Chapter 11
Conclusion

Abstract The inventory of urban brownfields in post-industrial European metropolitan areas and the study of regeneration projects highlight the absolute necessity of these resources for the sustainability transitions of urban territories and the undeniable complexity of this type of process. Given the complexity of the variables involved, there is no simple and unambiguous recipe to make urban territories evolve towards more sustainability. In a synthetic way, we recall how this book examines the strategies and methods of regenerating urban brownfields through the lens of sustainability at the neighbourhood scale. Then, we question how the urban brownfield phenomenon will evolve in the decades to come. Finally, we argue that it is through inter-disciplinarity of approaches that neighbourhoods in transition can contribute, on their scale, to the mutation and adaptability of urban territories.

Keywords Post-industrial European metropolitan areas · Sustainability transitions · Urban brownfield regeneration project · Neighbourhood scale · Future urban brownfields · Resilience · Inter-disciplinary approaches · Integrated design

The inventory of urban brownfields in post-industrial European metropolitan areas and the study of regeneration projects, of which many are in the course of being developed, highlight the absolute necessity of these resources for the sustainability transitions of urban territories and the undeniable complexity of this type of process. Identifying obstacles to development (negative public image, risk of opposition, multiplication of players, regulatory constraints, and dissuasive costs) largely justifies the panoply of development strategies that are deployed at different levels of territorial intervention to increase the chances of success of such operations (Rey 2014).

Given the complexity of the variables involved, there is no simple and unambiguous recipe to make urban territories evolve towards more sustainability. At the moment when a consensus appears in the face of the need for a response to the ecological and climate crises, this evolution will rather emerge from the realization of tailor-made solutions, developed in a manner that is iterative and adapted in terms of project and process to the specificities of each metropolitan area, municipality, and site. Faced with this simultaneous demand for precision, innovation and flexibility, an approach to sustainability issues in urban brownfield regeneration projects constitutes a set of particular interesting experiences. Due to its inherently intense operational

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complexity, this type of operation developed at the neighbourhood scale represents a suitable place for invention and experimentation and encourages the emergence of solutions that are both creative and unifying, leading to the engagement of an increasing number of actors.

Beyond the characteristics specific to each particular situation, the realization of the first experiences of transforming urban brownfields into sustainable neighbourhoods has made it possible to generate new operational approaches, explore new working methods, and test the integration of evaluation processes into the project approach. These first projects clearly demonstrate the need for a structured means of evaluation, in particular at the neighbourhood scale. These turn out to be all the more essential, as the complexity induced by the multiplicity of parameters to be considered on this scale exceeds the limits of intuition alone. From a sustainability perspective, this evaluative approach is part of a holistic process that translates into a global, optimized, and integrated look at the issues to be addressed (Rey and Lufkin 2016). It implies a simultaneous and optimal consideration of environmental, sociocultural, and economic parameters, a visualization of architectural projects not only as isolated objects but also as participating elements of a broader whole, and an optimization between the different constituent elements of the sustainable neighbourhood project.

These first experiments were often seen as "laboratories", paving the way for an evolution of common practices towards better consideration of the complexity inherent in sustainability. However, they cannot be considered as recipes to be used as-is for other projects. Strategies for sustainable development of the built environment cannot be seen as the search and application of an ideal and fixed model. Rather, they result from a logic of evolution from the current situation of various European metropolitan areas that need to be recognized, rethought, and redesigned, based simultaneously on existing characteristics and new perspectives.

The complex encounter between parameters linked to sustainability transitions and fixed points stemming from pre-existing situations makes the work of urban planners and architects who can, in partnership with other actors in urban areas, integrate multiple distinct aspects within a coherent spatial synthesis. The neighbourhood scale, which is an integral part of the regeneration of urban brownfields, constitutes, in this context, a basis for particularly interesting work. Situated on the scale between city and building, the neighbourhood appears well-suited to experimenting with specific practices aimed at increasing the sustainability of the urban environment. This makes it possible to make tangible and understand urban issues that clearly go beyond the scale of a single building. The necessity of a coordinated mastery of urbanization and mobility, the creation of dense mixed clusters, and the search for an increased quality of life in urban areas can thus be approached and trialled through concrete solutions. Thus, the regeneration of urban territories clearly takes place at a crossroads with large-scale considerations such as territorial development and more circumscribed definitions of buildings and public spaces in search of new configurations (Rey and Lufkin 2015).

This book examines the methods of regenerating urban brownfields through the lens of sustainability. It testifies to the pivotal period currently experienced by urban

territories after the calling into question of continued urban sprawl and increased attention being paid to reserves remaining within the built environment. Following this effort towards synthesis is the question of how this phenomenon will evolve in the decades to come. Indeed, the metropolitan areas currently undergoing renovation projects address sectors that became urbanized during the nineteenth and twentieth centuries, afterwards becoming obsolete. Given the importance accorded nowadays to urban densification projects, the regeneration of urban brownfields is truly underway, and could thus indicate a gradual disappearance of the phenomenon.

It must, however, be noted that the multitude of sites still awaiting revitalization implies that urban brownfields will, in fact, be visible for a long time to come in the heart of European metropolitan areas and, probably, in other continents facing spatio-functional changes of the same order. Given the accelerated development of economic activities and their constantly changing needs, it is likely that some imbalances will continue to appear between the built environment and the functions it is supposed to fulfil. New types of brownfield not yet imagined in this book are likely to emerge in the coming decades, even if low population growth of European countries and increased interest in densification potential should, in principle, reduce the intensity of the phenomenon.

Faced with the profound functional changes observed today within European post-industrial metropolitan areas, it is also legitimate—beyond the extension of current urban brownfields and possible new spaces facing the risk of abandonment—to question the potentially cyclical nature of this type of phenomenon. In other words, will the neighbourhoods resulting from the regeneration of urban brownfields themselves become brownfields in a more distant future? It would be reckless, to say the least, to attempt to respond to this question in a definitive and peremptory manner, which would be tantamount to predicting the future of metropolitan territories quite precisely and over a very long term. The multiple interactions facing the urban environment in the twenty-first century will be as strongly marked by the globalized framework of socioeconomic exchanges as by changing geopolitical situations, locally diverse sociodemographic evolutions, and tensions related to limited access to resources.

In this context, oscillating between the hope of transition and apocalyptic announcements of collapse, it is not easy to predict the nature of the trade-offs that will be established in the face of these variables. Nevertheless, the issues discussed in this book underline the need for multi-dimensional approaches to transforming underused metropolitan sites. The integration of a functional and sociocultural mix in operations, as well as taking into account certain flexibility at the scale of the neighbourhoods considered, suggests a potentially greater adaptability than in previous occupations and, in principle, a lower risk of the sudden reappearance of obsolescence or abandonment.

If specific attention is paid to these conditions, brownfields can realize their intrinsic evolutive potential, allowing them to resist future contextual changes and influence their use. One can thus avoid a vacancy phase specific to urban brownfields in favour of a more continuous and fluid logic of renovation, transformation, and

urban renewal, going beyond the classic vision of the urban brownfield's lifecycle (Laprise 2017).

On their level, sustainable neighbourhoods built on urban brownfields are thus likely to join and integrate certain dimensions inherent in the concept of resilience. Applied to the city, this can be defined as "the capacity of an urban system to absorb a disturbance and to regain its functions following this disturbance" (Toubin et al. 2012). As future developments always remain surrounded by uncertainty, it seems opportune to question the ability of urban territories to resist changes they have undergone and to withstand sudden impacts. As Thomas Sieverts points out, the objectives of resilience are mainly the conservation of resources through careful maintenance, tolerance for errors, and an ability to remedy them, reconciling the longevity of urban structures with scalable uses and the achievement of resource-saving through the versatility of use (Sieverts 2013). That which we build or rehabilitate today must, therefore, be able to serve future needs by integrating several possibilities of resetting its use.

The vast field of investigation opened by this challenge implies integrating an increased number of skills in the development of regeneration projects, which translates into the need to develop intelligent inter-disciplinary cooperations. It is through this inter-disciplinarity of approaches—firmly coupled with a process of conceptual, spatial, and expressive integration of distinct contributions to coherent design—that neighbourhoods in transition can contribute, on their scale, to the mutation and adaptability of urban territories.

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