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# The prefigurative power of urban political agroecology: rethinking the urbanisms of agroecological transitions for food system transformation

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## ABSTRACT

In recent years, urban contexts and urban-rural linkages have become central for scholars and activists engaged in agrarian questions, agroecological transitions and food system transformation. Grassroots experimentations in urban agroecology and farmers' engagement with urban policies have marked the rise of a new agenda aiming to bridge urban and agrarian movements.

Departing from the work of Eric Holt-Gimenez and Annie Shattuck, this paper argues that the way urban-rural links have been conceptualized is occasionally progressive, and that an agroecology-informed food system transformation needs radical approaches. Acknowledging that processes of urbanization are dynamic, driven by specific lifestyles, consumption patterns, and value orientations – producing ongoing suburbanization, land enclosures, farmers displacement and food-knowledge loss – the paper argues that thinking transitions through new rural-urban links is unfit to tackle the evolving nature of these geographies, and reproduces the distinction between consumers and producers, living on either side of what Mindi Schneider and Philip McMichael have described as an epistemic and ecological rift.

Building on insights from four case-studies across global north and south, the paper reframes agroecological transitions as a paradigmatic change in biopolitical spatial relations, economic values and planning agency – what we call an 'agroecological urbanism'. The paper articulates a transformation agenda addressing urban nutrients, peri-urban landuse, community food pedagogies and farmers' infrastructure.

## KEYWORDS

Agroecology; urban political agroecology; urbanism; agroecological transitions; agroecological urbanism

## Introduction

In recent years, the centrality of urban contexts and urban-rural linkages for food system transformation, has become an important matter of concern for both scholars and activists engaged in agrarian questions and agroecological transitions (Tornaghi 2017; Vaarst et al. 2018; Van Dyck et al. 2017; Weissman 2014). Indeed, grassroots experimentations in urban agroecology (AA.VV. 2017), and farmers' engagement with urban policies for food system

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change (People's Food Policies) have marked the rise of a new research agenda aiming to bridge food justice and sovereignty, urban and agrarian movements.

Holt-Giménez and Shattuck (2011) taxonomy of food system transformation practices – built around four types labeled respectively neoliberal/market-led, reformist/aid-oriented, progressive/empowerment-seeking and radical/redistribution-enabler – has become a term of reference for understanding how emerging initiatives are positioning themselves in relation to the food regime while bringing forward change. Departing from their work, this paper argues that the way urban-rural links have been conceptualized so far in most agroecological and food systems literature is largely reformist (occasionally progressive), and that an agroecology-informed food system transformation needs radical approaches able to see and engage with the challenge of ongoing neoliberal urbanisms and urbanizations. We claim that a 'prefiguration' of such an approach – or, in other words, an illustration of action-oriented radical practices that build components of a desired future in the present – can be seen in the emergence of an urban political agroecology praxis.

The paper is structured around four sections. In section one we offer a brief overview of how critical agrarian studies and agroecology transition literatures have engaged with 'the urban' (urbanisms, urbanization, cities, urban-rural links, and rural-to-urban flows), provide an overview of their shortcoming, and discuss why they cannot be considered 'radical' – to stay with Holt-Gimenez & Shattuck's taxonomy. In section two, we discuss the binding links between capitalism and urbanization and point out the need to decouple them if urban contexts, urban resources, urban dwellers and urban solidarities and interdependencies are to be active parts of agroecological transitions. In section three, we illustrate examples of urban agroecological praxis, building on empirical material from our ongoing PAR research project. In section four we analyze and summarize the radical messages that can be distilled from these practices as prefigurative of an agroecological urbanism.

### **The 'urban' in current debates on agroecological transitions: a review**

Despite the interest for urban contexts and urban food movements in relation to agroecology, food sovereignty and more broadly agrarian questions, debates in the literature remain largely focussed on rural and peasant struggles.

For decades 'the urban' has been seen under the light of the 'urban bias', a perspective looking at urban contexts as center of attention, extraction, capitalism, and the false promise of emancipation, while rural contexts have been seen as passive recipients of the consequences of these dynamics, namely poverty, under-investment, underdevelopment, enclosures, land grabbing, commodity production, and rural-to-urban population drain. It is

only in the past five years or so that debates in agrarian studies have started to be populated by a diversity of views, showing the beginning of a productive debate around the urban. Bernstein, for example, in a perhaps too caustic way, points to the “relations between the (...) pairings/oppositions of rural and urban, and agricultural and industrial, on which FS [*food sovereignty*] has little to say to date, other than to remark on the predatory nature of the urban on the rural, and to hope that ‘protecting’ more labor-intensive (and presumably more remunerative) small-scale farming would help stem migration from the countryside (and encourage ‘re-peasantisation’)” (Bernstein 2014, 1053). His polemic way of questioning ‘the peasant way’ as the dominant approach to achieve food sovereignty is fertile here in calling for a more serious reflection on the urban, although Bernstein hardly addresses the link between urbanism, urbanization, social reproduction and capitalism.

Partially building on Bernstein’s and Kay’s (2009) early work, and in a critical vein toward the ‘urban bias’ tradition, Nadine Reis points to the impact of neoliberal globalization on the increasing fluidity of capital, commodities and labor between urban and rural context: “This is particularly evident in the increasingly multilocational livelihood strategies of rural and urban households that include the mixing of farm and non-farm activities in urban and rural areas, and different forms of national and international migration that combine traditional ‘rural’ and ‘urban’ activities” (Reis 2017, 2). The argument of an increasing hybridity of urban and rural livelihoods has been explored productively further by others. Jacobs, for example, goes as far as to state that “instead of being resolved, the land and agrarian question is in part being shifted spatially to the urban areas. Rather than being dismissed as agrarian populism, the self-activity of the urban proletariat with peasant characteristics should be understood as a central component of both contemporary agrarian and urban struggles” (Jacobs 2018, 899). Jacob’s point is not only concerned with the nature or the agency of the urban itself, but rather an acknowledgment of a certain degree of overlap between agrarian and urban struggles.

These openings toward a more engaged consideration of urban contexts signal a certain shift, brought forward by, among other things, an understanding of globalization, changing capitalism, intersectionality and translocal householding (Gidwani and Ramamurthy 2018).

However, the debates have rarely moved beyond the two main positions of either calling for a rethink of urban-rural links, or seeing the urban as a meaningful context of agrarian issues.

Policy and advocacy arenas, in fact, largely reflect these approaches, looking for plural market models to reconnect consumers and producers (FAO 2018), or strategies for supporting urban and peri-urban agricultural/agroecological production (AA.VV. 2015). It is perhaps the latter, or rather what we could call ‘the urban agriculture cauldron’, which is both promising, but

particularly ambiguous, blurring the lines between radical, progressive and reformist approaches.

Urban agriculture features prominently in recent discussions around food justice, alternative food networks (AFNs) and sustainable food systems. It has also begun to appear in literature on food sovereignty. Alongside truly emancipatory and change-seeking practices, discourses and policies, however, urban agriculture is also being mobilized at the forefront of green gentrification, green washing, new capitalist adventures and forms of self-exploitation which reinforce neoliberal dynamics (Alkon and Agyeman 2011; Pudur 2008). Alongside a general blindness to the political economic nature of these endeavors, there is also a general disconnection with political ecological issues, to the extent that very rarely the type of agriculture imagined or performed in these practices is agroecological and truly socio-ecologically sustainable. Most crucially, debates around urban agriculture largely consider the city as a container, a place to be retrofitted with food, rather than a context that – for the very reason of its ‘urbanity’ – determines specific modes of consumption and lifestyles (that is: specific dynamics of social reproduction) at the mercy of capitalism, posing particular challenges to the food system. It is therefore with caution that we refer to this field when we claim the need to think ‘the urban’ for furthering agroecological transitions.

Emerging discussions on bioregions and agroecological food systems, many of which in this journal, are however interesting and to some extent fertile. Daniela Poli, for example, with reference to the Italian context, looks at the bioregion as a workshop of experimentation for a ‘Copernican revolution of food’, as a pivotal space for a place-aware spatial re-design of food-producing landscapes (Poli 2017). She looks in particular at the role of ad-hoc voluntary ‘social contracts’ between public, private and third sector actors working within new alliances toward the establishment of a peri-urban agricultural park. Kasper et al. (2017), building on different projects in Morocco, Rwanda and Vietnam, take a systemic approach to exploring spatial dimensions of the food system. Their work looks at food as infrastructure, alongside other aspects of territorial systems, including water, waste, and energy.

More poignantly, Mette Vaarst et al. (2018) systematically map what the development of an agroecological food system in city-region contexts would demand. They define a city-region as a landscape which includes urban, rural, and peri-urban areas. They acknowledge the size of the challenge ahead, illustrated also by the scale of food and nutrient waste:

“The fact that we talk about “waste” underlines the detachment from food production and farming, soil management, animal keeping, and resource cycles which were not present just 100 years ago (...) In a city-region context, this clearly calls for a reorganization of resource cycles and avoidance of losses of energy, water, and nutrients in a combined rural–urban landscape” (Vaarst et al. 2018, 696).

Alongside very important insights about the type of transformation needed, they also point out that “compared to many current urban food consumption patterns, the consumption patterns of agroecological food systems have to change, toward local (and therefore also season-related) food, and animal products of an amount which can actually be supported by each agroecological food system” (ibid: 699). The mutual and iterative alignment of consumption patterns and rural and urban food production “will require processes of negotiation, adjustments and development of common understandings, shared knowledge, and collective action to ensure that everybody at all times will have access to healthy nutritious food” (ibid: 699).

While we generally agree with the way these contributions acknowledge the change needed in the role and collective management of peri-urban areas – mobilizing local marginalized actors, looking at farmers as stewards of local landscapes and recognizing the territorial lens as multi-layered and multifunctional – we feel that ‘the urban’ dimension and its structuring power is not sufficiently unpacked and addressed in these discussions in a way that fully acknowledges political economy and political ecology considerations.

If the urban is not just a geographical location whose oppressive power over the rural is to be reversed, but rather the reflection of specific social arrangements, collective inter-dependencies, value and exchange systems, in short, urban-isms’ reflecting specific forms of urbanis-ations’ (in the same fashion as modernism relates to modernization), and if we acknowledge and aim to build on the work of critical geography that has unpacked the intimate link between capitalism and urbanization (Harvey 1985), we are yet to dig deeper into these dynamics to foresee ways to dismantle oppressive mechanisms.

In this sense, Holt-Giménez and Shattuck (2011) work helps us to remember that the radical transformations needed to bring forward agroecological transitions not only need to build alternatives that support agroecological farmers and communities, but also to *actively dismantle* disempowering and oppressive processes, disabling arrangements and unjust systems. If we look at the urbanism side of these processes, this means not only creating isolated, ad-hoc progressive initiatives (as in some of the examples above), but to systematically break speculative land markets, halt the logics of substitution that are at the roots of the commodification of food, place urban soil care centrally within land policies, nourish the commoning of urban resources in ways that allow communities to exercise control of their social reproduction, and more generally enable the full politicization of biopolitical relations across the spectrum, moving away from technical and functionalist approaches solely focussed on food. With Schneider and McMichael (2010) we think that radical paths to agroecological transitions should bring epistemic, paradigmatic, changes as well as their material counterparts. We will expand on these issues in the next section.

## Radicalizing the quest for urban agroecological transitions: the prefigurative role of an urban political agroecology praxis

In the previous section we have argued that within the literatures on food sovereignty, agroecological transitions, food system transformation and critical agrarian studies, ‘the urban’ features largely either as a contextual element or as a locus and source of disempowerment, and in both cases as a place where the agrarian questions need to be addressed. These approaches, we claimed, miss the structuring role of urban collective arrangements, the entanglement between capitalist relations and processes of urbanization and the urban as a manifestation of biopolitical relations. In this section we aim to substantiate our call for a paradigmatic change.

Our main entry to build a more radical critique of the role of processes of urbanization in structuring and perpetuating capitalist relations, is based on an analysis of the role of ‘social reproduction’ within dynamics of urbanization.

We would like to depart from Gidwani and Ramamurthy (2018) synthetic and incisive summary of social reproduction debates, which they use through an intersectional lense, to illustrate how ‘middle migrants’ in India simultaneously inhabit rural and urban lifeworlds, remaining entangled in both agrarian and urban questions. With reference to the work of Tamara Jacka, Cindi Katz and Nancy Frasers, they define social reproduction as:

“inclusive of ‘biological reproduction through childbirth and child rearing; the reproduction of humans, through socialization and education as well as the provision of food, shelter and other goods; the maintenance of human wellbeing through the provision of welfare, health care and other services, and through social and cultural activities; and the reproduction of social relations and social institutions’ (Jacka 2017, 2). Linking social reproduction and capitalism, Cindi Katz (2001, 709) conceptualizes the former as the repertoire of ‘social practices through which people reproduce themselves on a daily and generational basis and through which social relations and the material basis of capitalism are renewed’. Finally, Nancy Fraser (2016, 23) draws our attention to subject formation in her elaboration of the concept: ‘Variously called care, affective labor, or subjectivation, this activity forms capitalism’s human subjects, sustaining them as embodied natural beings while also constituting them as social beings, forming their habitus and the cultural ethos in which they move.’” (Gidwani and Ramamurthy 2018, 1000)

Urbanisms and urbanizations are ways to organize mutual interdependencies and social reproduction within a particular socio-economic and cultural context. The reproduction of human subjects, their habitus, cultural ethos and the material basis of capitalisms are strongly interconnected with the way food is produced, bodies are fed, economies run, and ecologies disrupted.

Feminist debates on social reproduction (beyond the one cited above, including also the work of Silvia Federici 2012 and Dolores Hayden 1985) help to unpack the central role of food (its growing, access, cooking and disposing) within three fundamental mechanisms of capitalist societies:

- (1) The devaluation of women's care work and of farmers' agroecological practices, which result in the availability of cheap food provided by the food regime, are central in the physical and social reproduction of low-paid workers and consumers, which remain (and can afford to remain) trapped into logics of consumerism and mortgages.
- (2) The social acceptability of omnipresent commodification of food (as well as everything else) is part of a logic of substitution – the power of exchange value over use value – that dominates capitalist market values and feeds capitalist economies.
- (3) The externalization of ecological costs of extractive, exploitative, polluting, degrading, agroindustrial practices are central to the reproduction of capitalist profit and ongoing land speculation and soil depletion, which feed the spatial-fix of capital.

Attempts to transform the food system through agroecological means, therefore, need to understand and challenge the profound interconnection between capitalist and neoliberal mechanisms (and values) with the social arrangements for social reproduction and the ways of life ingrained in processes of urbanization. Decreasing reliance on industrial ready meals in favor of fresh local agroecological food can only work if more time becomes available for cooking, if social arrangements are in place to return nutrients to the land, and if collective interdependencies contribute to the reproduction of knowledge across the now sharp divide between producers and consumers. Likewise, isolated land protection projects are insufficient to disrupt the progressive devaluation of soil life and the ongoing land value speculation in urban and peri-urban contexts. Agroecological transitions that aim to seriously take into account the urban, need to devise strategies to decouple urbanism and capitalism, if they are not to resign to imagining a future made up only of autonomous self-sufficient rural farmers.

As Schneider and McMichael (2010) have beautifully distilled, the metabolic rift between town and country, is not only a rift of nutrients, a separation between producers and consumers, soil and waste, but it is an ecological and epistemological rift. In our approach, oriented to building what we call 'an agroecological urbanism', we aim to think processes of urbanization centered on the restoration of this long-lost ecological centrality. We believe that agroecology is a rich framework and constellation of virtuous practices that is particularly suitable to break the urbanism of capital we know and to bring forward a paradigmatic change (Dehaene, Tornaghi, and Sage 2016; Deh-Tor 2017; Tornaghi 2017).

In particular, we look at the prefigurative power of an urban political agroecology praxis to build an alternative future. We look at practices that: i) show how much urbanization is rooted in logics of commodification and land speculation and break these logics by honoring the use-value of soils for



local food production; ii) practices that render the ecological alienation of urban lives visible and begin to team with nature, with plants and insects inside the city rather than treating nature as the city's counterpart; iii) practices that try to bridge urban struggles for social justice, land justice, and citizen-based forms of *autogestion* with the imaginaries of resource sovereignty and peasant farming; iv) practices that challenge the collective choices that have been hardwired in the 'food-disabling city' (Tornaghi 2017) and begin to enact new collective arrangements and infrastructures that provide a favorable context to agroecological food growing.

Our research is focussed on four cities: Riga (Latvia), London (UK), Brussels (Belgium) and Rosario (Argentina). They have been selected because of their geo-political and spatial diversity and heuristic complementarity, as they exemplify global north and south, vertical and horizontal metropolis, former socialist, squarely neoliberal, and 'pink tide' (or what is left of it) political-economic contexts.

In line with our belief in the importance of local, people's and indigenous knowledges, we adopt a PAR research approach designed around a 'local social platform' (what we could call a political oriented type of urban living lab) in each case study. The platforms are participated in by existing coalitions of actors that explore, through a series of workshops and in-depth conversations, new politicizing and strategising trajectories within their context. As a transdisciplinary project, merging research and stakeholder partners, the goals and specific political agendas were co-determined locally by the social coalitions to which the stakeholder partners belong, during the first year of the project. Mutual learning and cross-fertilization between cases is facilitated through the mobility of local actors alongside researchers (as well as the use of multimedia) in biannual events called 'intervisioning' meetings. The type of practices the actors are engaged in, we believe, have begun to disrupt the structures of domination of the capitalist urbanism-food regime alliance and, taken together, are prefigurative of an agroecological urbanism. They address power and its structures not purely through forms of political organizing that are addressed toward a goal in the distant future (a way of political organizing often considered at odds with prefiguration), but through the day-to-day experimenting within contradictory, fluid social organizations, enmeshed within longer-term political strategies and idealized futures (Siltanen, Klodawsky, and Andrew 2015). We believe that prefigurative practices, for their ability to live productively with the tension between the now and the future, to build place-based alternatives (Escobar and Harcourt 2005), and to engage with a politics of the possible (Gibson-Graham 2006), are fertile pedagogical grounds for agroecological transitions. By trying to avoid playing the community against the state, and by thinking about interdependence as a distributed problem to be articulated within

everyday praxis, they enliven a politics of place that installs sovereignty-seeking practices squarely within real sites and real communities,

In addition to being contexts with a mobilization of actors politically engaged at various scales in agroecological transformations, we have also selected the cases above because, through the articulation of debates and practices around urban nutrient sinks, peri-urban land-use, community food pedagogies and farmers' operating infrastructures, they help to prefigure paradigmatic changes around biopolitical spatial relations, economic values and planning agency, which are central dimensions of an agroecological urbanism. As we will see more extensively in the next sections, departing from the normative position of agroecology, and thinking food sovereignty as a way of life and praxis that tries to take full responsibility for the reproduction of the ecological conditions, resources, knowledge and skills needed to grow food, these practices illustrate a number of disruptions to the engrained mechanisms of reproduction of capitalist urbanism.

### **Examples of urban political agroecology praxis in rosario, riga, london and brussels**

Reflecting on preliminary research results, in this section we illustrate assets, practices and political ambitions at the core of the urban political agroecology praxis that in each local context is disrupting food-disabling modes of urbanization (Tornaghi 2017). In the concluding section we then discuss the key mechanisms that we read across them and how they contribute to an agenda for furthering agroecology transitions within the framework of an agroecological urbanism.

*London* (United Kingdom) presents a bubbling context in which a large coalition of politically organized social movements – partially affiliated to La Via Campesina – have long been organizing against highly concentrated land ownership, food-skills loss and rampant speculative gentrification, carving out spaces of antagonist thinking, building land-based livelihoods and proactively lobbying the Greater London Authority to influence spatial planning and policy. With a growing number of activists engaged in reskilling and reflecting historically and theoretically on the meaning and possibilities of their endeavors, an urban political agroecology praxis is emerging. This is focussed largely on peer-to-peer learning, on forming workers co-operatives to build anticapitalist urban farming livelihoods, and on nesting the new farms within territorial alliances in which they work as local community hubs to decolonize, socialize and re-skill aspects of social reproduction. In a highly speculative geographical context where the main challenges for agroecological farmers are land access, the ongoing destruction of agricultural land and a mostly leisure-based use of the greenbelt, we are working with groups mobilized around land justice and insurgent urban planning, and expanding

these struggles in two directions: the first one is the articulation of more-than-human solidarities and soil stewardship within their campaigns and organizing (sharpening an ‘ethic of care’ as a politicizing tool), the second is enabling practices of nutrient sovereignty, by exploring viable nutrient recovery models from organic food waste across the city, to resource urban and peri-urban smallholders in their tasks of rebuilding topsoils and fertility by returning minerals and organic matter to the land. This includes overcoming visions of the urban as nutrient sinks, and reimagining the scale at which the closed loops of agroecological farmers operate in an urban context.

*Riga (Latvia)* appears in some respects like an opposite case: here historical events such as the end of serfdom in mid nineteenth century, the Nazi occupation, and the Soviet regime have contributed to a socio-natural landscape characterized by: i) fragmented and widely accessible land ownership, ii) a high proportion of citizens either owning land (often in peri-urban or rural patches returned to them at the end of the Soviet regime) or having access to large allotments; iii) widely (diff)used food growing and foraging skills. In this context a good proportion of people’s fresh food comes from regular foraging, from a decommodified economy of informal exchanges of produce between friends and family members, as well as from an informal network of direct buying from new organic farmers. The triad of assets ‘skills-land-exchange networks’, however, is greatly individualized and under-valued as a collective resource. It is also threatened by a shrinking and urbanizing national population, by penetrating neoliberal foreign forces taking over the Latvian agricultural sector (Aistara 2018) and by large-scale urban speculative development plans on agricultural land. Within this context, our research project is working with pockets of politicized groups mobilizing against the progressive dismantling of the large allotment complexes in Riga, with peri-urban organic farmers and with visual artists, to render visible and culturally revalorize the range of agroecological practices of care already in action in urban and peri-urban lands, as well as the rich decommodified exchange of skills and foods normalized and taken for granted in those contexts. The challenge here is the politicization of the great degree of autonomy and quiet sovereignty (Visser et al. 2015) that already exists, and its translation into new collective subjectivities, in a context largely refractory to cooperativist ideas and ideologically embracing capitalist economics.

*Brussels (Belgium)* has a dense core dotted of building and infrastructure in economic and functional transition and is surrounded by car-dependent, land-eating suburbanization which progressively isolates and residualises farmers. The political agroecology movement here is fragmented alongside language and regional government divisions, separating the French-speaking Brussels city region from the peri-urban Flemish areas: on the urban side new (agroecological) market gardeners and community growers are

supported by food and climate-friendly public policies favoring new farms in interstitial lands; in the peri-urban area an emerging agroecological movement of new professional farmers focussed on soil health and land reform, and fighting a Flemish policy context that still caters to extractive industrial farming models. Partially inspired by cross-fertilization with the Rosario experience, the action-research here is challenging these divisions, bringing the two movements together to reimagine physical and operational infrastructures (for transport, composting, water and green space) that work across the divide between environmental management, biodiversity preservation and food growing at urban and peri-urban levels. The coalition, which includes citizen-driven cooperatives, land trusts and new farmers as well as civil servants/champions within the city-region government over the past year has successfully lobbied the Brussels government for the creation of a reference center for urban agroecology, now in development. The challenge here is to create synergies and strategies for land access and farming infrastructure that cut across deep regional-language border divides in a time of widespread resurgence of identitarian politics.

*Rosario* (Argentina) is a resisting outpost of the socialist pink tide – now almost entirely succumbed to the reflux of aggressive populism – that has been opposing colonial and neoliberal economics in the past twenty years. The city enjoys an urban agroecology coalition, an institutionalized group with roots – past and present – in the grassroots social movements struggling for food sovereignty, agroecology and the promotion of the ‘buen vivir’, that has been emerging in the wake of the crisis that swept the economy in 2001. Since then, the group has built almost 20 years of experience and policy-development working against the invasion of cash crops and transgenic monocultures – both in its urban agriculture programme (Lattuca 2017) and in the more recent green belt programme in the peri-urban area (Battiston et al. 2017). Both initiatives include active measures to protect land, to contain, sanction and discourage soil depleting and polluting farming practices, to support precarized groups to rebuild soil fertility on damaged lands and to build livelihoods through the process of offering an extensive infrastructure (composting inputs from the city, seed bank coordination, training, technical assistance), and enabling free access to markets. At the center of the Rosario experience has been the promotion of agroecology as a way of life, as a fundamental expression of the philosophy of the buen vivir (Escobar 2018), deeply rooted in the understanding of trans-species ecological interdependencies, and most tangibly manifested in farmer-led pedagogies and the public promotion of linkages between soil health, plant happiness and human flourishing. While also working as a benchmark for the whole project, the focus in this case study is twofold: on the one hand political strategising to defend the achievements against a new wave of neoliberal restructuring in the wake of a new financial crash, and second

the challenge of experimenting with low-tech and affordable energy technology to resource agroecological farmers dealing with the double challenge of heatwaves and floods.

## **Conclusions. A transformation agenda for an agroecological urbanism**

The agroecological practices and struggles that we have briefly illustrated in the four contexts above challenge and disrupt – each in their own way – the spatial relations, economic values and planning processes at the core of capitalist urbanisms. By acting on the processes that govern our social reproduction, we believe they offer important material to begin imagining radical alternatives, and to enlist a transformation agenda for an agroecological urbanism. In particular, their transformational power is encapsulated into three disrupting mechanisms: i) interrupting logics of substitution ii) embodying an ecology of care and more-than-human solidarities; iii) building resourceful communities through empowering infrastructure.

### ***Interrupting logics of substitution***

Capitalist economies are built on monetary exchanges and commodification, through which salaries and wages can be spent on goods whose value is fixed through market and policy mechanisms, usually not including ecological and social justice values. These logics are most visible in speculative land markets and the availability of unseasonal unsustainably produced, cheap ‘food from nowhere’. In all four cases we see practices that actively develop ways of breaking free from and disrupting speculative land markets. Not only were many agroecological *huertas* of Rosario developed on interstitial pieces of land alongside roads and railways or under overhead power lines which were not suitable for development, but the agroecology plan for the city actively aims to protect land in the green belt from further development. Similarly, in Riga, Brussels and London the quest for land and the aim to build alternative livelihoods sees the radical food movement engaging with and strategizing against a capitalist urban geography of land valuation, and building cooperative working models and a market presence that is built on alternative value systems. The value of agroecological soil uses cannot be expressed within the speculative dynamics of a rent-driven urban land market. At the same time agroecology prefigures a different value ethic. Agroecology places the human structural dependence on soil for the production of food as a central matter of concern and political contestation. It refuses to bend to soil-less forms of urban agriculture (vertical farming, indoor growing, aquaponics, etc.), and their related investment in expensive and energy intensive infrastructure, that reproduce and justify the same land-speculative logics, rather than investing

in land protection measures. It does not sacrifice socially-just working models for the economic thriving of a few, even when facing harsh market conditions. It does not exchange profit for soil depletion. An agroecological urbanism, then, interrupts logics of substitution that in an urbanizing society are produced by logics of commodification, and not least in the commodification of land, but it seeks to enact practices that prefigure a post-capitalist, non-extractive urbanism. Both Brussels and London are sites where synergies between land access facilitation initiatives (i.e. land trusts) and farm-start programmes are supporting the rise of new cooperative farming livelihoods that establish non-extractive and community-focussed spatial relations and post-capitalist economic values in the urban fabric.

### ***Embodying an ecology of care and more-than-human solidarities***

Agroecology goes a long way in challenging the human-centered character of capitalist urbanization. An urban agroecological praxis literally embodies positionalities that have theoretically been described within urban political ecology (Heynen, Kaika, and Swyngedouw 2006) as they diagonalize the nature-culture divide reproduced in capitalist urbanization and refuse to think nature outside the urban. By recognizing humans as critters of the soil alongside worms and mycorrhizae, and cherishing more-than-human solidarities, agroecology is premised, for the reproduction of its own activity, not on the extractive and exploitative use of natural resources but on the care for, nurturing and reproduction of the ecological conditions in which lives, including urban lives, are lived. In Rosario, farmers are directly involved in pedagogical endeavors to socialize urbanites to the principles of the ‘buen vivir’, and agroecology-informed health specialists are involved in mainstreaming awareness of the inextricable link between plant happiness, soil health and human thriving. Together they are disrupting extractive and careless consumption practices. In all our four cities, companion planting, soil regeneration, protection from soil erosion, water and nutrient preservation through mulching, teaming with other species to guard the health of soil and plants (functional biodiversity above and below soils), and reclaiming the time and knowledge for these caring functions are examples of farming practices that decolonize food system imaginaries and practices, and disrupt the productivist and extractive logics that have marginalized care as ‘unproductive’ (Puig de la Bellacasa 2017, 177). The reviving of wild plant use and foraging, as well as the grassroots accounts of radical histories of food – respectively prominent in Riga and in London – also contribute to reshaping food behaviors in the context of politically loaded and fragile ecosystems.

### ***Building resourceful communities through empowering infrastructure***

While the plea for food sovereignty and re-peasantization in agrarian struggles has translated political agroecology in terms of farmers' autonomy, the community of practice upon which our effort to imagine an urban agroecology builds shows the need for solidarities and investment in collective organization and infrastructure beyond the level of the farm. The efforts to reimagine urbanization around a central role of agroecological food growing in an urban environment is confronted with the reality of a pervasive absence of adequate infrastructure without which farmers struggle to build resourcefulness (MacKinnon and Driscoll Derickson 2013) and tap into widely present but hardly usable urban resources. From historical debates in urban theory on the city as a common good, as the outcome of historical layering of achievements and permanent improvements (Stavrides 2016) we take the insight that rejecting capitalist urbanization means plugging ecological values and agroecological practices into the center of social arrangements which aim to build and nurture an empowering infrastructure over time: a collective process that resources the farmers as stewards of a soil-based society. The investment in infrastructure and permanent improvements of the capitalist city -which today can be illustrated by the ever-expanding car and parking infrastructure or IT/web platforms – presents a very selective (and ecology-neglecting) translation of the conditions needed to lead plentiful, resourceful lives. An agroecological urbanism seeks to imagine a well-equipped urban landscape that serves agroecological food growing in its full bio-cultural diversity. A food-enabling urban world in which community-based and -managed food producing hubs are rooted within empowering urban infrastructure which is pervasive and broadly socialized. In the case of Rosario, for example, this infrastructure already includes i) infrastructure for collecting, storing and moving nutrients that can be drawn from the city (i.e. leaves, brewery by-products, etc.), composted and distributed to the farmers in urban and peri-urban locations, ii) appropriate programmes and spaces for seed exchanges and a public seed bank, and iii) a food processing, preservation and distribution infrastructure, including free access to markets. The next steps in this direction are the development of adequately scaled and community owned energy production and water harvesting facilities, tailored to the ecological challenges of the Argentinian 'pampa'. In the other three cases, the existing infrastructure is patchy (London) and/or informal (Riga), and only the Brussels case has so far gained institutional support leading to actual negotiations to identify and address the contextual needs of socially diverse peri-urban farmers.

Nonetheless, despite the different time-scales at which the actors in these four contexts are building their resourcefulness, we look at these three disruptive mechanisms as key strategies and agenda items, not simply for furthering

agroecological transitions in urban contexts, but for interrupting capitalist urbanism logics and the refiguration of an agroecological urbanism.

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