Chapter 8

New Urbanization Phenomena and Potential Landscapes: Rhizomatic Grids and Asymmetrical Clusters

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8.1 Foreword: Territories of the Circular Economy

More and more nowadays, the Circular Economy is at the heart of European public policies.

Crucial is the “New Green Deal”, presented by the European Commission (2019) to implement the Agenda2030, and the UN Sustainable Development Goals. This program is significantly guiding the way in which the funds allocated for post-pandemic reconstruction will be used in the coming years through recovery plans (“Next Generation EU”). The action plan, in brief, is based on two axes: (1) promoting the efficient use of resources by moving towards a clean and circular economy; (2) restoring biodiversity and reducing pollution. The ecological transition is based on a “new deal” between the productive sector, governments and citizens. A character of solidarity and social justice underpins the development strategy, which specifies that: changes «should leave no one behind» (p. 18), that changes in the production system should be such as to increase employment, and that technological, process and product innovations should be designed to «address the risk of household energy poverty» (p. 7). Paragraph 2.1.4 focuses on the construction sector, its energy and resource efficiency, and the need to «initiate a wave of renovation of public and private buildings» (p. 10). The territorial dimension contributes to the strategy far beyond the mere focus on the quality of buildings. First and foremost, importance is recognized for the need to increase sustainable urban mobility, by strengthening public transport, reducing traffic congestion and encouraging the use of non-fossil fuels. Equally important is the way in which the concept of circularity is applied to the waste and agricultural sectors. With reference to the way in which territories operate, to their metabolisms, what stands out is the prospect of radically shortening the supply chains: in the agricultural sector, by promoting the direct relationship

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between consumer and producer (p. 13 et seq.); in the waste sector, by recycling waste as a secondary raw material. Specific attention is paid to construction waste (CDW), for which the Commission is currently amending Regulation (EU) No 305/2011 in order to facilitate its reuse. The second strategic axis, based on the “restoration of biodiversity”, includes, firstly, the recognition of the essential function of ecosystems that «mitigate natural disasters, fight pests and diseases and contribute to climate regulation» (p. 14). Building on certain existing measures, such as the one that established the Natura 2000 network of protected areas (Directive 92/43/EEC “Habitat”), the document highlights the importance of reforestation and the sustainable use of fundamental “common goods” such as water and soil. On this last point, in 2016, the European Commission’s Office for Scientific and Environmental Policy, in its document “No net land take by 2050”, called for urgent measures to prevent new urbanization from consuming the remaining natural and rural territories. The strategy is based on three guidelines: (1) preserve, avoiding the transformation of urban open spaces and agricultural land into new settlements; (2) recycle, recovering abandoned urban areas that are no longer active, reconverting them to new uses or promoting their renaturalization; (3) compensate, balancing the building of previously undeveloped areas with the renaturalization of built-up areas where soil sealing is no longer necessary.

All these concepts are at the basis of the Recovery Plans called “Next Generation EU”, now being drafted in every European country, to stimulate post-pandemic recovery. With these plans, an amount of financial resources comparable only to those of the Marshall Plan after the Second World War will be available in the coming years to profoundly change the territory and the way of life in the old continent, shaping the “ecological transition” that is nowadays more necessary than ever.

This is a huge challenge that calls for responsibility and cooperation from town planners, architects, scientists, local development experts, but also politicians and citizens: all those who are motivated to search for new points of sustainable balance in the relationship between production, consumption, environment and quality of life.

At the same time, radical vision and operational concreteness are needed.

8.2 Status Quo: Analogies and Differences

In order to strengthen the territorial dimension of public policies aimed at ecological transition, it is necessary to consider the status quo of the European territory, looking for recurring elements and differences in relation to which define technological and process solutions, spatial and landscape models. It is not enough to implement a basic knowledge atlas, using common standards across countries, as so far developed through mapping systems such as Copernicus, the European Union’s Earth observation program.

What is weakly outlined today, and with respect to which an effort of synthesis should be made, is an interpretative framework capable of considering the “materiality” of places: able of understanding the reasons behind their current conformation and use, going back to the structural relationship between the economic and social conditions in which their physical and environmental organization has developed. In this perspective, a return of “hard” urban studies, focusing on the issues of land ownership, land parcelling, infrastructural and urbanization procedures, (and their relationships with the environment and the landscape) should be conducted at the European scale. These in-depth studies should be able to answer certain fundamental questions, so as to target interventions, avoiding errors and inefficiencies, which are unfortunately still widespread in the implementation of Community programs.

A sketchy list of questions: Why are some territories similar and others not? Why are some public policies more successful in some areas and not in others? How have our cities developed since the second half of the twentieth century? And finally: is it possible today to define standardized urban planning policies to implement the goals set out in the New Green Deal?

It is not a history of European urbanization, of course, that is missing. Instead, the aim is to investigate the relationship between the new phenomena of urbanization and the material conditions from which they originate and in which they are developing. The purpose is to outline a critique of urban space, based on the interpretation of the relationships between production systems, land and natural resource management, landscape, environment and ways of living. Without this basic work, preparatory to a reflection on the reform and transformation of territories, it will be difficult to achieve the ambitious goal of the “ecological transition” and the concomitant urban revolution necessary for it.

8.3 The Fringe: Two Models

Undoubtedly, a central role for the future of contemporary territories is played by the territory of the so-called “fringe area”, the part of the urban region where patterns of building development and unbuilt open spaces interweave (Attademo & Formato, 2018). The fringe has neither features of an urban compact city, nor of suburban village ones. Its topographies, are in turn defined as: peri-urban area, urban sprawl, dispersed urban development, widespread city (*città diffusa*), territories in-between, transitional-belt, etc. Many contemporary urban challenges converge in this place, «and, at same time, can be solved in the fringe» (van Tuijl, 2018: 35). Because of the structure of contemporary urban regions (post-rounded, widespread, increasingly polycentric), the fringe area is not a perfect match with the surrounding area of the city. However, its intermediary character, as a place between the compact city and the suburban countryside, makes this zone particularly favourable to the definition of spaces of collaboration between the two worlds. In addition, its easy accessibility from both the denser contexts and the outer areas makes it the place to locate the

equipment required to create short supply chains so relevant, as mentioned above, for the circular economy and the ecological transition.

From a quantitative point of view, several indicators can define fringe areas: some are depending on physical features (number of buildings and surface, built-up volume, parcel fragmentation, etc.); others are derived from the way in which these areas are used (e.g., housing, factories, infrastructures). Landscape-reading shows territories characterized by high fragmentation, lack of urban and ecologic continuity, hybrid (not-rural, not-urban) conditions, dispersion of a sense of place caused by continuous overlapping of sectorial elements and flows. That is a non-isotropic spatial structure. It is determined by iterations, rips, spatial accumulations of scattered uses and buildings. As seen from above, the boundaries delineating the end of the city region are not clear. The internal difference between compact neighbourhoods and fringe areas is usually highly unclear. Moreover, the dynamics of the fringes shape building settlements in a fluid manner and enable the functional mix and the local hierarchy of urban elements. Physical boundaries rarely coincide with administrative borders. In some cases, boundaries match with geographical or morphological differences (the presence of a river, mountains, the difference between historical settlements and contemporary ones, etc.). At other times, boundaries coincide with main infrastructural paths (railroads, highways, etc.), as well as with built precincts and dikes (walls, fences, etc.). Finally, internal boundaries often match with social features and functional characterizations.

The morphology of fringe settlements is characterized by spatial fragmentation and poor quality of public space. The boundaries between private parcels and the public realm are rather strict: fences and walls are key elements. Moreover, fringe areas are often car-based: people rarely meet in the streets, but rather turn to shopping malls, pubs, discos and restaurants. Functional and social integration, density of population and a wide range of meeting possibilities in physical public spaces are traditional values of the urban realm (in other words: traditional values of European cities); these values are not so strong in the fringes of the contemporary cities.

Within the common characteristics of the different situations mentioned above, however, profoundly different urbanization patterns emerge, depending on the European context in which the peri-urban areas are located. It is possible to distinguish two prevailing models, respectively, in the countries in which the role of the state in urban planning and implementation has been, since the Second World War, more or less relevant. The two cases studied as pilots of the REPAiR project are paradigmatic examples in this sense: the metropolitan areas of Amsterdam in the Netherlands and Naples in southern Italy.

In Italy, the weakness of public urban planning has determined significant effects on the way in which the urbanization of fringe areas has taken place. In fact, in the contemporary expansion of the cities, there has been a lack of coordination on a general scale, capable of providing unitary frameworks on an urban and regional scale, putting transformation initiatives of different kinds and types into a system. With reference to the land regime, there has been a split between areas subject to public initiative and privately owned land, left to individual initiative. In the latter, only rarely land recompositing preceded urbanization, which, instead, tended to rely

on the pre-existing territorial frameworks: it spreads in the peri-urban contexts in a dispersed way, taking fields plot and dirt roads as its basic frame. This process, burdened by the land rent, has led to congestion, systemic incoherence, low quality of environment and settlements. Not infrequently, the settlements have been built in violation of the urban planning rules. These areas are burdened by many internal contradictions, but their material features also present a strong link with the “environmental pre-existences”; the communities that inhabit them generally retain a certain rootedness, recognizing themselves in the landscape that they have incrementally contributed to create. The contrasts are of a dimensional and topological nature, due to the lack of systemic rationality between the distribution of land uses and land cover and the uncoordinated nature of higher-level infrastructure policies (railways, motorways, etc.) contrasting with the informal proliferation of basic local infrastructure, which is haphazard and not infrequently built “ex post”, following the urbanization. Underuse and abandonment proliferate. When the life cycle of a space or a building ends, impervious is its reactivation. It remains as a memory of the past; it can be taken over by the “third landscape” after a few years of abandonment. On the other hand, further territorial resources are consumed in order to create new activities.

An expansive phase of urbanization was followed by a phase of infrastructural development, which can be conceptually compared to the way in which the urban “hygienists” (from Haussmann to Piacentini), through massive public works, realized the urban renewal. Motorways and decontextualized public facilities have been inserted into the territory of dispersion, still without a general plan, creating further asymmetries and polarizations. The scenario is also difficult because the uncoordinated and diffuse urbanization has left ruins on the field: portions of disused, underused or decaying building and territorial heritage, whose transformation is now truly complex. The result is an expansion that leaves behind decaying “pieces of territory”, generating chaotic topologies in which expanding settlements intermix with discarded, abandoned territories in crisis.

Completely different is the second fringe model. In the Netherlands, as in many other industrialized Northern European countries, the urbanization of the fringe took place (and still takes place) through some steps typical of what French scholars call *planisme*: preventive acquisition of land (and land consolidation); infrastructure of the areas—through the construction of roads and technological systems but also of public spaces and buildings; finally, construction by public or private initiative (Vayssire, 1988). This procedure, to be framed in the economic approach of Keynesian tradition, seems to be able to calm and direct the land market, ensuring coherence between the transformation project and its implementation. In this centralized organization, the procedure of urban substitution (as well as those of new urbanization) generally passes through the creation of a tabula rasa condition. In the case of new construction, the land is first recomposed and then an urban design is superimposed on the pre-existing traces of the territorial palimpsest. In the case of building replacement or settlement transformation, is required a prior demolition of the pre-existing buildings.

On the one hand, therefore, this procedure ensures increased systemic efficiency and the containment of differential passive rent: even in the case of the resale of land plots to private developers, their cost is determined by calculating

the financial resources advanced for the acquisition of the land and the realization of the urbanization works. On the other hand, it risks to be authoritarian and self-referential, producing abstract spaces, separated from the context, disconnected from the geographical and historical context and from the expectations of local communities. In this model, the wastescape territories seem to derive mainly from two phenomena: the oversizing of the infrastructural system, which in this model is carried out prior to urbanization; the negative effects of the metabolism of the urban and productive system, in terms of environmental and landscape damage and of strong segregation and social conflict, especially within social and affordable housing districts.

8.4 New Greenbelt Scenarios

The issue of limiting soil consumption has been on the political agenda for years, as well as in the thinking of urban planners. However, the relationship between limiting land take and densification cannot be considered direct. It is not enough, in fact, to promote the densification of “what is there” to prevent the proliferation of rural land consumption. On the contrary, without urban planning correctives (Garreau, 1992) densification in the centre of an urban system always corresponds to a fermentation on the edges. This is true even when the centres are dispersed and geographically peripheral, as in the contemporary post-metropolis (Soja, 2000).

There are several reasons why densification of the existing cannot be resolved in a “flat” thickening of quantity and functions; nor involve a widespread “reactivation” of underused and abandoned areas with traditional urban purposes. First of all, the progressive value of openness, distance, thinning and biodiversity must be recognized. Contemporary cities cannot be configured as compact realms but must adequately accommodate and shape certain fundamental principles: the propensity for suburban living (Secchi, 1999), the need for contact with “wild” nature evidenced, as early as the nineteenth century, by Olmsted (Beveridge & Rocheleau, 1998), the possibility of the countryside returning as a way of life (AMO & Koolhaas, 2020).

This need is particularly evident today, after the lockdowns caused by the pandemic, when everyone has been able to appreciate the power and value of space, especially when the confinement took place in a house placed between other houses.

The fact that the relationship between densification and the containment of soil consumption is not direct means supporting a broader strategy of territorial redevelopment. A strategy that promotes a progressive transformation of urbanization, both of the one based on the systemic rationality of zoning, and of the “città diffusa” (also unauthorized settlements) rather common in Mediterranean countries.

This strategy must be declined locally, case by case, on the basis of a wide sharing. However, it should always focus on rethinking fringe areas, the margins of contact between settled systems and the rural environment. These transition areas, accessible from town and country, crossed by large infrastructures, are exposed to further proliferation of soil consumption. In reverse, they need to be rethought as new collective

spaces, areas for the biodiversity, inhibited from settlement proliferation and subject to restrictions on car traffic. In them, the circular dimension of the new green economy can give shape to certain spatial conditions and new landscapes.

Qualitative densification needs to be shaped in them: promoting social uses, stimulating agricultural production, experimenting new sustainable habitats and uses.

By analogy with what happened in Great Britain in the twentieth century with the institution of greenbelts, these peri-urban areas should be delimited and subjected to a new urban planning regime aimed at their territorial reconfiguration (Sturzaker & Mell, 2018). Once the peri-urban territories have been delimited, the following should be encouraged: the collective use of a network of paths and fields, the maintenance or replanting of agricultural crops (and/or woods), the inhibition of land fencing, the promotion of land recompositing and ecological reconnection.

New economies can also emerge in these fringe areas, closely linked to the life of the city and the countryside, not only in terms of food supply or activities related to waste treatment and recycling.

This kind of contemporary greenbelt has rather different characteristics from those usually associated with these types of space. In particular, in the low-density areas of the so-called “horizontal metropolis” (Cavalieri & Viganò, 2019), the geometry of these new peri-urban parks would take the form of a continuous serpentine of local belts, thickening the boundaries areas, with infiltrations into denser urban systems. These spaces, relying on the hydrographic network, would also define new conditions of resilience of the built-up area to natural risks, linked to the presence and criticality of the hydrographic network.

Is not this “serpentine” a hopeful space with which to shape the New Green Deal?

8.5 Spatial Models: “Asymmetrical Cluster” and “Rhizomatic Grid”

Two main spatial models are useful to describe the future process of sustainable reform of the peri-urban territories, shaping the challenges of the fight against climate change and the New Green Deal.

The first model assumes the figure of the “cluster”: a territorially and functionally defined region with one or more reference centres and an edge marking the discontinuity from other clusters. This spatiality is generally constructed from a basic hierarchical tree-like infrastructure (De Carlo, 2008; Zuger & Christiaan, 2018). The second model is based on the figure of the grid: an unlimited mesh, tending to be isotropic and isoriented, which gives measure and organizes space according to a replicable and open system. This spatiality is built on a redundant and slender infrastructure, devoid of hierarchy, which can give rise to a sponge rich in pores, with neither internal nor external boundaries (Secchi & Viganò, 2011).

The cluster give shape to the need to shorten flows, seeking defined spatial regions in which to close food and waste cycles (urban and agricultural), raw materials needed

for construction, as well as to shape local energy communities. Each of these clusters is asymmetrical because it includes different portions of territory, “transects” (Duany, 2021) that reach from the dense city to the countryside and natural territory.

The peri-urban fringes, are the core of these territorial sections: the place where to locate plants, services and infrastructures necessary to regulate the new flows-cycles of matter, people and energy.

A similar model was tested during the REPAiR research as part of a proposed solution for the treatment of organic waste (REPAiR, 2019). In that case, it was imagined that the size of the waste treatment plant would be adapted to territorial areas coinciding with urban districts and overlooking portions of rural territory, in order to close the loop of collection-treatment-recycling of the materials processed by the composting plants. In that solution, moreover, the compost produced by the plants, which is of good quality because it is also fed by agricultural production, is reused to stimulate the return of nature and biodiversity to areas that are now artificial and to stimulate the phyto-purification of polluted soils.

The cluster model focuses on the specificities of places, on contexts—both in their material constitution and in their use. In these mixed regions (urban-peri-urban–rural), in accordance with the above-mentioned tree pattern, driveways should be limited as much as possible, focusing instead on slow transport modes and driveway movements exclusively linked to routes to residential areas and production activities.

A spatial movement of “closure” of clusters is proposed to be counterbalanced by a concomitant movement of “opening” at all scales. This openness takes shape through the work that must be done on the level of the territorial grid. This weak infrastructure is in fact a basic condition, necessary to stimulate the public use of the greenbelts, allowing for conditions of pedestrian and cycle accessibility.

The grid should be established, conceptually and operationally, through an archaeological action that searches the territory for traces of historical systems and landscapes, bringing to the surface the sense of identity of places, their “seduction” (Rijkwert, 2000). This challenge appears particularly relevant in countries, such as Holland, where modernity has operated on a “tabula rasa” basis, in search of functionally perfect metabolisms. The structure of the grid is comparable to that of a rhizome: a root that develops over time, mainly horizontally. It enhances the territory, stimulating potential reactivation “from below”, which can act in the microporosities of peri-urban territories, opening up to new topological continuities and uses.

In practice, the network amplifies the conditions of accessibility, building potential reconnections in the infinite fragmented mosaic of peri-urban areas, especially in metropolitan contexts.

The issue of the “civic uses” that may emerge in these areas thanks to the new conditions of accessibility is particularly important. The prefiguration of the grid should in fact be accompanied by an increase in the possibility of collective use of unused areas and buildings for sustainable purposes, including production. It would be a question of establishing “new common lands” (Everard, 2011), rediscovering and adapting principles of pre-modern law, for the proliferation of undivided territories, open to compatible productive uses, to sociality, to open-air life, to new forms of hospitality and exchange, as well as for educational programs.

8.6 Conclusions: Potential Hypercontextual Landscapes

In conclusion, two major impacts that the spatial reform strategies outlined above would have are analysed: the consequences they would have on the landscape of peri-urban areas and on the way in which urban plans and public works should be designed.

As regards the potential landscape, the concept of the materiality of places is not only to be associated with the study of the soil regime and its cadastral parceling out. This condition also deals with the physical status of each context in which the clusters of shortening flows would define local metabolisms, marked by the use and recycling of what can be produced or “extracted” in the cluster itself. The closing of short supply chains for the use and recycling of materials, also with reference to the construction cycle, would have direct consequences on the architectural character of the new arrangements: a sort of contemporary hyper-contextualism is expected in which the landscape takes on grains, colours, materiality, closely linked to the local condition in which it takes shape (Abraham, 2015; Formato, 2020). Specific urban planning rules could stimulate this transformation: the need to use in territorial regeneration processes the materials coming from the reference cluster (which, therefore, should be identified at the scale of the urban region, constituting one of the main objectives of the new territorial plans). In a recent Italian public call for tenders, launched by the Ministry of Infrastructure and aimed at the regeneration of social housing districts, a specific bonus was awarded to projects using recycled building materials from a region no wider than 50 km.

Finally, a reflection on the rationales of the territorial, landscape and architectural project is outlined. What is proposed, in fact, requires going beyond the traditional way in which the project has been conceived, looking beyond both systemic efficiency and design, conceived as a blueprint (Reed, 2006).

The character of these urban reconfiguration processes, structurally open to uncertainty, would take advantage of a programmatic choice of spatial incompleteness: a condition of “unfinished”, open to the accumulation over time of functions, forms, aggregations and densifications. These new spaces are open to the process, aware of the ephemeral nature of the conformations that can be defined from time to time. The first step is to ensure public accessibility of the transformation areas, and then to stimulate and design “on the ground” the spatial conformations that the uses and functions put in place by the inhabitants will suggest. The process could take advantage of the interaction between diffuse, non-technical knowledge and expert skills in engineering, architecture, town planning, geology and botany.

This line of work opens up a critical reflection that transcends the field of this essay, aimed at deepening the relationships between soil ownership, basic infrastructure, historical palimpsest, new proximity metabolisms, in a frame that involve the need for certain strategic perspectives for the peri-urban areas of European cities.

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