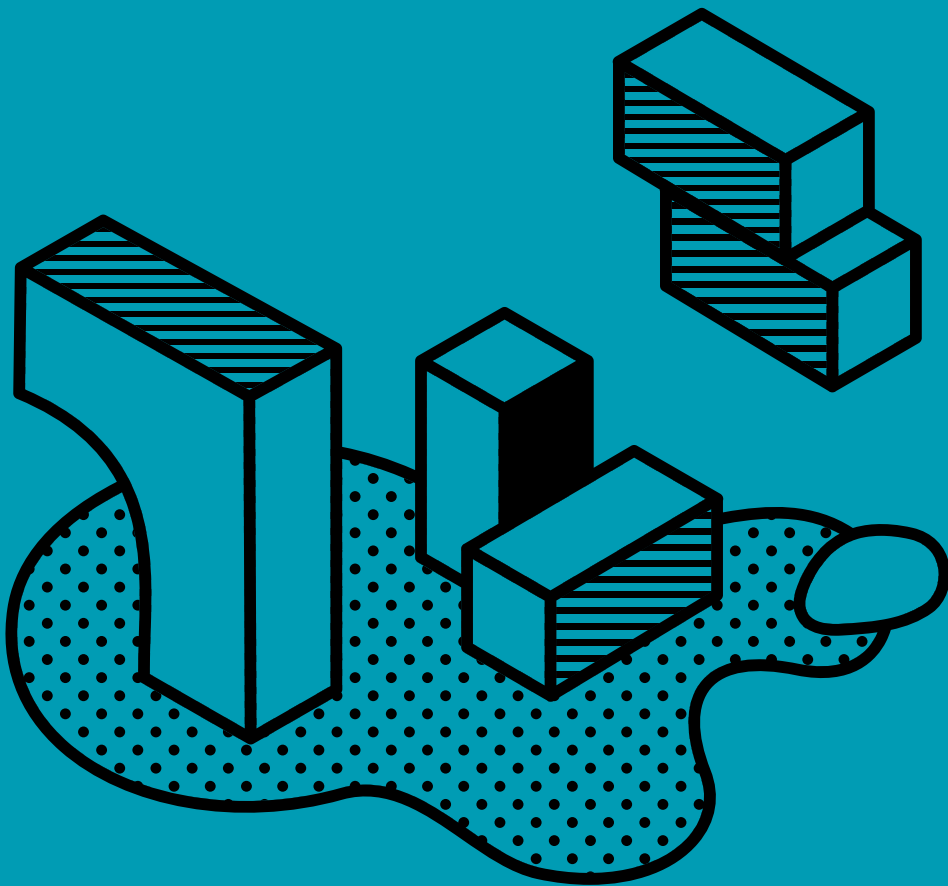


# Designing Brussels Ecosystems

Metrolab Brussels MasterClass II



Bernard Declève  
Geoffrey Grulois  
Roselyne de Lestrangé  
Andrea Bortolotti  
Corentin Sanchez Trenado  
(eds)



Metrolab series

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# Agriculture

## Transition agricultures & emerging landscapes

Roselyne de Lestrangle

Why did we choose agriculture as one of the four entry points to design Brussels' ecosystems transition? The reasons are theoretical and contextual. Agriculture, through its multifunctional contribution to urban needs, is a potential sustainability hotspot. But it is also a challenge for Brussels, a city-region with very little agricultural land and facing a growth in population.

This chapter presents some elements of an exploration of 'unconventional agriculture'<sup>1</sup> that led to the emergence of a project horizon for the Brussels Ecosystems MasterClass: the need to structure it spatio-environmentally and socio-economically, i.e. to design it as an ecosystem.

### **Agricultural transition: research hypotheses**

On 28 January 2019, as the MasterClass Brussels Ecosystems opens, the medical journal The Lancet publishes a report on 'The Global Syndemic of Obesity, Undernutrition and Climate Change'. It highlights that the globalised food system, agricultural policies, transportation modes and urbanisation are 'different links of a same chain, which strangle humanity — and the planet' (AFP 28 January 2019). The harmful combination of land degradation, depletion of natural resources, pollution emissions, undernutrition, obesity and other diseases caused by over-processed food and sedentary lifestyles is the result of two

intertwined causes: urbanisation and a globalised market economy / food supply chain.

While agriculture is at the heart of this pernicious regime, its alternative practices constitute real niches that can contribute to its radical transformation — and that of our territories.

Urban or unconventional, what are these new modes of agriculture which objectives go far beyond food production?

Urban agriculture has many definitions. Let us remember as a fundamental characteristic its spatial dimension: food

<sup>1</sup> In contrast to so-called 'conventional' or 'industrial' agriculture, non-conventional agriculture is territorialised and works in symbiosis with ecosystems; it promotes minimal input of natural resources, while focusing on building soil fertility through a set of techniques as permanent cover, associated cultures etc.

production inside and around the city, mainly intended for local consumption. This practice has many advantages: among which, a lower environmental impact and the creation of a greater sense of community and greater food security. According to a multi-level approach to transition dynamics, it is a niche that contains many of them. But it is weakened by conflicts that can emerge between them (high- or low-tech practices, economic niche or social commitment, etc.).

Unconventional agriculture refers to practices that are alternatives to the industrial model. Many technical or lexical variations exist (permaculture, agroforestry, peasant or family agriculture, cultivation on living soil, etc.). They are often grouped under the generic term 'bio-farming'; due to the ambivalence of the *bio* prefix, we prefer the term 'agroecology'. Organic or bio agriculture was originally a project of an ethical society centred on respect for life — including humans; but today, it is confused with a label allowing industrial practices that are incompatible or even contradictory with these original values. Agroecology, as a practice and an ethic of life progressively formulated from the 1980s (Rabhi, 2015), defends a holistic approach to agriculture that 'conceives food systems based on the principles of life (cycles, rhythms, relationships between organisms, etc.) by placing the human being, and, in particular, the peasant, at the centre of the project' (Servigne, 2012). It protects ecosystems, biodiversity and biomass, and even enhances their functions. To do so, it calls for a profound change in our dietary habits, which improves public health while reducing our consumption of space and natural resources. This approach, which revives the common sense of peasant knowledge, (re) builds a strong *mediance*<sup>2</sup>.

By reconnecting society with the soils matrix it produces, it is undoubtedly a driver for the transition of our ecosystems. Agroecology is recognised as a science and practice, but also as a movement that

2 A concept developed by Augustin Berque, 'mediance' is the dynamic, ontological relationship between our animal body and our eco-social body, and between oecumene and biosphere.

3 With reference to the geological layer of Bruxellian sands specific to this geographical area. It allows to distance ourselves from the term 'Brussels', which underlies a hierarchical relationship between city centre, periphery and countryside that is incompatible with bioregionalist thinking.

explicitly addresses social and environmental justice. It founds numerous civic and public initiatives in metropolitan areas where, on a background of imagination of the nourishing city, land cultivation is regaining a presence and visibility that it has gradually lost over the past 150 years.

Brussels makes no exception. But despite their dynamism and the prospects of sustainability unconventional agricultures offer to this metropolitan territory, they remain at a distance from planning concerns: a weak competence of urban policies. Therefore, their development raises many questions.

How to choose between the right for housing and the protection of the non-renewable resource of living soil? As the renewed interest in the commons suggests, should we consider land cultivation in the city as a service to society? What territorial logics would this suggest to rethink?

How can we reconcile spatial practices such as living and cultivating that have been disjointed for so long? Indeed, what would be the impact of the agro-ecological transition on urban form? Its values of milieu care relate in principle to a radical project that affects the scales of living — more local — and the reconnection between land resources and land uses: what is the situation in practice? Is there an emerging structuring alternative, or does the phenomenon only make sense on the margins — both spatially and economically?

These questions form the basis of our description process. Some clarification of its methods is necessary. The first point concerns the territory under consideration — the *Bruxellian*<sup>3</sup> bioregion, which is, in itself, a hypothesis. This concept refers to third geographical entities, socio-natural living basins or life-places defined by a specificity of integration between human and non-human systems, at the median scale of landscape units (Thayer, 2003). Apprehending territories beyond normative or hierarchical approaches, the concept of

bioregion is used for the reappropriation of local territories (Magnaghi, 2014).

As agro-ecologies are part of this movement of 'taking autonomy and construction of commons in the hollows or on the margins of metropolitan territories' (Duhem and Pereira de Moura, 2018), the bioregion is a relevant field of exploration. This choice, in turn, involves specific modalities in a way as it is inoperative here to consider it as an area (de Lestrangé, 2017). The Bruxellian bioregion is rather a network of places, emerging from coalitions of actors and their organic logics, and from the multi-scalar territories they mobilise on a daily basis. Exploring such an ecosystem — whether interstitial, ephemeral, micro-local or hybrid — requires to cross a cartographic approach and inductive dives into the thickness of the territory. This can lead to the scale of the plot or small groups of actors. According to systemic logic, they are just as valid to describe the phenomenon as the major dynamics.

This quantitative and sensitive method, both spatial and social, is based on landscape analysis. It is therefore doubly opportune because, however tenuous or ephemeral they may be, the environmental forms and new geographies that urban farmers invent on a daily basis — combining radical choices and a 'do-it-yourself' (DIY) approach with standards — take shape in the landscape. However, the latter is not only an indicator of ecological transition: it is also an issue, not only because of its natural resources, but also because it is the milieu of our individual and collective lives. This is reflected in the argument in favour of 'landscape quality' that is omnipresent in studies on the evolution of agricultural practices, which otherwise mainly focus on quantitative criteria. Observing and describing the footprints of these transformations on the landscape becomes an ethical necessity: both with regard to the living beings that constitute it and the human society to which it is a common good.

### Metropolitan agricultural context

In Belgium, agriculture is a matter of regional competence. This condition reinforces already-varied situations inherent in contrasting landscape contexts. On the other hand, the three Regions share the phenomenon of urban agriculture which plural forms and values questions the governance of territories.

The extension of agricultural land is relatively similar between Flanders (61,000 hectares ~ 235 sq. mi.) and Wallonia (71,000 hectares ~ 274 sq. mi.). The latter is the most rural of the 3 Regions. From south-east to north-west, it successively hosts forests, cattle breeding and field crops, with mixed transitional zones. The transition to bio-farming is part of the public policy strategy, and the emergence of food belts around major cities reflects the demand not only for organic but also local agriculture. This is evidenced in a continuous increase of agricultural land reconversions (from 200 to more than 1600 certified organic farms between 1997 and 2017; Statbel data, 17 July 2018).

Flemish farms are smaller, but more intensive. Given the diffuse urbanisation of the region, they are mainly located in an urban context. In addition to a few major crops, the region specialises in the horticultural, vegetable gardening and fruit sectors, and dairy farming. Its agricultural policy supports the conventional sector, but, at the same time, the Region has an ambitious environmental policy. This is reflected in the integration of the spatial planning competence into that of the environment, materialised in the adoption of the 'Stop Concrete' Regional Sustainable Development Plan. At the interface of these two logics in tension, we observe a multitude of rural dynamics that emerge from individuals undergoing reconversion but also from territories (such as the Ghent food belt). The public authorities, which declare themselves neutral in the debate between conventional and alternative farming practices, have set up the Flemish Strategic Plan for Organic Agriculture. Among its objectives is, surprisingly, the protection of conventional agriculture. In line with this plan, the Brussel Lust initiative aims to encourage farmers, who until now have been mainly devoted to conventional agriculture, to supply the capital with organic products.

Finally, Brussels-Capital Region, whose dimensions are, of course, not comparable with those of the other Regions, has very little agricultural land — 1.5% of its territory. Agriculture is confronted with many paradoxes. Its development takes place mainly outside regulatory agricultural land, although partially unexploited (Terre en Vue, 2017). The Region is also experiencing significant population growth, but it is constrained by its borders. The resulting land pressure creates competition between agriculture and housing. This city-region status makes the capital's food system particularly vulnerable, as it depends on supra-territorial conditions. Many actors are addressing this issue.

First, public action — economy and employment, environment — has developed a strategy to improve the sustainability of the food system: Good Food. This 5-year program, launched in 2015, is organised around two main areas: produce better, particularly by increasing local sustainable food production, and eat well. To achieve these objectives, Brussels is considering collaborations between sectors but also with its hinterland, which is mainly Flemish. The strategy has thus identified a theoretical foodshed with a 10 km radius beyond its borders, to supply 30% of Brussels' market gardening needs. In the field of environmental policy, the Nature Plan supports Good Food directly, through the protection of agricultural land, but also by considering cross-border landscape collaborations in terms of quality and continuity, including cultivated land.

Often on public initiative and linked to Good Food, research<sup>4</sup> is also very active. It observes the phenomenon of the (re) development of cultures in cities through history, sociology or economics; it explores prospective agro-ecological, logistical and economic scenarios; it makes urban and legal recommendations to support and supervise its development.

Civil society is at the forefront of new production and distribution dynamics. Between values more or less critical with regard to the market economy, technical forms, territorial conditions and economic

models, the approaches are very diverse. The associative sector, which is more involved in agro-ecological approaches, claims socio-cultural, ethical and environmental objectives and support for the peasant model. The private sector more easily assumes the pursuit of economic profit, and under the aegis of 'sustainable development', carries projects that range from high to low tech.

**Bruxellian agro-ecologies:  
a nebula of situations...**

Agro-ecological farming is thus increasingly identified in the Brussels-Capital Region. But the majority of the bioregional foodshed, located in Flanders and Wallonia, is much more difficult to identify. Due to ethical or technical choices, a large proportion of unconventional farms are not included in official European Common Agriculture Policy surveys. The data it provides related to organic labels, are not all relevant because some of these farms belong to industrial networks. In addition, only the Biowallonie agency provides data on plots. Flanders provides addresses that do not always correspond to the land being farmed. However, to describe this emerging territory, to evaluate its structuring potential, or to consider the effect of its deployment on the urban form, it is essential to be able to describe its physiognomy.

To this end, this exploration has opened several observation axes.

Field trips to some unconventional farms covering different types of production (market gardening, livestock farming, orchards) allowed us to identify spatial characteristics specific to their practices. On this basis, we have attempted to generalise through the use of remote sensing (orthophotoplans 2016 resolution 25cm) to the scale of the bioregion<sup>5</sup>. But the process proved inadequate, as errors were all too frequent. An empirical method of analysis of the web resource has been more conclusive, which is, in itself, quite revealing of the hypertextual nature of this territory (Corboz, 2001). We have georeferenced the addresses of producers listed via Internet platforms. Gradually, the crossing between

some 700 points, in situ checks and/or orthophotoplan analysis led to the emergence of a constellation of unique models (see map p. 64). Bruxellian agro-ecologies have common values, but mobilise them in different ways. (see figure p. 26)

Sobriety and food sovereignty involve logics of scale for both cultivation and distribution, as well as a food diet change from eaters. Milieu care requires cultivation techniques without artificial inputs, a deep understanding of agroecosystems, the integration of local knowledge and attention to animal and human well-being. Emancipation, which results in social and environmental justice, leads to the adoption of cooperative models, and to the delicate search for the right price. However, the implementation of these values confronts field actors with dilemmas (prioritise production or education?), to which they respond with compromises that lead them to favour some rather than others, hence the observed heterogeneity (Dumont, Stassart, Vanloqueren and Baret, 2014).

The latter is also dependent on landscape conditions (soil, water resources, plot morphology, exposure to wind, sunlight, nature of the edges, plant resources) and territorial conditions (urban fabric type, physical and social accessibility, typology and ownership of plots, legal situations). These conditions are decisive in the choice of the type of production, and also influence its technical forms. From agricultural land, parks and gardens — private or public — to the surroundings of facilities, including activity zones, land reserves, wastelands, berms, banks, interstices to buildings, the typology of the spaces invested is very varied. According to the scientific literature, the production of small fruits and vegetables is, with regard to practices and profitability, the most adaptable to the conditions of dense urban areas (small areas, irregular shapes, interstitial spaces, above-ground situations). Sheep farming and the cultivation of large fruits that require more surface area (between 5 and 20 hectares — ~ 12 to 49 acres — to be autonomous) are more frequent in peri-urban situations but also exist in the form of discontinuous territories in the consolidated city. Food or

fodder crops and cattle breeding do not adapt well to such fragmentation (15 to 50 hectares minimum to be profitable) and are therefore, with the exception of Brussels agricultural relics, reserved for the diffuse city that extends beyond the capital's borders. The combination of these parcel constraints with eco-landscape conditions defines certain patterns of implementation in the bioregion. These probably also refer to historical conditions. The fine grain of the Flemish parcel, now an intensive horticultural and market gardening sector, is related to a past of sharecropping; the wide meshes of the Walloon Brabant, now dedicated to large-scale farming, are relics of the great seigneurial domains.

Finally, at the interplay between spatial conditions and values, it is undoubtedly in exploitation and distribution models that we find the greatest inventiveness. Unlike the conventional sector, where the chains are specialised, new agricultures hybridise and multiply the models linking production, distribution and consumption. Whether merchant, non-merchant or mixed, individual or collective, professional, amateur or combining both, labelled or not, in short circuits more or less strictly local, modest or of metropolitan scale and beyond, these networks generate new territorialities whose lowest common denominator seems to be the notion of interconnectedness.

Production or supply sites, shared depots and tools, paths: the nodes through which they intersect structure the nebula into an organic territory.

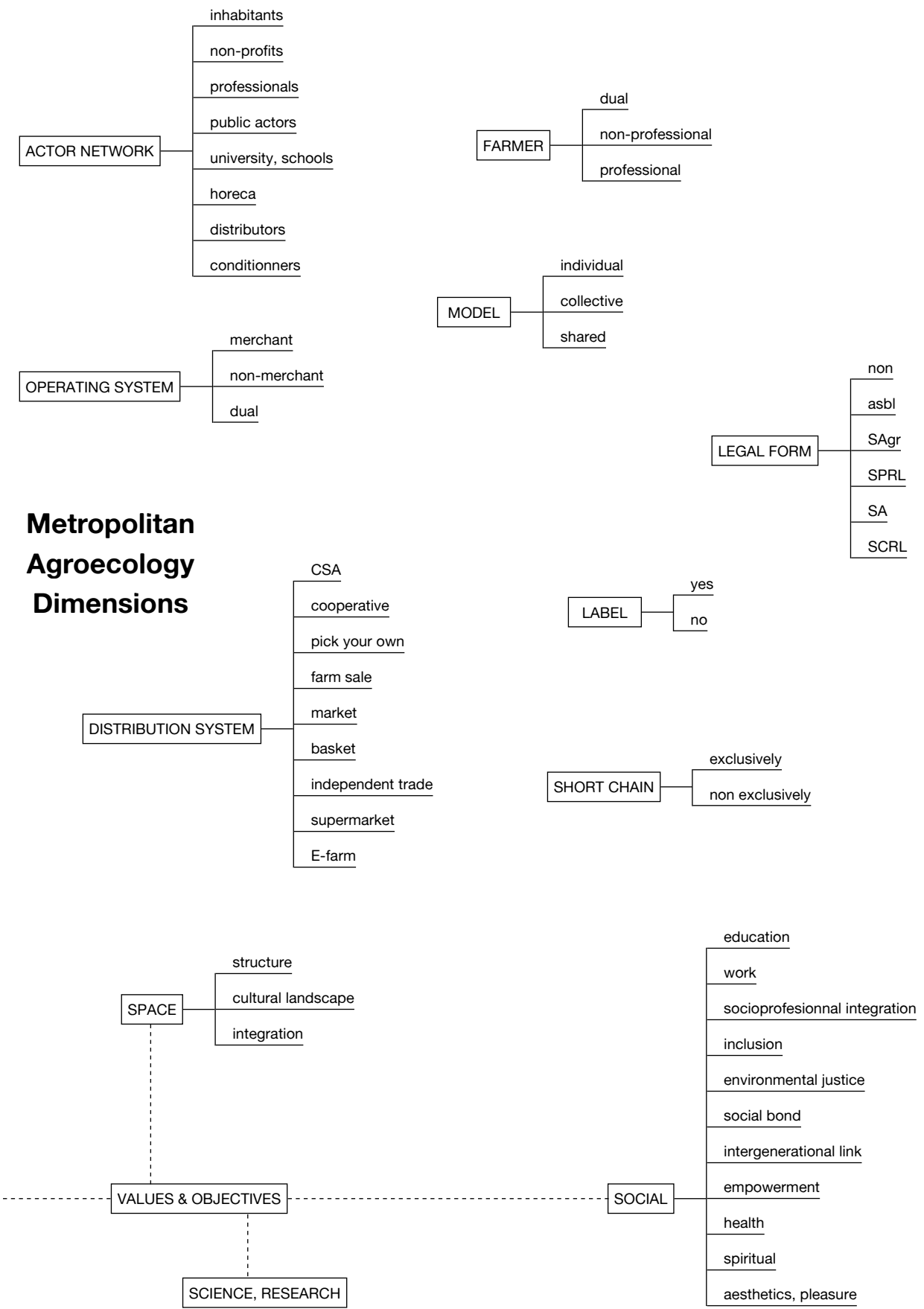
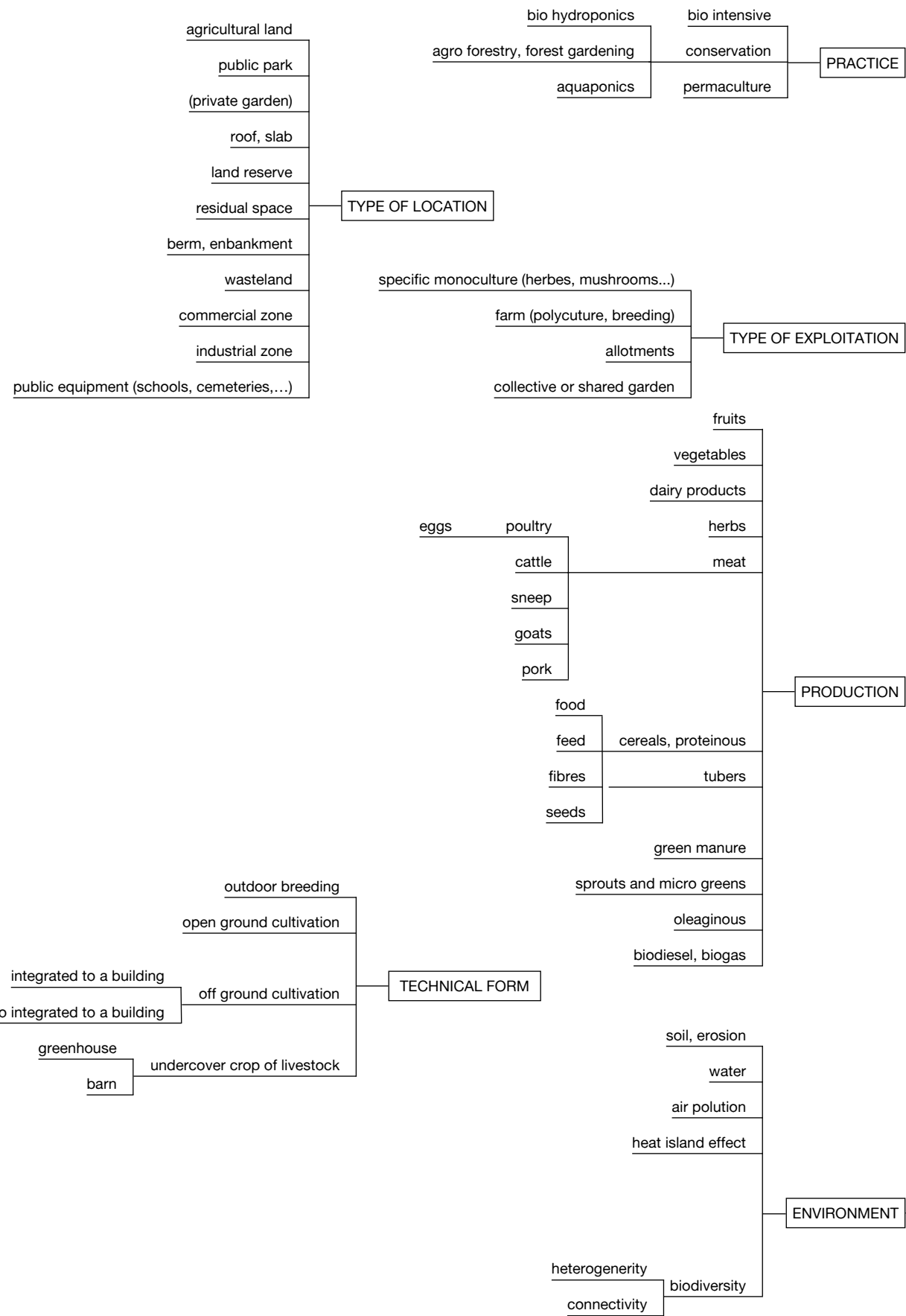
**... and paradoxes**

In the midst of conventional development dynamics, through their different spatial, environmental, social or economic forms, these agro-ecologies act as critical operators of the dominant regime. However, this does not prejudice their ability to transform it, because they face paradoxes that keep them in a situation of fragility.

First of all, there are some regulatory incompatibilities between nature conservation and conservation agriculture. Environmentally, the interest of these practices seems to be well established, but regulations for the

4 In particular through the Brussels research administration Innoviris.

5 According to our preliminary research (de Lestrangle, 2019), its extension corresponds practically to that of the functional metropolis as defined by the Hinterland study (ICEDD & KULeuven, 2010).



protection of natural habitats may prohibit certain techniques<sup>6</sup>. The paradox here lies in the scale of apprehension of nature. Other weaknesses are due to planning documents not adapting to technological evolution and to the diversity of urban agriculture, which remains reduced to its productive and economic dimension. A redefinition of urban planning regulations is under way in Brussels, which should improve the situation. Incentives such as the valuation of ecosystem services production, as a service to society, could become structural sources of financing, alternatives to the current subsidiarity that keeps farms in a highly vulnerable situation.

Thirdly, agro-ecologies are inherently weakened by a tension between a growing demand for local and quality food, the need to structure the sector to guarantee its independence from the conventional market, and the value of frugality incompatible with a quest for 'growth'.

Heterogeneity, in theory a resilience factor, also has its limitations. Inquiries with stakeholders from different parts of the sector reveal the risk of isolation, dispersion and loss of vitality. In landscape terms, a specific grammar resulting from the combination of technical forms and territorial patterns is gradually becoming identifiable. The heterogeneity it prints locally could generate a very fine and characteristic mosaic on a large scale (de Lestrangle, 2019). But certain interstitial situations combined with an aesthetic (voluntary or not) of the ephemeral, experimental or DIY, can, on the contrary, contribute to the illegibility of the urban form — and to a kind of rejection by some residents.

Finally, the administrative fragmentation of the foodshed represents a serious obstacle to any attempt to develop a project for it.

How to overcome all these constraints and barriers, and allow this emerging ecosystem to consolidate in order to be a driving force for the food transition?

6 For example, mulching of century-old high stem organic fruit trees is not allowed in some natural areas of Pajottenland, which makes them vulnerable to diseases and pest attacks and endangers this ecological and landscape heritage.

7 'Dessiner la Transition: outils et dispositifs pour le projet de métropole écologique'. The deliberate paradox contained in this expression is the subject of a series of research seminars conducted by Metrolab-LOCI UCLouvain in collaboration with the Fondation Brailard Architectes de Genève and EPFL since 2018. See Metrolab.brussels website.

A return to the history of urban planning, and more particularly to the story of the landscape inversion that conceives the city through its open spaces and in a regime of cooperation with the countryside, suggests a way forward. A landscape urbanism approach could transpose this tenuous territory into an infrastructure — organisational, constituent and significant — for the ecological metropolis<sup>7</sup>.

#### **Agroecology as an urban project: experiments**

Literature acknowledges that food autonomy in urban areas has become a utopia. On the other hand, in view of the need to improve the sustainability of food systems, the urgency of reactivating urban and peri-urban agricultural sectors is undeniable. Agriculture is once again an urban planning issue. As such, it is more than an opportunity to green up urban planning, it requires a real project built on the basis of its constraints, first and foremost priority access to fertile land. Such agrarian urbanism (Donadieu, 2014) has its roots in the origins of the discipline itself. The question of density that now dominates the debate on urban form places it in a tension between high and low tech — vertical farms in compact cities, or agro-urban meshing in the landscape city. In the first model, agriculture is reduced to a productive and sectoral function, very far from the territorial role it assumes in the second. Agro-landscape parks or RFSR (Regional Food System Reliance) are operational forms of these so-called 'territorial agricultures', based on the relationship between production and territory, producer and local society. But more commonly, however, agriurban strategies remain the domain of the alternative initiative. With few tools in their own field, they draw financial resources from related environmental policy, which benefits from a strong legal framework and political support. In particular, the European green infrastructure strategy, whose purpose is biodiversity, includes multifunctional farming

among the recommended mechanisms for meshing our territories — particularly urban ones — with areas of 'nature'.

The Continuous Productive Urban Landscapes (CPUL) Strategy is one of these approaches that mobilises the environment and landscape sectors for agricultural purposes. It has the remarkable particularity of being adaptable to any cultural, scale and economic situation (Viljoen, Bohn and Howe, 2005). It is an ecosystem-based project method, a transdisciplinary codesign strategy for the coherent and structuring integration of agriculture in the urban space.

It sets up networks of nourishing landscapes, more or less spatially continuous depending on the situation. At the micro level, CPULs are deployed through vegetable gardens in public parks, the cultivation of interiors of blocks, open spaces of public or corporate land, or through the development of productive and ecological solutions for off-soil agriculture (therefore, dependent on living and not inert energy). At the median scale, the landscape elements (rivers, woods, metropolitan parks) host more ambitious programmes — farms, agricultural parks. At the metropolitan level, these elements are linked to the green infrastructure to build an agro-ecological-landscape matrix.

From the design stage, combining aesthetics with agricultural technical requirements, and working with the private and public sectors, CPULs meet economic and social, production and leisure needs. Their development capitalises on 150 years of agrarian urbanism as well as on living practices gathered in both informal and consolidated contexts. Lateral dynamics that cross the traditional boundaries between planners and activists, farmers and designers, experts and inhabitants, these projects initiate what could radically transform our urbanisation logic: what we have called the 'yellow network' (de Lestrangle, 2019). As well as its green and blue antecedents — of which it can in certain configurations constitute the ecotone — it aims to produce healthy and local food, and to protect fertile soil.

The establishment of such a network requires a profound reassessment of the sectoral or territorial approaches that underpin the governance of a region. In the field of urban planning, the revolution is not the least important: it is a question of moving

from a surface-lifeless-monetarised soil to a volume-living-common-good one!

In a region as complex as Brussels, considering the implementation of a yellow network could be seen as utopian. It is this radical nature, capable of transforming the current regime, that motivates us to make it the focus of Brussels Ecosystems' works. These consisted, based on two metropolitan cross-border situations, in testing a CPUL scenario as a first step towards a bioregional yellow network. The additional hypothesis resulting from the preliminary meetings with stakeholders was to think of these continuities in the way of clusters, integrating the principles of circularity and complementarity between the different types of production and uses of the landscapes.

There were several reasons for choosing the initial situations. First, they offer a variety of urban and landscape conditions. They then host different types of urban agriculture, reflecting the great variety of this sector. They, therefore, require different types of alliances and networks. Finally, they include strategic areas of urban and environmental public policy.

The first situation we proposed to address in the framework of the MasterClass is a transect of urban-rural gradient, which runs from the dense historic city to the southwest. It presents an interesting plot pattern from the perspective of food production clusters. On the edge of the Brussels-Capital Region, there is the BoerenBruxselPaysans site, a flagship project of the Good Food strategy and ERDF 2014–2020 programme. The project, which brings together two public and two associative partners, includes the renovation of a farm of about 2.5 hectares. Its objective is to support the ecological transition of existing farms and the installation of new urban farmers into the Brussels-Capital Region. In concrete terms, the project offers a test area, technical support and assistance in the search for land. In parallel, it elaborates sustainable urban and peri-urban agricultural models and supports the development of a new local transformation sector. The densest part of this situation crosses formerly industrial working-class districts that have interesting morphological conditions and host mixed agricultural projects with a productive and social vocation.



The second situation runs along the regional border to the south. Unlike the previous one, it has a fairly homogeneous urban fabric, the 19<sup>th</sup> and 20<sup>th</sup> centuries belt. The density is lower, the neighbourhoods are residential, very green and mainly wealthy, although with some vulnerable areas. Its interest lies in its open continuities — former land reserves never built and reclassified as semi-natural areas; the Sonian Forest, Brussels' major landscape structure; and the Promenade Verte, a public facility that runs 60 km around Brussels and can be turned into the backbone of this area.

This situation calls for other scales of clusters, rather to be considered as edge projects: perhaps less diversified in terms of food production, but more locally embedded and with more urban functions.

### Conclusions

We believe that the radical nature of agro-ecology is essential to support an urgent and fragile agricultural transition in a region like Brussels. It raises very concrete questions of governance (the essential interregional collaboration) and policy such as the unlocking of competences (environment, agriculture, urban planning). The challenges are also technical: legal definition of urban agriculture, adaptation of regulatory plans and labelling requirements; transition from an abstract and globalised (monetary) yield indicator to a concrete and localised indicator that could be the one of living energies (Visser, 2018). But more than anything else, the urgency seems to be a shift in the perception of the soil — and therefore of the land use logic.

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