content at the symposium linked to public policies, and particularly forbade discussion of international trade policies, genetically modified organisms (GMOs), or even the use of the term ‘food sovereignty’, thus limiting the program to the technical aspects of agroecology. Thanks to its allies within the FAO, civil society⁷ was able to obtain slots for participation in the proceedings. In the end, peasant organizations, NGOs and academics succeeded in voicing their critiques regarding the agribusiness model, even though their opinions were essentially minimized in the final report (FAO 2015a). Following the symposium, the official pronouncement, released by the agriculture ministers of Japan, Algiers, France, Costa Rica and Brazil, the agriculture and rural commissioner of the European Union, and the general director of the FAO, stated that agroecology was a valid option

⁴This essay relies heavily on active participant-observation methodology implemented by one of the present authors, who attended the Nyéléni Forum and the first FAO agroecology symposium, as well as the Latin America FAO seminar, and who also participated in various internal meetings with FAO staff and other actors.

⁵<http://www.foodsovereignty.org/>; also see the excellent and extensive report by CNOP and LVC (2015); and Duncan and Barling (2012).

⁶It should be noted that the Nyéléni Forum had been planned by social movements before they knew about the FAO process. It responded to their own agenda of collective construction of agroecology, and was not originally intended to be reactive. However, it took place after the global FAO Symposium, and thus participants did react to the institutional process. It is clear, however, that agroecology now has both an ‘agenda from above’ and an ‘agenda from below’.

⁷Represented by a variety of actors, including La Vía Campesina and other members of the International Planning Committee for Food Sovereignty (IPC), the Latin American Scientific Society for Agroecology (SOCLA), and others.

Table 1. Conform versus transform: the two camps of contemporary agroecology.

<i>Camp and vision</i>	The <i>institutional camp</i> sees agroecology as offering more tools to fine tune industrial agriculture and <i>conforms</i> to monoculture, input dependence and structures of power ...	The <i>civil society camp</i> sees agroecology as the <i>alternative</i> to industrial agriculture and as part of the struggle to challenge and <i>transform</i> monoculture, input dependence and existing structures of power ...
<i>Actors</i>	World Bank, governments, many large NGOs, private sector, agricultural universities	Social movements, some NGOs, and allies like IPC, LVC, MAELA, SOCLA, etc.
<i>Examples</i>	Climate-smart agriculture, sustainable or ecological intensification, Save and Grow (FAO), industrial organic, minimum tillage (with herbicides), conservation agriculture, 'agro-ecology' (with the hyphen), etc.	'Agroecology', peasant agroecology, natural farming, ecological or biological agriculture, peasant organic farming, low input, permaculture, biointensive, traditional peasant or indigenous agriculture, etc.

IPC = International Planning Committee for Food Sovereignty; LVC = La Via Campesina; MAELA = Latin American Agroecology Movement; SOCLA = Latin American Scientific Society for Agroecology; FAO = Food & Agriculture Organization of the United Nations; NGOs = non-governmental organizations.

and should receive support. However, it ought to be combined, they felt, with other approaches, such as sustainable intensification, climate-smart agriculture and GMOs (Nicholls 2014).

The social movements and civil society actors that are part of the IPC, including La Vía Campesina (LVC), the National Coordination of Peasants' Organizations of Mali (CNOP), the Latin American and Caribbean Agroecology Movement (MAELA), the Latin American Scientific Society for Agroecology (SOCLA) and others, went on record at Nyéléni to oppose what they perceive as a move by mainstream institutions to co-opt and reduce agroecology to a set of eco-techniques in the toolkit of the industrialized food production model.⁸ It was the first time that representatives of not just peasants and family farmers, but also of indigenous peoples, pastoralists, artisan fisher folk, city dwellers, consumers and others met to jointly analyze agroecology – similar to previous global forums to discuss food sovereignty and agrarian reform – (Martínez-Torres and Rosset 2014; Rosset 2013). Thanks to this dialogue among different grassroots knowledges, wisdoms and ways of knowing, the forum's main declaration (LVC 2015a) was the first to gather and unify the different visions of what agroecology is for social movements. In the document, participating movements warn that agroecology is in danger of being co-opted, given attempts by agribusiness and other actors in the industrial food system to 'greenwash' their discourse, and reject equating agroecology with industrial monoculture production of 'organic' foods, or similar approaches promoted by the private sector and mainstream institutions. Forum delegates voiced their approval of an eminently political and grassroots agroecology that seeks to challenge and change power structures, i.e. 'put the control of seeds, biodiversity, land and territories, waters, knowledge, culture and the commons in the hands of the peoples who feed the world' (LVC 2015a; CNOP and LVC 2015).

We face a dispute between two radically different ways of conceiving agroecology: one that is technical and technocentric, scientificist and institutional, and the other, a 'peoples' agroecology', that is deeply political and champions distributive justice and a profound

⁸LVC (2015c).

rethinking of the food system. The more discursive part of this struggle played out at the FAO and continued at the FAO regional agroecology conferences that followed the Rome symposium in 2015: in Brasilia for Latin America and the Caribbean, in Dakar for sub-Saharan Africa, and in Bangkok for Asia and the Pacific. Of the three seminars, Brasilia's was the most favorable for social movements: they were able to prevail in the debates and discussions and managed to have most of their positions in the final document – with the notable exceptions of explicit criticisms of agribusiness and GMOs. This declaration was ratified by representatives of the FAO, governments, academics, the Community of Latin American and Caribbean States (CELAC), and Reunión Especializada sobre Agricultura Familiar – El Mercado Común del Sur's office of family farm agriculture. The Dakar and Bangkok conferences were more conflictive, insofar as there was a move to make agroecology synonymous with ecological intensification and climate-smart agriculture, while social movements rejected attempts to co-opt the term (Rogé et al. 2015; Nicholls 2015).

Over a period of less than 24 months, several things became clear: first of all, that agroecology has been recognized for the first time by the institutions that influence global and national agricultural and environmental governance; and, second, that two opposing sides have drawn battle lines over the meaning of the word. Today the FAO has an agroecology office at its headquarters in Rome, agriculture ministries from around the world are drafting public policy on 'agroecology', and universities are scrambling to offer agroecology curricula and initiate new research programs. This is significant. Agroecology will soon begin to have earmarked budgets, and multinational corporations and international cooperation agencies are already investing in agroecology. NGOs new to agroecology, and other opportunistic players who had not previously defended or even spoken of agroecology, will likely become spokespersons and beneficiaries of the economic and political opportunities that arise in this new international context.

In this paper, we interpret the rise of agroecology within the institutional agenda, using FAO as a proxy for the larger institutional space, by focusing on the first and second contradictions of capital and on the appropriation of the concept by the development discourse. We are interested in analyzing how and why agroecology came to be of interest in global geopolitics, just as agrifood capitalism attempts to address some of its contradictions, and how social movements can be strengthened by defending agroecology as an alternative to development as usual, and as an essential component in post- or non-capitalist transformation.

The appropriation of agroecology and the contradictions of capital

In this section, we posit that both the first and second contradictions of capital offer an excellent framework for understanding the new international scenario for agroecology. Generally, the first contradiction helps us understand why capital is trying to incorporate peasant agriculture, its territories and its agroecological practices into global circuits of capital accumulation; the second contradiction clarifies how agro-extractivism hopes to address a worrisome trend of higher costs, lower productivity and bad publicity.

The first contradiction describes the propensity of capitalism to have recurrent overproduction crises linked to an output capacity that tends to increase significantly faster than effective demand. In other words, the system is prone to producing more than it can consume (O'Connor 1998), and consequently overproducing merchandise, as Marx outlined in his explanation of the declining rate of profit (1946b, 213 ff.). To escape from this type of crisis, capitalism needs to transfer excess capital to other geographical spaces and promote a new, more dynamic process of accumulation, thus resolving the crisis for a few more years (Harvey 2003a).

The problem over time is that intense competition at an international level, brought about by the geographic expansion of capitalism,⁹ leads to the generation of surpluses that cannot be absorbed by the system. This is precisely what appears to be occurring throughout the world, given the evidence that, at least since 1973, capitalism has suffered from a chronic over-accumulation disease, from which it has not recovered to date (Brenner 1999). The economic crisis is reflected by idle capital surpluses, with no investment options available to generate attractive profits. Financialization¹⁰ and its speculative bubbles were the stopgap solution that staved off a crisis caused by an oversupply of goods. Nevertheless, capital's long-term solution was to implement a strategy of pillage, backed and promoted by different countries through neoliberal privatization strategies that transferred public assets and common goods at ultralow cost to private companies, and incorporated them into private capital accumulation flows. This process, which is reminiscent of Marx's primitive accumulation (1946a), and has more recently been labeled 'accumulation by dispossession' by geographer Harvey (2003a), is nothing more than brazen plundering, aimed at appropriating resources without compensating their rightful owners.

Undoubtedly, in the context of the crisis that grew deeper when the financial bubble burst between 2007 and 2009, speculative capital needed new ways to accumulate and speculate. This leads to the first explanation of why institutions renewed their interest in promoting and supporting agroecology. For many years, capital found refuge in the incorporeal financial markets, and then began to search extensively for ways to appropriate the natural resources on which all real economic activity depends. Land grabs, investment fever in monoculture crops and forestry products, oil, non-traditional hydrocarbons and minerals in the global South are well-known examples (Borras et al. 2011; Bebbington 2015). It is increasingly clear that capital also seeks to commodify seeds and agro-biodiversity through intellectual property rights, neoliberal seed laws, and seed monopolies (LVC and GRAIN 2015; Wattnem 2016); to dispossess peasants and indigenous communities of their agroecological wisdoms only to mix them with the biotechnologies and the multinationals and sell them back (Monsanto 2016; ICF International 2016); to encourage greater agricultural diversity in food markets, the cosmetic industry and pharmacology; to increase its profits derived from carbon credits and from neoliberal-styled conservation through agro-forestry agreements; and to profit by broadening industrialized organic product markets (OTA 2016), which may soon be renamed 'agroecological' in new hyper-markets. The objective is to

⁹Brenner (2009) describes the declining rate of profit of international investment as the result of worldwide competition: 'What happened was that, one-after-another, new manufacturing powers entered the world market: Germany and Japan, the Northeast Asian NICs (Newly Industrializing Countries), the southeast Asian Tigers, and, finally, the Chinese Leviathan. These later-developing economies produced the same goods that were already being produced by the earlier developers, only cheaper. The result was too much supply compared to demand in one industry after another, and this forced down prices and, in that way, profits. The corporations that experienced the squeeze on their profits did not, moreover, meekly leave their industries. They tried to hold their place by falling back on their capacity for innovation, speeding up investment in new technologies. But, of course, this only made overcapacity worse'.

¹⁰As O'Connor (1998, 164) explains, thanks to financialization, 'money capital abandons the "general circuit of capital" – that is, the long and tedious process of leasing factory space, buying machinery and raw materials, renting land, finding the right kind of labor power, organizing and implementing production, and marketing commodities – and finds its way into speculative ventures of all kinds. Money capital, based on the expansion of credit, or money that cannot find outlets in real goods and services, leaps over society, so to speak, and seeks to expand the easy way – in the land, in stocks and bond markets, and in other financial markets'.

convert people's communal goods into private property rights, thus separating communities from their material and symbolic conditions of life and making it impossible for people to live outside market-based networks (Rosset 2009; Levidow et al. 2014; LVC 2016).

While agroecology marshals the various practices created by peoples, through thousands of years of ecosystemic transformation, the worldwide capitalist crisis is driving capital to channel those practices into circuits of global capital accumulation. Accumulation cannot exist without an unending process of geographic expansion (Harvey 2000) into territories previously outside the logic of valorization by capital, inserting them into neoliberal globalization flows (Composto and Navarro 2014). This doctrine eschews exempting certain territories from capitalist expansion, but rather incorporates them into the system. There is no excluding non-capitalist forms of production; quite the opposite: the aim is to include them, where the powerful can keep a careful watch.

There is no better way to appease the demands of social movements and deflect their defense of agroecology – as an alternative to hegemonic capitalism – than to capture, co-opt and suppress its anti-systemic content. This is why capital now refrains from marginalizing agroecology and seeks to keep it under control, making peasants, pastoralists, family farmers and fisherfolk functional to accumulation by linking them to entrepreneurial economies. In essence, these groups plant, herd and fish in areas that are not of direct interest to agribusiness, at least not in the classical manner of direct production. Therefore, capital finds it more practical to de-territorialize people without displacing them from their lands, a useful way of obtaining extraordinary rents (Giraldo 2015).

As Armando Bartra (2016, 2013) explains, accumulation by dispossession is only the first requirement for accumulation. It is not accumulation in and of itself. For this reason, the key to understanding the complete process is the manner in which expropriated property is valued, through an analysis of rents. Bartra notes that as resources that are not directly produced by capital itself, practices, knowledge, seeds, water, land and air are dispossessed, and they are placed at the service of capital. Yet what begins with dispossession ends up being a valuation of dispossessed resources, i.e. a function not of productive investment, but rather of monopolistic possession of scarce goods of differing qualities, an exclusive property with which to speculate. Bartra insists further that with expropriation, there are not only profits, but rents as well – in other words, extraordinary income of a speculative nature that comes from global capital's common fund – which can only originate from the surplus produced by labor – and is appropriated first by dispossessors and then by speculators.

Agriculture is a privileged sector for this type of accumulation because much of what is generated comes from differential rents from territorial property (Bartra 2013). Agroecology, or agroecological production, in particular, can be an ideal area to generate rents for agribusiness, as long as it is linked to international markets. Thus, although some peasants may be redundant and expelled from their territories, many others are more useful if their surplus value and the rents can be appropriated indirectly. In other words, it is not feasible for big capital to take over relatively unfertile land with inadequate infrastructure, due to the investment costs involved. In contrast, it is much more useful to make these land holdings accessible through purchasing and marketing arrangements, and thus exploit those lands indirectly. This comes by widening the range covered by productive activities, so that agro-capitalism can appropriate the differential rent.¹¹ Since the problem of chronic

¹¹Differential rent helps explain why capital allows the survival of the peasant. Briefly explained, capitalism needs this population, not just because it is a supply of seasonal and inexpensive labor

crises involves the fact that capital cannot find profitable options for accumulation, it is logical that agroecology, if subsumed in worldwide geopolitics, can help generate extraordinary rents, in addition to increasing the power of large capital over distant and dispersed territories that otherwise would be difficult to control.

As a strategy, accumulation by dispossession leaves no stone unturned in its search for any economic area that could be used for capital's valorization. If currently 70 percent of world food production is in the hands of small-scale producers (ETC Group 2009), many of whom are agroecological producers, it would be a waste to exclude their work from capitalist accumulation. Yet, given that it is virtually impossible to convert land throughout the world into capital-intensive monoculture, the commercialization of agroecology may be an excellent way to control lands that can be a source of sizable rents. Clearly not lost in this discussion are the forecasts of demographic and economic growth for 2050 (FAO 2015b), combined with water shortages (FAO and WWC 2015) and the tendency toward diminished biodiversity (Loh 2000; Crowther et al. 2015; MEA 2005). Rents depend on the scarcity of whatever is monopolized; thus, predictions of increasing scarcity in the near future are excellent news for speculative capital in its effort to evade stock-market volatility and the declining rates of profit (Bartra 2016).

The largest experiment in this process of territorial appropriation through inclusion processes is the initiative called *New Vision for Agriculture* of the World Economic Forum (World Economic Forum 2017). It is a 'market-based' program operating in 21 countries in Africa, Asia and Latin America, and has mobilized USD 10.5 billion through 2017 to intervene in the lives of 10 million farmers. This Group of 7 (G7) and Group of 20 (G20) program is led by 31 of the world's largest transnational corporations and has set out to develop new models of partnership between corporations and farmers. Through these, many of those who were formerly independent peasants become operators dependent on the agroindustrial value chain, which in the end is nothing more than a type of indirect dispossession, through which differential incomes are obtained through their servile incorporation into the neoliberal globalization (Giraldo 2015).

One might also argue that these processes are also attempting to supply the products required to meet the huge demand for organic food to come. Hence, it is useful to these companies to have assured peasant suppliers of products for the value chain, with the plus of allowing them to promote themselves as socially and environmentally responsible companies. Further research and monitoring is still needed to clarify in detail to what extent peasants in inhospitable areas will be able to provide the quality and quantity needed for capitalist value chains. And it remains to be seen how their diversified agricultural

for commercial agriculture, but also because in agriculture, as in all other activities that directly depend on natural bases, the phenomenon of differential rent arises. It is widely debated in economic literature that agricultural activity, as opposed to industry, is based on land: a scarce natural resource with different degrees of fertility in various locations. These traits lead individual capitalists to monopolize the best lands, such that in a single economic activity different productivities exist. Given that the market requires that profits be produced even in the worst lands or, at a minimum, costs be recovered, the price of agricultural products does not revolve around average production costs – as in industry – but rather is based on the costs of the least fertile lands with the worst location in terms of the market. This way of determining prices implies that society has to cover extra charges, an additional payment, for agricultural products, which is distributed among capitalists who control the best lands, once investment costs have been recovered and they have obtained an average profit. In short, this is the basis for territorial rent that explains why capitalism builds an agrarian structure composed of capitalist and peasant units, but simultaneously needs peasants who are fully integrated into the markets. For a more detailed explanation of this phenomenon, see Bartra (2006).

systems could provide the uniformity and timing required by industry. The experience of organic coffee in Mexico is a good way to visualize how cooperatives and certification companies could be allied in future processes of appropriating the value of products from indigenous and peasant communities. Where indigenous peasants had previously created an organic and fair trade coffee boom from the inhospitable terrain of highland and jungle Chiapas (Martínez-Torres 2006), multinationals have arrived in an attempt to monopolize ‘labelled coffee’ and skim off the added value (Mariscal 2010).

The idea is also to lock small farmers into the value chain as purchasers of commercial ‘agroecological’ inputs. To achieve this, the intervention of governments, international cooperation agencies and NGOs could be fundamental. Governments already subsidize research into alternative commercial inputs like certified organic seeds, biopesticides and biosolids¹² (as ‘organic’ fertilizers), and they are starting to offer subsidized credit for business startups in these and similar areas. Along with microcredit and production credit targeted at small farmers, they can make it easy to build an input substitution (*à la* Rosset and Altieri 1997) version of a ‘false agroecology’. Thus subsidies, and other public policies aimed at ‘supporting agroecological production’ could hugely boost the market for a new generation of inputs and financial services.

In any case, these mechanisms when taken together can be interpreted as yet another attempt to subsume the relations and modes of production typical of peasant economies in order to insert them into the relations and modes of production of capital. They are processes of dissociation of farmers from their material and symbolic conditions of existence, as autonomous elements of agronomic traditions and peasant economies are displaced by exogenous elements that weaken the capacity for self-determination. It must be remembered that, as Van der Ploeg (2009) asserts, the search for autonomy is the distinguishing characteristic of the peasantry, so that the maneuvers that try to subordinate their labor through devices like contract farming, re-training peasants as small-scale ‘agro-entrepreneurs’, or their transformation into new customers for the inputs and services of the agro-extractive model can be seen as strategies of accumulation through the dispossession precisely of their autonomy, thus further inserting them in commercial competition.

The second explanation for why institutions have recently shown interest in including agroecology in their agenda lies in what Marxism calls the second contradiction of capital. This contradiction, derived from Marx’s observation regarding the case of technology in agriculture,¹³ highlights the fact that the technology used by capitalism degrades the naturally occurring conditions of production, putting capital’s profits at risk (O’Connor 1998). Agribusiness constantly seeks greater output, increased yields, and improved efficiency, leading, paradoxically, to plateauing yields (Ray et al. 2012) and even to an overall decline in areas where the green revolution was first implemented (Pingali et al. 1997); in addition to erosion, compacting, salinization and sterilization of the soils (Kotschi 2013); loss of functional biodiversity for agroecosystems; resistance to insecticides; and lowered effectiveness of chemical fertilizers. The inclination of agribusiness toward

¹²An example is the publicly funded university–private sector business incubator partnership in Brazil to produce industrial-scale organic fertilizer for large-scale soybean and maize agribusiness plantations (Anonymous 2016).

¹³[A]ll progress in capitalistic agriculture is a progress in the art, not only of robbing the laborer, but of robbing the soil; all progress in increasing the fertility of the soil for a given time, is a progress towards ruining the lasting sources of that fertility Capitalist production, therefore, develops technology, and the combining together of various processes into a social whole, only by sapping the original sources of all wealth – the soil and the laborer’ (Marx 1946a, 423–24).

hyper-productivity threatens the basis of production, contributing to the crisis in the agriculture and food system (Leff 2004).

It is increasingly evident that agro-capitalism is self-destructing in terms of the ecological conditions for production, by simplifying and over-exploiting ecosystems, eroding soil fertility, contaminating water and spewing greenhouse gases into the atmosphere (Lin et al. 2011). Economically, this means that there is a crisis of falling rate of profit for capital, i.e. a decrease in profits caused by an increase in production costs. An example: increasingly greater amounts of fertilizers and insecticides must be applied to maintain past yields. At the same time, the agrifood industry receives ever-worse publicity for its role in global warming and climate change (LVC 2009; GRAIN 2011); and in any industry, bad publicity and adverse public opinion logically imply a threat to profits.

While it has thus far been impossible to halt this environmental degradation and loss of productive capacity and image by technological fixes from within the system itself, the ongoing crisis has opened an opportunity for agricultural capital to restructure itself and implement changes in pursuit of lower production costs and increased productivity.

As James O'Connor (1998) says, not only is capitalism prone to crisis, but it depends on crises to restructure. Currently, agricultural capitalism, with some help from nation-states and multilateral organizations, is undergoing transformations in order to resolve this crisis in its favor. The changes underway include appropriating elements of agroecology, seen as offering technical tools or options that can to help in reestablishing conditions of production. This is seemingly alluded to in key passages of the invitation to the international symposium held in Rome in February 2016 entitled 'The Role of Agricultural Biotechnologies in Sustainable Food Systems and Nutrition'¹⁴: 'FAO believes that in order to overcome the effects of climate change and other challenges that are preventing its member countries from attaining sustainable food systems and nutrition, we need to consider every possible solution, including agroecology and biotechnologies' (FAO 2016a).

According to the FAO, agroecology is an additional option that can be made compatible with available biotechnological options, including GMOs and other genetic manipulations that can increase productivity: 'For example, biotechnologies and their products can be used in production systems, based on agroecological principles, to enhance productivity while ensuring sustainability, conservation of genetic resources and use of indigenous knowledge' (FAO 2016b, 3). The structure of this discourse makes it apparent that capital, backed by the institutions that guide global agricultural policy, is interested in the hybridization of various biotechnologies with agroecology, in an effort to recover the conditions of production in nature that have been degraded by the unnatural interventions of agro-extractivism. Admittedly, the effort in industrial agriculture to find technical fixes for the system is a legitimate concern, driven by the deterioration of the ability of the system to reproduce the necessary conditions for production. Beyond this intrinsic need to fine tune the system, new technological packages based on elements of agroecology are also promoted as part of a generalized move to 'greenwash' agribusiness, following the trail blazed by climate-smart agriculture, sustainable intensification, organic agriculture based on commercial inputs, drought-resistant GMOs and precision agriculture (Holt-Giménez and Altieri 2013; Loos et al. 2014; Pimbert 2015).

A major aim of these technological changes is to combine the most accessible and simple agroecological practices with agrobiotechnologies for large farms. Monsanto, just

¹⁴In fact, this FAO meeting on agricultural biotechnology may actually have been scheduled to blunt (and co-opt) the impact of the FAO agroecology process (LVC et al. 2016).

to cite one example, has been promoting ‘carbon-neutral crops’ for a couple of years – that is, ‘the production of crops using farming practices and technologies that absorb and store as many greenhouse gases as emitted, resulting in zero net greenhouse gas (GHG) emissions’ (Monsanto 2017). The practices promoted by this corporation are direct sowing, cover crops, conservation tillage, crop associations, rotational systems, drip irrigation, and application of nitrification inhibitors and ureases. According to Monsanto, these practices increase carbon storage and soil moisture, reduce erosion and sedimentation, reduce pest pressure and loss of nitrogen, and reduce fertilizer application (ICF International 2016).

The crisis, caused by the self-denial of capital and the tendency to wreak havoc on the natural resource base on which it depends, is a good time to expand and create new business opportunities. These may come from ‘agroecological input industries’, including new biological products,¹⁵ industrial-style organic monoculture crops for export niches, mechanisms to diminish the degree and cost of environmental deterioration by generating income through the sale of carbon credits (LVC 2013; Leff 2004), selling themselves as ‘environmentally friendly’ and ‘healthy’, ecotourism and bio-commerce enterprises. The crisis can also be leveraged to increase the flexibility and lower the costs of labor, thanks to contract farming with small producers, or with families who practice agroecology with an entrepreneurial mindset, geared to supplying corporate value chains.

In summary, environmental destruction can be an opportunity to create new planning instruments for capital on a large scale, with a focus on restructuring to improve profits, reducing costs, creating new consumer goods, and reestablishing conditions of production (O’Connor 1998). As Foucault (2012) observed, not everything can be said at any time; certain incidents and changes must take place first, for a given subject (in this case, agroecology) to acquire sufficient stature to be part of the discussion. The changes that have allowed agroecology to become part of the FAO’s discourse are partially the result of the recent intensification of the strategy of accumulation by dispossession, and of attempts by agribusiness to reorganize itself in a context of a crisis brought on by its own internal contradictions.

Development projects and the colonization of agroecology

The attempts to co-opt agroecology can also be seen as a very sophisticated way to ‘pacify’ on-going and growing agroecological revolutions in various parts of the world (Khadse et al. 2017; LVC 2015b; Rosset et al. 2011; Altieri and Toledo 2011; Holt-Gimenez 2006), by trying to corrupt them through ‘development’ strategies. As argued by a number of perceptive critics (Illich 2006; Escobar 2011; Esteva 2011), ‘development’ represents a sophisticated power structure that first creates ‘needs’ in a population, and then offers to satisfy them through science, technology and politics. It first creates abnormalities and then sets up mechanisms to control the abnormalized (Foucault 2007). Poverty, hunger and malnutrition are abnormalities defined by a subtle strategy that first decrees or creates a defect, or an illness, and then implements a (profitable) cure through a planned institutional intervention.

Poverty, alleviated though the benevolent blessing of institutional assistance, defines acceptable lifestyles, and any lifestyle that does not conform to ideals of progress, modernization and consumerism is defined as a defect subject to correction. Thus, people’s lives are

¹⁵For example, Monsanto recently launched corn seeds pre-coated with microscopic fungi that promote the plant’s growth (Cookson 2016).

defined by what they lack – for example, sufficient income, or modern education – or by a persistence of backward technology, etc. If the problem is initially deemed to need treatment, ‘development’ intervenes to supply goods and services to the target population. People who fall victim to the cogs of institutional development end up being absorbed by a monetized economy, and denied any way to reproduce their lives outside market dynamics (Illich 1992).

The economic rationale underlying this discourse characterizes the peasant class as bereft of profitability, efficiency and productivity, and requiring capital and technology. Thus, throughout the world, structured rural development programs create clients for multinational producers of inputs and encourage them to specialize in monoculture crops or commercial livestock breeds and use agrochemicals and veterinary biotechnologies. Proponents of the green revolution disseminated it to most of the world’s peasants and widened the client base by creating an expectation among them of becoming small-scale entrepreneurs (Escobar 2011). The idea was for people throughout the world to stop being what they had been traditionally, make it impossible for them to subsist as territorially embedded communities, put an end to their community’s environments, and bring them onboard the express train of capitalism (Escobar 2014). The environmental crisis, brought on in good part by the enormous infrastructure of rural development, is forcing some assumptions to change. Although abnormality continues to be defined as before – poverty, hunger, malnutrition or lack of education – the remedy is being embellished by including elements of agroecology, in an attempt to divert opposition by social movements to the green revolution. The notion of abnormality also suppresses people’s collective wisdom by making them dependent on a system that may now endeavor to provide agroecological knowledge and services – once freely available through horizontal exchanges – through nation-states, opportunist NGOs, multinational corporations, and projects backed by foundations and international organizations.

The machinery of development continues to create and satisfy needs through projects (Illich 1992). Thus, traditional lifestyles of small producers, indigenous peoples, nomadic pastoralists and fisherfolk continue to be framed in terms of poverty, underdevelopment and backwardness. Only now, they may be promised salvation through governmental agroecology projects and green, corporate contract farming. The objective will be to continue creating clients for projects, turning rural inhabitants into targets for professional agroecological services, and make them net buyers of expensive biological inputs (Rosset and Altieri 1997). Obviously, as evidenced by their amalgamation with biotechnology, institutions are unwilling to do away with ‘expert’ knowledge transferred from on high, thus incapacitating people and turning them into consumers of a new form of debilitating service (Esteva et al. 2005).

Agricultural capitalism typically blocks users from having knowledge about how their technologies are designed and made, which is a powerful way of preventing certain forms of social self-organization (Harvey 2003b). This is precisely what agroecology had challenged with methodologies used by, for example, the *campesino a campesino* or peasant-to-peasant movement (Vásquez and Rivas 2006; Holt-Gimenez 2006; Rosset et al. 2011; Machín Sosa et al. 2013), where producers are experimenters who disseminate their wisdom through horizontal dialogue and teaching by example. However, with the very likely invasion of institutionalized agroecological projects driven by public policies, these kinds of movements may be colonized, exposing people to the dictatorship of experts. While it is true that peasant movements have always benefitted from external allies, rather than appearing in complete isolation, we should remember that development is designed to increase control by external

institutions, disguised as an attempt to redeem and teach ‘the ignorant’, taking communities by the hand, like children in need of adult guidance, while assuming complete control of their time and daily activities.

Through countless projects, development has made people the target of expert knowledge, stripping communities of their creativity, hobbling their social imagination, imposing knowledge and dictating expected ways of producing and consuming (Illich 2006). The industrial colonization of agroecology will be achieved by input substitution (Rosset and Altieri 1997) – bio-pesticides, bio-solids and other alternative yet still commercial inputs – through the same capitalist rationality that structures all forms of existence in response to market demands and the profit motive (Polanyi 1957). Development programs and projects have carried out precisely this work for decades; nothing indicates that any of this will change if ministers of agriculture appropriate agroecology and include it in the national plans of neoliberal or progressive governments.

Thus, although communities may in many cases remain in their territories, external agents could end up controlling production, distribution and consumption systems, tethering them to the intermediation of global industrial chains, leaving them dependent on these chains for consumption of products and services, exposed to the shifts in economic globalization, and subordinated to market mandates.

Greenwashed capitalism has discovered agroecology as a way of legitimizing a dual agricultural geopolitics which, on the one hand, seeks to restructure agribusiness with a renovated discourse steeped in sustainability and responsible investment, while, on the other hand, it promotes peasant agriculture based on agroecology and tied to market economics through partnerships with entrepreneurs, dependence on suppliers of ‘alternative’ inputs, contract farming, or other forms of insertion into supply chains. A greenwashed discourse is undoubtedly a powerful legitimizing tactic that tries to counter abundant evidence that capitalist agricultural technology is destroying its very own sources of economic and ecological sustainability. Perhaps we are witnessing the beginning of a new stage whereby the green revolution is molting, to take on a new, ever more ‘green’ disguise, to legitimize itself though an agroecological discourse based on social inclusion, healthy foods and safeguarding Mother Earth.

One of the principles of liberal democracies posits that all forms of societal expression should participate in political power. In fact, participatory pluralism is a very subtle way of exercising power (Giraldo 2014), to dampen non-conformist discourses and mollify social mobilization against industrial agriculture, while legitimizing the latter, since this arrangement makes its hegemonic power less evident. In the context of the contemporary crisis, it is vital that development intervene, carrying out the useful function of incorporating agroecology into capitalism’s global plans.

Agroecology and development alternatives

Clearly, a dispute for agroecology has begun between at least two forces. The outcome will depend on the balance of power in venues where the struggle occurs and on the ability of social movements to eschew the precepts of so-called development. In our opinion, it is an ideal moment to voice our critiques of a type of agroecology that hews narrowly to economic rationality and to the imaginaries of progress, just as we defend a broader concept of agroecology as a fundamental component of alternatives that seek to address the crisis of civilization. Challenging new models of agroecological simulation and co-optation requires defending more political visions and strategies that are more akin to what in Latin America has been called *Buen Vivir* (‘living well’), which includes people resisting control by

outside institutions, practicing autonomous agroecology, and assuming responsibility for the problems that directly affect them.

Social movements and grassroots organizations need to construct intentional organizing processes to scale out agroecology at the territorial level (Rosset et al. 2011; Khadse et al. 2017; McCune et al. 2014, 2016; Rosset 2015). They must struggle for land and defend their territories from land grabbers (Rosset 2013). And they must build powerful imaginaries – mobilizing frames – to motivate their peasant membership for the process of agroecological transformation, and for the immaterial dispute to defend and transform their real territories (Rosset and Martínez-Torres 2012; Martínez-Torres and Rosset 2014).

It also involves rejecting all attempts to impose technical fixes and one-size-fits-all models, increasing the power of agroecology as an alternative to development processes that mobilizes collective creativity and social ingenuity, while diversifying all manners of producing, consuming, being and existing. Paraphrasing the Zapatistas in Mexico, while we ought to reject a world based exclusively on a mindset of development, that robs individuals of their creative abilities, we should revitalize the many worlds that learn from one another, a task that agroecological methodologies do so well when they contribute to relative autonomy (Rosset and Martínez-Torres 2012), running counter to the rationale of clientelism within governmental programs and projects. Ways of living exist, founded on cultural creativity and the ecosystemic ordering of each specific locale, that encourage real agroecology by improving community relations, deepening mutual aid, increasing people's control over their lives, and placing all tools under the control of producers, i.e. the polar opposite of the conventional development paradigm.

Defending agroecology from institutional plunder and co-optation involves refuting the economicism that would reduce the concept to a matter of productivity, yields and competitiveness based on neoliberal economic and scientific precepts (Giraldo 2013). It also involves constructive criticisms that reshape agroecology and link people's worldviews, their forms of symbolic understanding, their relations of reciprocity, and their ways of existing and re-existing to ways of inhabiting the Earth (Porto-Gonçalves 2009). Much more than a way of producing, agroecology is a way of being, understanding, living and feeling this world. It is a social relationship distinct from capitalism that encourages the recovery and interchange of local wisdom, communal creation of new knowledge where problems occur, and eco-systemic transformation in line with the conditions appropriate to regenerating life (da Silva 2014). As LVC (2015b) has stated:

Ours is the 'model of life', of the countryside with peasants, of rural communities with families, of territories with trees and forests, mountains, lakes, rivers and coastlines, and is in firm opposition to the 'model of death' of agribusiness, of farming without peasants or families, of industrial monocultures, of rural areas without trees, of green deserts and land poisoned by chemical pesticides and genetically modified organisms. We are actively challenging capital and agribusiness, disputing land and territory with them.

In addition to decolonizing knowledge and resisting current global, rent-seeking, dispossessing, capitalist mechanisms, the defense of agroecology needs to recover a sense of the commons. This implies continued rejection of agribusiness models, large landholdings and economic globalization, while persevering to defend territories from attempts by capital to expand into new geographic spaces, and continuing mobilizations aimed at gaining control of production, distribution and consumption. Yet communizing, or widening the commons, is not solely about community appropriation of all material and cultural ways of existing. Proponents of grassroots agroecology need to think hard about the

technical tools they promote. Will the tools be at the service of the collectivity? Or will they constitute the kind of input substitution that deepens dependence on external suppliers of inputs and risks further indebtedness, threatening to further enslave people to technology and preserve exploitation (Rosset and Altieri 1997; Khadse et al. 2017; Illich and Borremans 2006)? We believe this is precisely what is at stake in the dispute over (de)politicizing agroecology and the attempts by mainstream institutions to incorporate it into their development jargon and practices.

Even though there are defenders of agroecology who cannot break with toxic concepts of development, there are many successful examples of agroecology as transformation that challenge rather than conform to existing structures of power. These range from Cuba at a national level (Machín Sosa et al. 2013; Rosset et al. 2011) to India (Khadse et al. 2017), to other places in the Americas, Asia and Africa (LVC 2015b; Altieri and Toledo 2011). But if movements fail to distinguish between formulations of agroecology that conform to power, rather than those that transform (Levidow et al. 2014), they risk becoming unwitting tools for co-optation by harmful programs and projects, thus helping capital save itself from its own contradictions.

We do not wish to suggest that this is not a good opportunity for social movements to voice their demands, just because the FAO and development institutions have an interest in agroecology. Just the opposite: it will not be possible to scale out agroecology if the institutional machinery continues to favor industrial agribusiness and green revolution technology with subsidies, credits, extension programs and the whole gamut of incentives that have helped the rural development paradigm to expand over the past 50 years. Nor are we arguing that the fact that FAO has incorporated agroecology into its agenda can be fully attributed to co-optation by agribusiness. We have to also see this turn as the result of the long struggle of civil society organizations, academics and some sympathetic officials within FAO itself.¹⁶ There have been struggles in many diverse spaces against the dominant approach, from different angles, as well negotiations with a good dose of political pragmatism.

But people should be careful to avoid the naïve belief that the path is finally clear for moving the world's agricultural structures toward agroecology. Social movements must remain watchful and avoid the dependency on public programs and projects, and private-sector partnerships and contracts, that institutionalized agroecology would bring, fomenting incapacitating bureaucracy and runaway rent- and profit-seeking.

It is also important to note that despite the undeniable attempts at co-optation, agroecology itself is a barrier to the commodification and capitalization of agriculture. Although some agroecological practices may be partially and profitably applied to industrial agriculture, others are useless for agribusiness, as they are impracticable outside the specific bio-cultural contexts of each territory. Agroecology, as we know, is not based on recipes, but on principles applied in a different way to each reality, so that, despite many attempts, real agroecology is relatively invulnerable to attempts at co-optation. It will be important to distinguish the extent to which agribusiness is actually capable of capturing and monetizing the environmental benefits of agroecology, and to what extent the corporate and

¹⁶The internal agroecology group at FAO in Rome, and their allies inside FAO, seem to be unquestionably well intentioned, and very open to the viewpoints of, and collaboration with, social movements, agroecologists, and farmer and peasant organizations. But they are also a besieged minority inside of FAO, where the broader institutional approach is that of co-opting elements of agroecology into sustainable intensification, and is often antagonistic to the very existence of the agroecology group.

institutional appropriation of the concept is more useful as a way for agro-capitalism to disguise itself as green in the eyes of public opinion.

We are at a moment when movements cannot turn away. Furthermore, refusing to take part in relevant debates helps capital find solutions to its chronic crisis of over-accumulation through dispossession, while temporarily restructuring its production conditions. The territory of agroecology is very much in dispute, and movements must fight back in both real and immaterial territories. Along the lines of what occurred at Nyéléni at the International Forum for Agroecology, this is by far the best moment, as movements reject appropriation, for political forces to reposition themselves, for new assumptions regarding the struggle to be conceived, for methods of resistance to be updated, for scattered organizations to be unified and for the meaning of alternatives to be redefined. Ultimately, capital's endeavor to devour everything and bring every spatial bastion and human being into its circuits of accumulation is one of its greatest contradictions, since it actually strengthens people's will to resist. In fact, capital can have an effect opposite to its intentions: mobilizations could be revitalized and peoples could re-appropriate their natural resources, revalue their cultures, and step up efforts to build effective social processes aimed at territorializing true agroecology.

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