Global-local tensions in urban green neighbourhoods: a policy mobilities approach to discursive change

Julia Affolderbach, Kirstie O'Neill and Berenice Preller (accepted for publication, 25 October 2019).

The ways in which green neighbourhoods have developed over recent decades has become increasingly globalized, driven by the challenges of climate change and the globalization of knowledge exchange including a shift towards quantified approaches of carbon control. As a result, cities do not only share knowledge, experiences and practices but also compare and compete with each other in their pursuit of sustainability leadership. To understand the emergence and establishment of certain approaches over others, policy mobilities research has emphasized the role of certain actors and institutions in promoting, mobilizing, adapting and mutating policy models, practices and knowledge. This paper extends the policy mobility literature by emphasizing the *temporal* dimension of green neighbourhood development. We reconstruct and compare trajectories of four green neighbourhood developments in Freiburg, Vancouver and Luxembourg in terms of 'extroverted' dimensions that focus beyond the city, and 'introverted' dimensions that are more localized in nature. Findings highlight the relational character of the role and meaning of these green neighbourhoods over time that reflect a global shift in how green urbanism is conceptualized and put into practice.

Keywords: green neighbourhoods; urban sustainability; policy mobility; green building

Introduction

Over the past 40 years, the ideal of the sustainable or green city has become a central element of urban planning, policy-making and development strategies which has often been addressed through green neighbourhood developments. While terminology for these developments varies (e.g. eco-cities, éco-quartiers, eco-districts, green cities

and resilient cities), they share (at least) one core objective: to reduce negative environmental impacts. At the same time, approaches also attempt to increase social, cultural and economic values through new forms of urban design, technology and institutional innovation (Fitzgerald and Lenhart, 2016, Holden et al., 2015).

These objectives are realized in different ways, shaped by spatial, political and socioeconomic contexts, and by temporal changes in discourses, ideals and concepts (Joss et al., 2013). Expressions of green neighbourhoods range from self-contained communities and low impact living emphasizing social sustainability and sufficiency (Chatterton, 2016), to green and smart technology-driven developments and innovative urban designs (Sharifi, 2016, Chatterton, 2016). In this paper, we use the term green neighbourhood to capture the broad range of developments following the *Leitbild* of environmental sustainability and greening focused on greenhouse gas emissions reductions and carbon control. In using the term 'green neighbourhoods' we recognize this as problematic given that these initiatives and their interpretations of sustainability are far from homogeneous. Irrespective of their material expressions, there has been significant (and critical) interest both in academic and policy circles in identifying 'successful' models and 'best practices' (Andersson, 2016) and the ways these travel between cities and countries.

This trend of 'debordering' local policies and practices through the exogenous circulation and transfer of models, best practices and success stories from 'elsewhere', is known as 'policy mobility' (Peck and Theodore, 2015, McCann, 2011). Policy mobility explains how local, often urban, policies are made up of influences from 'elsewhere' (Allen and Cochrane, 2007). Nevertheless, these are often deeply entwined with local knowledge and practices, and may be hard to trace across space (Robinson, 2015) and untangle. Cities may thus be engaged in multiple processes of learning from

'others' whilst simultaneously attempting to promote their own 'best practices' to boost

their reputation amongst peers, a process known as city boosterism (McCann, 2013).

The transferability and globalization of urban greening through success models is

particularly relevant in recent initiatives where cities use greening and sustainability for

city boosterism, competitive positioning and to stimulate economic growth (McCann,

2013, Anderberg and Clark, 2013, Andersson, 2016, Temenos and McCann, 2012,

Rosol et al., 2017, Jonas et al., 2011, While et al., 2004) . City governments' ambitions

to use green neighbourhoods to attract investors, and improve the city's image, shifts

the focus from an internal audience (local residents and businesses) to increasingly

external and international audiences. This shift in focus can change the character and

meaning of such developments over time, as we discuss in this paper using the

examples of four green neighbourhoods in Freiburg (Vauban and Rieselfeld),

Vancouver (Olympic Village) and Luxembourg (Hollerich Village).

This paper's contributions to the literature are twofold. First, it offers new

insights to the literature on policy mobility and green neighbourhoods by arguing that

local green neighbourhood developments can be better understood as relational

expressions that combine local as well as global influences. While innovative leadership

and the pioneering of green practices are often associated with specific local attributes

(Longhurst, 2013), the case studies presented here suggest that local and global

influences can interact to produce a more hybridized and relational form of leadership.

This problematizes the common and simplistic assumption of (green) urban leadership

as being shaped by pioneers and leaders who develop best practices locally, and distinct

'emulators' who are largely influenced by ideas and models from 'elsewhere'. Second,

the paper contributes to discussions on policy mobility by tracing the role of these local

and global influences on, and meanings of, green neighbourhoods *over time*, thus

adding a much-neglected temporal dimension. The increased circulation (and implementation) of policies and practices of urban neighbourhood greening linked to global climate change has changed the meanings and roles of green neighbourhood ideals over time. In this paper we discuss how changing discourses of sustainability and climate change affect the meaning and role of already existing and future green neighbourhoods.

Empirically, we present a qualitative case study based on secondary data analysis, expert workshops and personal interviews for four green neighbourhood developments in Freiburg in Germany, Vancouver in Canada and Luxembourg City in the Grand Duchy of Luxembourg. The three cities and their urban agglomerations share population growth rates that present considerable challenges for urban development, albeit in different ways. While the four green neighbourhoods are all located on relatively central urban brownfield sites, they bear a number of differences, including actors involved, the time period during which they were developed and sustainability features. Freiburg's Rieselfeld and Vauban are frequently recognized as 'pioneer' projects of green neighbourhood development that grew from local concerns and featured participatory elements (Fastenrath and Preller, 2018, Scheurer and Newman, 2009). In contrast, Vancouver's Olympic Village has been recognised as a green flagship development oriented towards a global audience (Westerhoff, 2016, Affolderbach and Schulz, 2017). Lastly, Hollerich Village in the City of Luxembourg represents a private development proposal that – despite being suspended in 2016 – provides the example of an emulative development which allows us to consider how best practices from elsewhere are used to connect with local audiences to create local green leadership (Preller, 2018).

In the next section, we review the literature on green neighbourhoods to highlight different approaches to, and expressions of, greening that are increasingly driven by international discourses and directed at global audiences through a policy mobility lens. The following empirical section presents findings from our case studies. In concluding, we problematize the transformative potential and role of green neighbourhoods in wider processes of urban greening.

Urban greening and neighbourhood development

Research on green or sustainable neighbourhoods can be traced back to earlier debates in urban sustainability and planning (Campbell, 1996; Beatley and Manning, 1997; Beatley, 2000) that emerged from the late 1960s and 1970s. Holden et al. (2015) identify emergent voluntary green neighbourhood initiatives in the 1970s, while Sharifi (2016) links the birth of later sustainable neighbourhoods, as urban development strategies, to the growing prominence of sustainability in the early 1980s. Researchers have documented the rapidly growing number of eco-cities or green neighbourhoods since the mid-2000s: they are now seen as a common strategy in urban development and planning (Joss, 2010, Joss et al., 2013, Holden et al., 2015). Green neighbourhoods are often seen as addressing "climate mitigation and adaptation with sustainable planning strategies, state-of-the-art technologies in green building, smart infrastructure and renewable energy to create sustainable, resilient, and inclusive districts" (Fitzgerald & Lenhart, 2016: 2). While technological elements of green neighbourhoods have become prominent, early examples of low-impact, or eco-developments, were frequently reactions against technocentrism and consumerism, and focused on alternatives involving social innovations and lifestyle changes (Lovell, 2004). Common features of green neighbourhoods often include some of the following elements: a higher density of built up space (ecodensity); 'green' building materials, including new forms of

technology; the use of brownfield sites for development; increased mixed use; promotion of social mixing; community based services; communal and shared spaces (e.g., community gardens, parking space); and the provision of low-carbon infrastructure including alternative neighbourhood energy systems and transportation schemes (e.g., access to public transport systems and increased walkability).

Despite these common features, green neighbourhood developments are varied, as they are frequently shaped by place specificities. This is reflected in work on community or local empowerment, citizen participation and sustainable communities (Barton, 1998, Roseland, 2000). Greening strategies have, however, been increasingly criticized for being 'consensual' practices where sustainability or greening objectives are presented as intrinsically 'good' and hence difficult for diverging interests to question (Krueger and Buckingham, 2012, Béal, 2012). This is particularly evident where social equality and diversity objectives are neglected. At the local level, the *existing* built environment can potentially lock future developments in to high energy use and high emissions (Haarstad and Oseland, 2017). Existing infrastructure such as transportation networks and commercial sites, the density and structure of the built up area, and urban design can also create path dependency and affect the sustainability of future planning strategies.

Just as sustainability is seen as an ambiguous concept that means different things to different people to the extent that it can become meaningless (Swyngedouw, 2010), green neighbourhoods also embody this ambiguity through their various expressions. Due to this diversity, one strand of literature has focused on recording and categorizing green neighbourhood developments with the overarching goal of assessing their strengths and weaknesses, and to ultimately measure and compare their 'success' to inform transferable models, approaches and practices. Rather than reviewing different

typologies of urban greening (Holden et al., 2015, Joss, 2010, Joss et al., 2013), using policy mobility as a lens, we focus on the spatial and temporal dimensions of green neighbourhoods that shape and remake such models, ideals and practices of urban greening as discussed in the following section.

The local-global making of urban sustainability and green neighbourhoods through policy mobility

Work on policy mobility seeks to understand the ways by which cities develop and implement policies through learning and knowledge exchange. This perspective places emphasis on aspects of mobility, transfer, adaptation and translation of policies from one place to another (Temenos and McCann, 2013, Peck and Theodore, 2010). For policy mobility theorists, policies (and ideas and knowledge) change while they are in motion, placing emphasis on the role of those groups and individuals involved in learning and knowledge mobilization processes (Temenos and McCann, 2012, McFarlane, 2009), as well as the geographical specificities of both the original and final destinations. The processes of transfer and transformation are thus understood as social processes where actors are part of certain networks and are embedded in specific institutional structures, which together shape policy mobility. Actors' motivations, capacities and circumstances affect how and which policies are mobilized, which specific political agendas are promoted (or not), or which specific groups are involved (or not), such as the private sector (e.g. Rapoport and Hult, 2017). In order to implement 'successful' policies, policy makers, stakeholders and advocates often search for and are inspired by examples, experiences and expertise from 'elsewhere'. This mobilising of ideas, knowledge and policies can occur via informal and formal channels, such as forms of policy tourism (Andersson, 2016, Gonzalez, 2011), attending conferences, or through networks such as ICLEI and C40, amongst other mechanisms. Policy mobility

thus proposes a relational understanding of (green) urbanism which presents ideas, knowledge and practices not just as locally derived but as constituent parts from elsewhere, with the local and non-local often closely entangled (Robinson, 2015). Prince (2017) amongst others has employed assemblage thinking to help think through these complex relationships between the 'in-here' and the 'out-there', which McCann and Ward (2015) have highlighted as being two sides of the same coin rather than distinct and separate. McCann (2011) has employed assemblage thinking to argue for the city as an assemblage of parts from elsewhere, emphasizing the ways that cities and their relations stretch beyond their own territoriality. Prince (2017) however, draws on the concept of 'topology' to emphasize this relationality, whereby elements can be topologically close even if they are topographically distant (p. 338), thus disrupting the local-global binary. He develops this thinking to unpack why certain ideas and policies become mobile, while others do not and links it to benchmarking activities of certain actors in 'the technocracy' which encourages policy learning not necessarily from those who are topographically close, but rather topologically ahead in global rankings and indexes. Such indexes are part of the neoliberal managerial toolkit (cf. Rosol et al., 2017) in comparing cities and their sustainability, so that neoliberalism can be seen as a further mechanism ordering the relationships (see Ong, 2006) between certain cities and certain policies and promoting certain forms of policy becoming mobile, at the expense of others.

Policy mobility is spatially sensitive as it recognizes the agency of place itself, and traces the movement of people, policies, knowledge and practices across space, often following individual actors as carriers of such practices. However, policy mobility research often lacks a temporal focus, as it tends to focus on ongoing processes and dynamics, a perspective that has been labeled as 'presentism' (Temenos and McCann,

2013). Only a few policy mobility scholars have considered the processes of learning, innovation and practice over broader timeframes (Clarke, 2012), which we argue impact not only how ideas and models change over time (e.g. through different urban planning and neighbourhood ideals and theories), but also how already existing policies and models (e.g. material, imaginative and lived expressions of green neighbourhoods) are themselves not static but continue to be reinterpreted and changed discursively.

Processes of green urbanism and green neighbourhoods can be well captured through an urban policy mobility lens. For example, the increase in green neighbourhood numbers has been facilitated and accompanied by a significant increase in the number of inter/national green building or neighbourhood standards and certification systems that seek to guide and regulate urban development such as LEED[1] in North America and BREEAM[2] in Europe. These schemes can be described as off-the-shelf, easy-to-transfer models[3] that are often incorporated into local (municipal) regulations thereby prescribing certain standards for new developments (Faulconbridge et al., 2018). The increase in the number of city networks, including Local Government for Sustainability (known as ICLEI), Climate Alliance, Energie Cités, the Covenant of Mayors, and C40 Cities Climate Leadership Group network, further illustrates cities'

---

[1] Leadership in Energy and Environmental Design administered by the US Green Building Council

[2] Building Research Establishment Environmental Assessment Methodology administered by Building Research Establishment Global

[3] Nevertheless, we recognize the problematic nature of assuming that even supposedly standardized systems such as LEED and BREEAM can be implanted in multiple locations in exactly the same way.

interest in urban greening and climate change action through the sharing and circulation of success stories and failures (Bulkeley and Castán Broto, 2013).

Urban greening initiatives, and green policies and models, are embedded in discourses that seek to justify and promote the mobilization, adaptation and adoption of certain strategies and practices over others. In some cases, policies may actually deviate from the original sustainability or greening objectives (Freytag et al., 2014, Rosol et al., 2017). Various actors use these discursive framings and presentations to promote, boost, raise support, emulate and justify policies and projects like (certain forms of) green neighbourhood developments (McCann, 2013). Arguments and framings can be both introspective, directed at audiences locally to ensure local support, as well as extrospective addressing regional, national and global audiences (McCann, 2013). The latter usually seeks to enhance a city's external image and competitiveness by attracting investors and visitors, often targeting specific population groups, as cities use greening to promote and position themselves internationally. For example, green neighbourhoods may be used as flagship developments to boost a city's image and attract policy visitors in search of good practices and success models for replication.

Alternative greening and local grassroots initiatives

Earlier approaches to green neighbourhoods that emerged in the 1970s and 1980s promoted holistic ideals around social sustainability through community engagement and participatory approaches to enhance accessibility, governance, social inclusion and quality of life (Barton, 1998, Roseland, 2000). These considered social and environmental aspects to urban living as much as, and sometimes more than, economic viability. Many of these were driven by grassroots movements (Rosol et al., 2017) and these ideas continue to inform particular types of developments even though

they may take very different expressions. More recent social sustainability-focused neighbourhood developments are similarly driven by localized, grassroots initiatives that promote alternative forms of living and lifestyles. These often include change that is referred to as 'soft' but which often constitutes more radical behavioural changes (e.g. changes in commuting patterns, consumer habits, changes from efficiency to sufficiency) supported by infrastructure that, for example, promotes sustainable forms of transportation, smaller private spaces, alternative energy systems and communal assets and spaces. The Transition Towns movement provides an example of a more holistic approach based around resilience that is both localized – expressed through various localized initiatives – and a travelling global concept as illustrated by its rapid spread (Longhurst, 2013, Aiken, 2012). One characteristic of such initiatives is citizen participation and community-focused governance approaches that emphasize the role of the local and helps to stimulate a more supportive discursive environment. In his analysis of alternative communities using the example of Transition Towns, Longhurst (2013) identifies the central role of 'alternative milieus', which consist of localized values, norms, networks and organizations that foster the emergence and acceptance of alternative practices and developments, that might include urban green neighbourhoods. Such 'alternative milieus' can, however, be difficult to replicate. These internal influences comprise local assets such as knowledge and know-how, local norms, interests and locally specific drivers. These forms of greening are not exclusively local but can be shaped by knowledge, practices and experiences from 'elsewhere' that are circulated, adapted and adopted as exemplified by movements like Transition Towns.

Many of these more holistic and community-led examples of urban greening are associated with locally embedded characteristics and drivers of change involving citizen and local government support. As a result, such alternative milieus enable cities or

neighbourhoods to achieve pioneer status. Frequently cited examples include cities seen as green leaders like Copenhagen, Singapore, Portland and Freiburg.

Greening through urban entrepreneurialism and decarbonisation

Since the 1990s, climate change has become increasingly central to sustainability debates and has changed the ways in which green neighbourhoods are envisioned, conceptualized and put into practice. There is common agreement that the more general *Leitbild* of sustainable development has been replaced by the more specific threat of global climate change, thus prioritising mitigation and adaptation on urban greening agendas, and promoting a focus on specific responses such as carbon control (While et al., 2010). As a result, green neighbourhoods have often been (re)conceptualised as low-carbon neighbourhoods, where the primary goal is to reduce carbon dioxide. These expressions of green neighbourhoods have been linked to the increasingly global circulation and transfer of knowledge and practices around eco-cities (Sharifi, 2016). Joss et al. (2013) suggest a "global mainstreaming of 'eco-city' policy and practice" that started in the early-2000s and which is characterized by a paradigmatic shift towards carbon control objectives to be achieved through green and so-called 'smart' solutions. Green technologies, including alternative energy sources, were part of earlier greening initiatives, but they are now seen to dominate green neighbourhood definitions and practices globally (Caprotti, 2014). The global drive to green neighbourhoods and cities through cutting edge green technologies is also closely linked to a strong interest in utilizing smart technologies that comprise information and communication technologies to gather data to increase efficiencies in managing infrastructure and resources, as well as being seen as a source of new economic growth. While 'smart' cities have become a dominant discourse in shaping cities' futures, the concept is not without critique. Cugurullo (2018: 74) questions the extent to which such

projects are sustainable or whether they reproduce existing neoliberal relations (also

McNeill, 2015). Vanolo (2014) reinforces this idea of 'smart' as a new round of capital

accumulation. Furthermore, such 'smart' projects rely heavily on reformist

technological change, rather than social change. The objective of carbon control has, by

its nature, become subject to quantification and urban greening strategies which

frequently rely on assessment toolkits for performance evaluation and monitoring to

determine their success (Sharifi, 2016, Caprotti, 2014). This is reflected in the

significant increase in voluntary standards and indicator systems mentioned above

(Science for Environment Policy, 2015) designed to be transferred, copied and

implemented across different world regions. Green neighbourhoods have increasingly

become measurable, accountable and comparable guided by standardized schemes and

metrics (Boschmann and Gabriel, 2013).

Green neighbourhoods, then, could be considered as largely influenced and

shaped by external factors or extroverted perspectives. They may comprise

commercially available technological innovations that facilitate certain developments

(e.g., solar panels), external know-how and policy models. At the same time, ideals,

knowledge and practices are changed and adapted to new contexts as they travel.

Compared to more organic, community approaches to green neighbourhood

development, these increasingly standardized and entrepreneurial models, tool kits and

indicator systems have proven much more mobile and may be subject to 'fast'

mobilization and adoption, resulting in more superficial and less locally embedded

approaches (Peck and Theodore, 2015). Additionally, urban greening itself has mutated

so that it is less about the original goal of sustainability but instead is frequently seen as

a way to boost economic competitiveness through urban entrepreneurialism (Harvey,

1989) and the image of a city or neighbourhood through urban climate strategies, eco-cities (Chang, 2017) and smart city projects (Cugurullo, 2018, Datta, 2014).

Critical debate around these forms of greening relate to a number of aspects, for instance, concern emerges around the emphasis of economic and ecological dimensions at the expense of social sustainability goals and inclusiveness (While et al., 2004, Long, 2016, Cugurullo, 2013, Long and Rice, 2019). This is supported by work on traded and transferred policies and planning processes that show a persistent neglect of environmental and social objectives in favour of economic interests (Cook and Swyngedouw, 2012, Temenos and McCann, 2012). Climate change strategies are co-opted into a discourse of urban entrepreneurialism that promotes economic development and inter-urban competitiveness (Sharifi, 2016, Béal and Pinson, 2014). These efforts are frequently extroverted as they address an external audience beyond the city including industry, highly educated workers, other policy makers, and consumers (e.g. tourists). Sengers and Raven (2015) highlight how these often promotional discourses and presentations are 'carefully crafted' in order to address certain audiences and promote specific local images and values. The desire to be 'world-class', aspirational and competitive is reflected by cities striving for green or climate change leadership as expressed in city rankings and rhetoric of urban greening initiatives (Affolderbach and Schulz, 2017, Andersson, 2016, Anderberg and Clark, 2013). While urban leadership is almost always defined by comparison to elsewhere, and hence strongly driven by external influences and simultaneously directed at external audiences (extrospective), local characteristics and features are frequently used to create an image or brand to be presented globally, creating a relational understanding of greening within and between cities (Affolderbach and Schulz, 2017).

Evaluations of the success of sustainable neighbourhoods are as diverse as their physical forms. One limitation to understanding green neighbourhoods is the relative lack of longitudinal work including post-occupancy studies (Affolderbach and Schulz, 2018). Another aspect relates to the mismatch between the original goals of green neighbourhoods, and subsequent outcomes that may change over time. Discursive elements and publicity, the way green policies and initiatives including neighbourhood developments are worded, envisioned and presented, are often stronger than the achieved measurable outcomes from neighbourhoods (known as the design-performance gap), as illustrated by Rutherford (2008) for Hammarby-Sjöstad in Stockholm (see also Westerhoff, 2015, Fitzgerald and Lenhart, 2016, Rosol et al., 2017). While there is agreement that discourses, concepts and practices of green neighbourhoods have changed over time, little attention has focused on how already existing neighbourhoods are actually affected by these changes, how their meanings and roles may change, as well as how these changes might affect future green neighbourhood proposals.

The remainder of the paper addresses this gap by analysing how understandings, objectives and roles of selected green neighbourhoods, in Freiburg, Vancouver and Luxembourg, develop and change over time. We trace how meanings, narratives and roles of existing and planned green neighbourhoods shift and evolve. To do so, we distinguish between four different dimensions and how these have changed over time (from inception to current form): (1) case study context and framework conditions; (2) central objectives of green urban neighbourhoods; (3) actors involved in the development including their inspirations and motivations; and (4) strategies employed including, for example, technology and design features, soft and behavioral changes. Further, we distinguish between internal and external influences and dimensions, and

discuss how the boundaries between the two are often blurred resulting in hybridized visions and expressions of green neighbourhoods.

Tracing green neighbourhoods

Our case study of green neighbourhoods in Freiburg, Vancouver and Luxembourg all originally emerged from a context of housing shortage, including the demand for affordable housing, but they each developed over different time periods from the early 1990s to the present day. Freiburg's Rieselfeld and Vauban neighbourhoods present early green neighbourhood examples that emerged out of a local need to provide affordable and sustainable living space. Vancouver's Olympic Village presents an example of a previously conceptualised 'sustainable community', which was subsequently appropriated as a green flagship development to showcase the city as part of the 2010 Winter Olympics. These examples are frequently seen, and mobilized, as 'best' practice models. In contrast, Hollerich Village in the City of Luxembourg presents a case of a privately planned development that aspires to reproduce international best practices through alternative visioning and local networks. Table 1 provides an overview over the four neighbourhoods and their key characteristics.

<<Table 1 about here>>

The data presented here was collected using a three-pronged approach including secondary data analysis, expert workshops, and qualitative interviews in each of the three regions (Table 2). Secondary data methods included an in-depth analysis of

documents to map relevant actors and processes in each case study region and discourse analysis. The discourse analysis focused on different interests, values and perceptions expressed in the documents to understand the logics of change towards sustainable building based on Dryzek's (2013) analytical framework of environmental discourse. This was applied to government documents, policy studies and brochures as well as newspaper articles for Luxembourg and Freiburg. For Vancouver, existing discourse analyses were used (e.g., Westerhoff, 2015), supplemented with additional material where appropriate. Secondly, one workshop was held in each city with experts representing city governments, scientific institutions, private businesses and the non-profit sector and followed a World Café format (Preller et al., 2017). Two additional workshops following preliminary data analysis were held in Luxembourg and Freiburg to validate findings. Thirdly, primary data collection involved a total of 77 interviews with green building experts and relevant stakeholders from the private and public sector across the three cities. All interviews were transcribed, coded and analyzed using a coding scheme which was further differentiated during data analysis following Mayring's (2000) approach of inductive category development.

<<Table 2 about here>>

From Rieselfeld and Vauban to Freiburg as 'Green City'

The City of Freiburg is the gateway to Germany's Black Forest located in the southwest of the country with over 225,000 residents (in 2015). In terms of urban development, the 1960s saw Freiburg's last greenfield development before the Conservative city government of the day introduced policies to prevent further encroachment on the Black Forest. However, by the late-1980s, densification of

Freiburg's central urban area was no longer a solution to accommodate the city's growing population.

Green neighbourhood development in Freiburg is well documented and can be traced back to the 1980s making the city a globally known pioneer in the field. Its achievements are internationally acknowledged through numerous national and international awards including the presentation of Vauban as a best practice case at the UN-Habitat II Conference in 1996. The context of green urbanism in Freiburg is frequently linked to early environmental activism and public awareness that emerged through opposition of plans to develop a nuclear power plant in the nearby town of Wyhl in the 1970s that pushed sustainability to the top of the political agenda (FWTM, 2014). This resulted in what is commonly described as a bottom-up, citizen-driven sustainability agenda in Freiburg with the local environmental consciousness having become a 'topos' mentioned by all stakeholders (Fastenrath and Preller, 2018). However, it was not only the nuclear opposition that shaped Freiburg's green trajectory. Following the abandonment of the Vauban barracks, a group of radical, green 'squatters' moved into the area, who have since collectivized into SUSI: Self-Organized Independent Settlement Initiative. This group of residents and activists had deep green visions for the future development of Vauban, which were not always compatible with the vision of the City authorities, and led to some conflict over the site. The city is characterized by significant expertise in energy efficient building and construction approaches taking the form of research institutions and organizations, pioneer projects and legislation (Fastenrath and Braun, 2018). The City Council started to engage with environmental topics in the late-1980s through the establishment of an environmental agency in 1986 and the introduction of Freiburg's low energy building standards in

1992, which exceeded Federal building regulations. This provides the context within which Rieselfeld and Vauban emerged.

Rieselfeld

The Rieselfeld neighbourhood, developed between 1993 and 2010, is located in the Western outskirts on a city-owned former sewage treatment site that was decommissioned in the 1980s and transformed into a protected green area. The fact that protected green space was earmarked for development led to strong opposition within the City Council, especially from the Green party, resulting in a compromise that foresaw the integration of environmental components in the planning of the neighbourhood (Zhu, 2008). A former member of the Rieselfeld project group remembered how the discussions revolved around the "question of social responsibility versus environmental responsibility" which highlights the tensions between social and spatial constraints and strong environmental concerns. As such, local policy actors, experts, professionals and the public were responsible for shaping Rieselfeld's main social and environmental objectives.

To respond to the need for affordable housing, Rieselfeld was developed as a mixed-use and high-density neighbourhood through multi-storey apartment complexes. To ensure a diversity of ownership, small lots were progressively sold over four building phases, and no blocks were sold in their entirety to a single investor. Initial plans for half of the housing stock to be social housing could not be realized due to changes in regional legislation and funding schemes. Instead, building groups – groups of individuals who jointly design and develop their privately purchased building block or complex, similar to co-housing – were encouraged. Accordingly, the majority of units (70-75%) in the neighbourhood are privately owned.

Following a public tender for the development plan in 1991, the progressive sale of building land allowed the city to finance the neighbourhood's infrastructure, including a centrally located tramway line and schools, in advance of the development itself. In addition, successes and failures during the first phases informed future developments leading to adaptation of the development process ("Lernende Planung").

Besides social diversity and affordability, strong environmental objectives resulted in the preservation of water (rainwater harvesting) and public and private green spaces. Additionally to the tramway line, a comprehensive bicycling infrastructure, as well as 30 km/h speed limit zones for vehicles, were implemented. A key political decision was that Rieselfeld was to become the first low energy district to apply the new (1992) municipal low energy building standards. As the buildings standards were integrated late in the process after the initial planning phase, they were incorporated into the sales contracts of all lots. Within the city administration, a dedicated architect was charged to explain and enforce building energy requirements, while private architects were encouraged to design individual 'flagship' projects within Rieselfeld.

A cross-sectoral project group implemented the development with representatives from different city departments until Rieselfeld's completion in 2010. A multi-party working group in the City Council facilitated political decision-making. In terms of public participation, a citizens' council was set up that involved local citizens which over time developed into dedicated working groups around a range of topics (e.g., mobility, children, landscape). The citizen initiative still serves as contact point for information, discussions and cultural events within the neighbourhood.

Vauban

The sustained demand for housing led to the development of Vauban located on available inner-city land in the south of Freiburg that was previously occupied by

French military barracks. After the existing buildings had been vacated, the City bought the area from the regional government. The development of Vauban was strongly influenced by Rieselfeld which was now being considered as a model for green neighbourhood development. While Rieselfeld attracted attention internationally, it became the local model for urban regeneration in Freiburg. As a former member of the Vauban project group illustrated: "Rieselfeld was kind of an ice breaker and we conveniently followed the tracks." Despite a similar mix of living and ownership structures, Vauban attracted a much more homogeneous population, primarily consisting of middle class young families (70% privately owned units) with a strong environmental consciousness. A former member of Vauban's project group described this as "more intense green than for instance in Rieselfeld." The project placed a stronger emphasis on ecological objectives, perhaps at the expense of social sustainability. This was partly triggered by the need for cleaning up the site and by local builders and homeowners who were keen to go beyond the City Council's already more stringent energy building standards to achieve Passivhaus ('passive house') standards but also by the regional and national government reducing funding for social housing while introducing incentives to home ownership at the national scale.

The organizational structure and stakeholders involved in Vauban followed the Rieselfeld model. The emerging phenomenon of building groups became much more prominent in Vauban, facilitated by the restrictions on lots sales as well as support provided by the city for these groups. Similar to Rieselfeld, the development involved public tender (1994-1995), pre-financing of public infrastructure through the progressive sale of lots, a transport concept and buildings were grouped into blocks (arranged around green courtyards). Energy requirements were similarly fixed in the sales contracts but these involved a broader range of lot sizes to accommodate different

buildings, groups and large cooperatives. Vauban also includes the solar settlement (Solarsiedlung), a large single development by architect Rolf Disch, physically separated from the main site of Vauban by a road and tramway. As evident in its name, this development relies heavily on solar energy.

The neighbourhoods of Rieselfeld and Vauban feature a number of characteristics of Longhurst's (2013) alternative milieu such as presence of local institutions and organizations, political will and active citizens. However, meanings and dimensions of Freiburg's green neighbourhoods have changed over time. The way green neighbourhoods and urban greening is understood and constructed locally has changed as part of a global shift in urban greening that reflects carbon management, inter-urban competition and urban entrepreneurialism. For example, the City of Freiburg together with the local business, tourism and trade agency introduced its marketing slogan and development strategy 'Freiburg Green City' in 2007 drawing on best practice cases such as Rieselfeld and Vauban to establish the city "as a model for the reconciliation of 'soft' ecology and 'hard' economics" (FWTM, 2014). The approach emphasizes the compatibility of environment and economy generally and Freiburg's expertise in achieving this more specifically. The discourse analysis illustrates a shift from a locally felt responsibility for energy efficiency towards strategic positioning and an increased extrospective strategy as Freiburg compares its green neighbourhood achievements to less ambitious standards and models at the national and international scale.[4] While not originally developed to be extrospective, Freiburg's green neighbourhoods have come to play a particular role in this discourse as

---

[4] While Freiburg at the time introduced innovative building standards, today the standards are not more progressive than other building energy standards.

they attract considerable international interest. Policy and planning 'tourists' "come from every corner of the world … and what surprises me the most, … [the interest] is still the same [as in the past]" (Former member of the project group Vauban). This suggests that the role of Rieselfeld and Vauban in particular as green neighbourhoods has changed from providing sustainable housing and quality of life for local residents to marketing icons and success models that are used by the City (and other actors) to boost national and international competitiveness through, for example its Green City image. Further to this, the strong social focus in Rieselfeld was weakened during the conception and construction of Vauban continues to be shaped by its environmentally aware core constituency which resulted in higher levels of individual buyers and disadvantaging lower income groups unable to buy into private property. As a result, criticisms have emerged as to Vauban's social sustainability and inclusivity (Freytag et al., 2014) including processes of "ecological gentrification" that are shaped by specific interests and attract a very distinct, often non-local class of green citizens (Dooling, 2008; Anguelovski et al., 2018; Curran & Hamilton, 2018). The relatively recent municipal elections in 2018 ended 16 years of Green political leadership suggesting growing political tensions around the prioritization of greening measures, especially as the new Mayor's campaign emphasised affordability of housing.

Vancouver's Olympic Village

The City of Vancouver with a population of around 600,000 residents (2011 Census) is located on Canada's West coast. Together with neighbouring municipalities, it forms the regional district of Metro Vancouver (totaling 2.46 million inhabitants in 2016). The city is frequently listed amongst the top ten in global livability rankings with a positive and green international image. Some of this status can be attributed to the physical location of the city between the Georgia Strait and the Coastal Mountains,

which provide an arguably impressive natural setting that constitutes a discourse of local environmental consciousness. This was described as 'West Coast Spirit' by many interview respondents and was seen as being conducive to the emergence of a number of leading environmentalists and environmental movements including Greenpeace and David Suzuki. The City itself introduced climate response mechanisms comparatively early, from the 1980s. The introduction of the Greenest City 2020 Action Plan in 2011 embodies the latest in a line of climate policy strategy (Affolderbach and Schulz, 2017). Environmental awareness is perceived to be relatively high amongst Vancouver's civil society, but the region continues to be characterized by its traditional, and largely extractive, primary resource sector (in particular logging and mining) and efforts to promote environmental conservation are often inhibited by interests from the extractive industries combined with low energy prices. While Vancouver ranks highly on global livability rankings, it is facing an affordability crisis, which represents a further challenge to greening initiatives as well as social cohesion. Many see affordability in Vancouver be at crisis point, and while property prices have fallen recently (MacElroy, 2019), they cannot yet be considered affordable for many in the City. This affordability crisis has affected levels of homelessness and debt in the City.

The Olympic Village, completed in 2010, is located in Southeast False Creek at the waterfront southeast of Vancouver's downtown. The publicly owned brownfield site was previously occupied by industry and was released for residential development in 1990 (City of Vancouver, 1999). While the neighbourhood was originally intended to be a sustainable residential development involving family housing, its objectives and development were usurped by Vancouver's successful bid to host the 2010 Winter Olympic Games. But the Winter Olympics were highly contested, in particular in respect to concerns that resources were being divested from social projects such as

affordable housing (Vanwynsberghe et al., 2013). Within this context, the City of Vancouver set the objectives for the sustainable urban neighbourhood to enhance social, economic and ecological benefits (City of Vancouver, 1999). Sustainability hence became a core objective of the 2010 Winter Olympics to overcome local critique as well as to outdo earlier host cities' achievements. The Olympics thus provided a stimulus to consider more radical approaches for the planned development that would accommodate the Games' athletes. However, the developer was only expected to implement social and environmental objectives where economically viable. What form the neighbourhood should take and how this would be implemented was widely contested (Westerhoff, 2015, Kear, 2007).

In terms of actors involved, the City of Vancouver played a central role not only in developing an ambitious sustainability vision but also in using the development to establish the City's contribution to climate change leadership and low-carbon neighbourhood developments externally, with the Olympic Games offering a stage from which to broadcast this achievement globally. As such, once Vancouver secured the Olympic games, the Olympic Village was then developed with a global audience in mind. The International Olympic Committee became a key actor in setting sustainability objectives of the development (Holden et al., 2008). The Millennium Development Group (MDG) was awarded the contract to develop the site, but the City of Vancouver had to step in and adopt a more central role following the bankruptcy of MDG during the construction phase, which coincided with the 2008 financial crisis, thus encumbering the City with a considerable debt burden. This led to further controversy and criticism around the neighbourhood development which intensified after the Olympic Games when it became clear that the City would struggle to sell units at the anticipated sales prices resulting in a further burden on tax payers.

The Olympic Village was not just designed as a low-carbon neighbourhood but developed as a family-friendly zone within the core city including mixed-use, and, in particular, green and public, spaces. Building on earlier strong community engagement, citizens were involved through various participatory elements during the specification phase, resulting in the incorporation of a central community building. The development also involved an integrated community energy system and connection to Vancouver's rapid transit system. Despite these efforts, criticism emerged in particular related to social housing and inclusivity, as rental prices were deemed unaffordable for lower-income groups. The economic costs of the neighbourhood have been seen as being associated with the 'green' features, such as cutting edge technologies and alternative building materials. However, some respondents argued that they were linked to more commercially-focused, high-end features (such as Italian granite worktops) that catered towards wealthy and often external investors (O'Neill and Affolderbach, 2018).

While embedded within Vancouver's history of urban sustainability and climate change action, the ideas and innovations implemented in the Olympic Village were largely derived from 'elsewhere', through a global search for best practices. Such 'searching' included learning from previous Olympics host cities; visits to cities within North America including Seattle; desk research about other 'green' cities globally, such as Copenhagen and Oslo; and membership in policy communities and international organisations such as C40. Urban design and green building technologies were inspired by international know-how and experiences driven by the city's ambition to create a model green neighbourhood that would boost the city's external image. As such, the Olympic Village embodies current entrepreneurial paradigms of greening that promote economic and ecological objectives rather than earlier ideals of sustainability and grassroots development that respond to local needs and visions. The struggle has thus

been to change (or indeed return) from an international showcase to a local community scale.

Hollerich Village in Luxembourg City

In contrast to Freiburg and Vancouver, Luxembourg's interest in urban sustainability is relatively recent. In the early 2000s, the national government developed a (green) growth strategy that, amongst other objectives, promotes eco-technologies and green building, albeit largely employing a logic of ecological modernization (Preller, 2018). The example of Hollerich Village, as such, emerges from a very different context: a small nation state and capital city (580,000 and 110,000 residents respectively), close connectivity in political decision making due to the small size of the country, comparatively high quality of life and resource intensive life styles paired with low environmental awareness. Salaries are high in the country (amongst the top five per capita salaries globally) yet many people commute into the City as high property prices make city living unaffordable.

Hollerich Village is a private neighbourhood proposal for a brownfield site located strategically at the edge of Luxembourg City centre (see Table 1). The site belongs to the family-owned real estate business Schuler, and was subject to previous unsuccessful redevelopment attempts. The Schuler Group started to establish itself as leader in green building in 2007 through the development of exemplary green buildings such as the Horizon and Solarwind office buildings. The project is located within a larger brownfield and mixed-used area, the "Porte de Hollerich", which has strategic value for the City of Luxembourg as a gateway to the city. The Porte de Hollerich also includes sites owned by the City of Luxembourg, the state and private investors. Discussions with the city administration around the acceptance of the Master Plan for the Porte de Hollerich stalled and led to Schuler putting its development on hold in

2016. Difficulties were at least partially linked to actors struggling to agree on a coherent Master Plan for the whole area that aligned with the City's vision of a central mixed use development, which has been difficult to achieve due to competing interests and multiple stakeholders. With the approbation of the City's new development plan late in 2017, the whole area was earmarked for a potential eco-district development in 2018 reflecting a broader, and growing, state-driven interest in promoting green neighbourhood ideals.

The initial Hollerich Village project was envisioned as a demonstration project to showcase innovation, mostly to bestow first mover advantage on the private developer but also to advance Luxembourg's global visibility in the area of green urbanism, planning, design and construction, and to boosts its economic competitiveness. Economic viability is primarily addressed through eco-density as emphasized by Schuler's managing director and CEO who estimates costs to be 20% above conventional developments but with no certainty on how much of the increase can be passed on to buyers and tenants: "the land impact needs to be minimized".

Despite the general interest in competitive positioning, the project proposal presents an alternative approach to the national growth strategy. It brings together social, economic and ecological aspects through the implementation of One Planet Community principles developed by the UK-based foundation Bioregional including plans to rely on 100% renewable energy, pedestrian-friendly urban design and links to public transportation, re-naturalization of the on-site river, urban gardening and food production and local sourcing of materials. This more radical approach is also reflected in the vocabulary used by the managing director when describing the project, regularly involving descriptors such as "change", "transformation", "forward looking", "setting an example" and "having a dream but being pragmatic".

As well as lobbying local authorities and landowners, the developer also employed a proactive communication strategy from the outset. In 2013 and before any building permissions were issued, they hired a communication consultancy to publicize the project. The developer built up a number of partnerships with local environmental organizations during the planning phase (including a Transition Town group and the Centre for Ecological Learning) in order to raise awareness and connect with the local community including sustainability projects with local schools and plant sales. These outreach and interim activities were all designed to identify local needs and transformed the proposal into a public exchange platform of likeminded groups and individuals (Preller, 2018).

The development phase of the proposal involved research and scoping of international best practices and included visits to model neighbourhoods such as BedZed (UK) and EVA-Lanxmeer (NL). The partnership with Bioregional provided access to international networks and experiences as well as higher visibility of the project abroad. The policy tourism and international scoping exercise emphasizes the influences, experiences and models from elsewhere including high levels of adaptability and openness but with an aim to adapt locally in collaboration with various stakeholder groups. Through these aspects, Hollerich Village seems to deviate from national (and international) discourses of green growth and eco-technologies through a more holistic vision that embraces social and environmental aspects. Schuler's managing director sees their role as "… developers of a way of life. We have to analyze our project as the development of a place for living, and not just sustainable construction." If and how this vision will translate into an actual neighbourhood currently remains an open question. While the recent eco-district Master Plan suggests a shift in government thinking from a narrow focus on promotion and positioning of green technologies to a more inclusive

approach to urban greening, there is nevertheless a risk of tailoring green neighbourhoods towards upper scale customers and greenification. Such an approach would likely exacerbate the affordability of housing in the City, and compromise social sustainability. This reflects the national context of Luxembourg where critical discourses around social inclusion and affordability driven through, for example, the Ministry of Housing remain at the margin, while economic development and urban entrepreneurialism are prioritised (Christmann et al., 2017).

Discussion and conclusion

The four case studies illustrate how local differences in motivations, actors and objectives led to specific images, models and languages that changed spatial relations and connections over time, not just in terms of dominant concepts and models but also in terms of the meaning and role of neighbourhoods themselves (Table 3). These examples suggest that green leadership is not necessarily restricted to local structures and alternative local milieus. Similarly, projects that were more emulative in nature were not simply implementing success models copied from elsewhere. In fact, we propose that there is a more dialectic and relational pattern, where the local and the 'elsewhere' combine to create a more hybrid version of urban sustainability and greening resulting in different meanings for different actors *over time* and in different places. We have illustrated how local actors in Vancouver and Luxembourg were actively searching for best practices examples from 'elsewhere' whilst also attempting to create a new identity that could then inform the activities of others in *their* search for best practice examples. Furthermore, these actors were interpreting and mutating such examples to 'fit' the local context. In contrast, Freiburg's greening activities were originally more locally situated but have subsequently been mobilized, by the city and by others, to create a 'brand' of greening that has become globally renowned. As such,

green leadership cannot be seen as either local or global, but needs to take into account how such practices are entangled in complex ways, taking account of historicity, geography, politics and local norms. Prince (2017: 337) makes a similar point in noting that the mobile policy becomes part of this local specificity yet a given city or territory remains "simultaneously differentiated from and connected to those territories mobile policies come from".

The examples of Vauban and the Olympic Village specifically show how the meaning and identity of green neighbourhoods can change over time in particular through discourses driven by specific actor groups. Freiburg's green neighbourhoods were primarily a response to increased need for housing through population growth that developed within a very specific green milieu concerned with alternative energy generation and low environmental impact. While the model of Vauban was originally strongly driven by community interests involving, in particular, self-builders (through building groups), it has subsequently and increasingly been used as tool to promote the city as green leader. Embedded within broader discourses of urban greening, the examples from Freiburg were originally developed following primarily introspective approaches but have become much more extrospective through the City's effort to promote itself as green city through the 'brand' "Freiburg Green City".

The Olympic Village in Vancouver, originally envisioned as community effort to alleviate social pressures for affordable housing, was appropriated for the Olympics and developed with an extrospective focus: to build an internationally renowned low-carbon neighbourhood. Even though Vancouver is frequently seen as an early sustainability leader, the Olympic Village has been strongly influenced by external processes. The International Olympic Committee, for example, set the sustainability standards, based on experiences with previous Olympic cities that had incorporated

sustainability. While the Olympic Village was designed as a family neighbourhood, it struggled with its global legacy and lack of local ownership although this has changed over the last few years. Comparing these two cases, it can be argued that there is a convergence in the way Freiburg redefined its green neighbourhoods to establish itself within dominant discourses of carbon control, urban entrepreneurialism and inter-urban global competition. Rieselfeld and Vauban gain different meaning as they are not only locally driven, grassroots developments but are also seen as established model cases for (policy) mobilisation. Vancouver's Olympic Village embodies the new paradigm of low-carbon neighbourhoods but its residents struggled to integrate global best practices and models into their daily lives (e.g. know-how and functioning of 'cutting-edge' technologies). The absence of future residents and home owners during planning and development stages resulted in a lack of community spirit, something that began to emerge several years after completion of the neighbourhood (Westerhoff, 2015). Interestingly, in comparing the developments in Freiburg and in Vancouver, we can see that despite the claims of green credentials, the materiality of the homes does not significantly deviate from 'typical' developments in each location. In Freiburg, a small number of buildings, associated with more experimental actors and groups (such as architects like Rolf Disch), do depart from conventional building styles, although the majority do not challenge 'normal' ways of building. As such, these examples rely on technological changes, which rely on material changes rather than social changes (cf. Walker et al., 2016). Thus, in attempting to mainstream practices of sustainable building, the radical elements are often lost (Gibbs and O'Neill, 2015) and instead fall back on accepted notions of 'familiarity' or 'normality'.

As an emulator of green neighbourhood development, external know-how, best practice and standards were expected to be significant influences on Hollerich Village.

However, the fact that private investors are driving the project highlights the centrality of entrepreneurial objectives, how green knowledge and products are viewed as new commodities, and the aim to establish expertise developed locally at the international scale. At the same time, the planning stage involved strong local engagement with schools, NGOs, and other organizations not only applying participatory models from elsewhere but also building up local awareness of and interest in greening and identifying context sensitive solutions (or mutations) for a 'Hollerich model' as a localised expression of global greening.

Despite the fact that sustainability is the core objective of the four case studies, its local expression is geographically contingent and they each illustrate the struggle to keep social dimensions on the agenda. In most cases, a strong ecological narrative paired with the expressed need for economic viability subordinates questions of social inclusion and in particular affordability. While environmental and economic objectives are frequently presented as complementary, the cost of greening appears to be unevenly distributed as highlighted by the examples of the Olympic Village and Vauban where green neighbourhoods are developed for and by an environmentally conscious middle-class, arguably as a form of green gentrification. Furthermore, the neighbourhoods reflect a shift in eco-urbanism from local alternatives (alternative milieus) to logics of carbon control where success is measured largely through quantification of environmental impacts (e.g. greenhouse gas emissions, material inputs) that allow comparison and ranking over time but also against other cities and neighbourhoods. Soft approaches to greening (community values, life styles) that are harder to develop and more difficult to quantify then tend to be neglected.

The examples discussed here evidence the intricate local and global, internal and external flows and exchanges, and highlights how these are not fixed in time. Tracing

these developments over time allows us to explore the policy mobilities of green neighbourhood development: how they are being conceived, discussed, developed and lived in. It also emphasizes how they are always in the (re-)making and reflect broader discourses of green neighbourhood development once they have become part of the urban fabric. Further research on lived experiences and policy discourses on existing neighbourhoods would greatly contribute to understanding these processes further, as would investigating how policy mobilities might result dialectical processes of learning between original and final destination cities potentially altering perceptions of what sustainability constitutes.

References

ANGUELOVSKI, I.; CONNOLLY, J.J.T., GARCIA-LAMARCA, M. COLE, H. & PEARSALL, H. (2018) New scholarly pathways on green gentrification: What does the urban 'green turn' mean and where is it going? *Progress in Human Geography*, doi: 10.1177/0309132518803799.

AFFOLDERBACH, J. & SCHULZ, C. 2017. Positioning Vancouver through urban sustainability strategies? The Greenest City 2020 Action Plan - ScienceDirect. *Journal of Cleaner Production,* 164**,** 676-685.

AFFOLDERBACH, J. & SCHULZ, C. 2018. *Green Building Transitions: Regional Trajectories of Innovation in Europe, Canada and Australia,* Cham, Springer.

AIKEN, G. T. 2012. Community transitions to low carbon futures in the Transition Towns Network (TTN). *Geography Compass,* 6**,** 89-99.

ALLEN, J. & COCHRANE, A. 2007. Beyond the Territorial Fix: Regional Assemblages, Politics and Power. *Regional Studies,* 41**,** 1161-1175.

ANDERBERG, S. & CLARK, E. 2013. Green sustainable Öresund region - or eco-branding Copenhagen and Malmö? *In:* VOJNOVIC, I. (ed.) *Sustainability: A global urban context.* Michigan State University Press.

ANDERSSON, I. 2016. 'Green cities' going greener? Local environmental policy-making and place branding in the 'Greenest City in Europe'. *European Planning Studies,* 24**,** 1197-1215.

BARTON, H. 1998. Eco-neighbourhoods: A review of projects. *Local Environment,* 3**,** 159-177.

BÉAL, V. 2012. Urban governance, sustainability and environmental movements: post-democracy in French and British cities. *European Urban and Regional Studies,* 19**,** 404-419.

BÉAL, V. & PINSON, G. 2014. From the Governance of Sustainability to the Management of Climate Change: Reshaping Urban Policies and Central–local Relations in France. *Journal of Environmental Policy & Planning,* 17**,** 402-419.

BOSCHMANN, E. E. & GABRIEL, J. N. 2013. Urban sustainability and the LEED rating system: case studies on the role of regional characteristics and adaptive reuse in green building in Denver and Boulder, Colorado. *The Geographical Journal,* 179**,** 221-233.

BULKELEY, H. & CASTÁN BROTO, V. 2013. Government by experiment? Global cities and the governing of climate change. *Transactions of the Institute of British Geographers,* 38**,** 361-375.

CAPROTTI, F. 2014. Critical research on eco-cities? A walk through the Sino-Singapore Tianjin Eco-City, China. *Cities,* 36**,** 10-17.

CHANG, I. C. C. 2017. Failure matters: Reassembling eco-urbanism in a globalizing China. *Environment and Planning A,* 49**,** 1719-1742.

CHATTERTON, P. 2016. Building transitions to post-capitalist urban commons. *Transactions of the Institute of British Geographers,* 41**,** 403-415.

CHRISTMANN, N., HESSE, M, & SCHULZ, C. 2017. Tracing the place of home. The specificities, policies and dilemmas of Luxembourg's housing sector. In: BALLINI, C., ECKER, S., GRÜNKRANZ, D., & PANOTOPOULOU, P. (eds) Tracing Transitions. LUCA, Luxembourg, 36-50

CITY OF VANCOUVER 1999. Southeast False Creek Policy Statement.

CLARKE, N. 2012. Urban policy mobility, anti-politics, and histories of the transnational municipal movement. *Progress in Human Geography,* 36**,** 25-43.

COOK, I. R. & SWYNGEDOUW, E. 2012. Cities, Social Cohesion and the Environment: Towards a Future Research Agenda. *Urban Studies,* 49**,** 1959-1979.

CUGURULLO, F. 2013. How to Build a Sandcastle: An Analysis of the Genesis and Development of Masdar City. *Journal of Urban Technology,* 20**,** 23-37.

CUGURULLO, F. 2018. Exposing smart cities and eco-cities: Frankenstein urbanism and the sustainability challenges of the experimental city. *Environment and Planning A,* 50**,** 73-92.

CURRAN, W. & HAMILTON, T. (eds) (2018) Just green enough. Urban Development and Environmental Gentrification. Routledge.

DATTA, A. 2014. New urban utopias of post-colonial India: Entrepreneurial urbanization and the smart cityin Gujarat. *Dialogues in Human Geography,* 5**,** 3-22.

DOOLING, S. 2008. Ecological gentrification: Re-negotiating justice in the city. *Critical Planning,* 15.

DRYZEK, J. S. 2013. *The politics of the earth: environmental discourses,* Oxford, Oxford University Press.

FASTENRATH, S. & BRAUN, B. 2016. Sustainability transition pathways in the building sector: Energy-efficient building in Freiburg (Germany). *Applied Geography*.

FASTENRATH, S. & PRELLER, B. 2018. Freiburg: The emblematic green city. *In:* AFFOLDERBACH, J. & SCHULZ, C. (eds.) *Green Building Transitions: Regional Trajectories of Innovation in Europe, Canada and Australia.* Cham: Springer.

FAULCONBRIDGE, J., CASS, N. & CONNAUGHTON, J. 2018. How market standards affect buliding design: The case of low energy design in commerical offices. *Environment and Planning A,* 50**,** 627-650.

FITZGERALD, J. & LENHART, J. 2016. Eco-districts: Can they accelerate urban climate planning? *Environment and Planning C: Government and Policy,* 34**,** 364-380.

FREYTAG, T., GÖSSLING, S. & MÖSSNER, S. 2014. Living the Green City: Freiburg's Solarsiedlung between Narratives and Practices of Sustainable Urban Developement. *Local Environment: The International Journal of Justice and Sustainability,* 19**,** 644-659.

FWTM 2014. Freiburg Green City. Freiburg: Management und Marketing für die Stadt Freiburg.

HAARSTAD, H. & OSELAND, S. E. 2017. Historicizing Urban Sustainability. *International Journal of Urban and Regional Research,* 41**,** 838-854.

HARVEY, D. 1989. From managerialism to entrepreneurialism: The transformation in urban governance in late capitalism. *Geografiska Annaler Series B: Human Geography,* 71**,** 3-17.

HOLDEN, M., CHARLING, L. & MOLINA, A. 2015. The emergence and spread of ecourban neighbourhoods around the world. *Sustainability,* 7**,** 11418-11437.

HOLDEN, M., MACKENZIE, J. & VANWYNSBERGHE, R. 2008. Vancouver's promise of the world's first sustainable Olympic Games. *Environment and Planning C: Government and Policy,* 26**,** 882-905.

JONAS, A. E., GIBBS, D. & WHILE, A. 2011. The new urban politics as a politics of carbon control. *Urban Studies,* 48**,** 2537-2554.

JOSS, S. 2010. Eco-cities: a global survey 2009. *The Sustainable City VI: Urban Regeneration and Sustainability, WIT Press, Southampton***,** 239-250.

JOSS, S., COWLEY, R. & TOMOZEIU, D. 2013. Towards the 'ubiquitous eco-city': An analysis of the internationalisation of eco-city policy and praactice. *Urban Research & Practice,* 6**,** 54-74.

KEAR, M. 2007. Spaces of transition spaces of tomorrow: making a sustainable future in Southeast False Creek, Vancouver. *Cities,* 24**,** 324-334.

KRUEGER, R. & BUCKINGHAM, S. 2012. Towards a 'Consensual' Urban Politics? Creative Planning, Urban Sustainability and Regional Development. *International Journal of Urban and Regional Research,* 36**,** 486-503.

LONG, J. 2016. Constructing the narrative of the sustainability fix: Sustainability, social justice and representation in Austin, TX. *Urban Studies,* 53**,** 149-172.

LONG, J. & RICE, J. L. 2018. From sustainble urbanism to climate urbanism. *Urban Studies***,** 1-17.

LONGHURST, N. 2013. The emergence of an alternative milieu: conceptualising the nature of alternative places. *Environment and Planning A,* 45**,** 2100-2119.

MAYRING, P. 2000. Qualitative Content Analysis. *Forum Qualitative Sozialforschung / Forum: Qualitative Social Research* [Online], 1. Available: http://nbn-resolving.de/urn:nbn:de:0114-fqs0002204.

MCCANN, E. 2011. Urban Policy Mobilities and Global Circuits of Knowledge: Toward a Research Agenda. *Annals of the Association of American Geographers,* 101**,** 107-130.

MCCANN, E. 2013. Policy Boosterism, Policy Mobilities, and the Extrospective City. *Urban Geography,* 34**,** 5-29.

MacElroy: https://www.cbc.ca/news/canada/british-columbia/vancouver-housing-crisis-definition-words-1.5200703

MCFARLANE, C. 2009. Translocal assemblages: Space, power and social movements. *Geoforum,* 40**,** 561-567.

O'NEILL, K. & AFFOLDERBACH, J. 2018. Vancouver: Leading Green Building Transitions? *In:* AFFOLDERBACH, J. & SCHULZ, C. (eds.) *Green Building Transitions: Regional Trajectories of Innovation in Europe, Canada and Australia.* Cham: Springer.

PECK, J. & THEODORE, N. 2010. Mobilizing policy: Models, methods, and mutations. *Geoforum,* 41**,** 169-174.

PECK, J. & THEODORE, N. 2015. *Fast Policy: Experimental statecraft at the threshold of neoliberalism,* Minneapolis, University of Minnesota Press.

PRELLER, B. 2018. Luxembourg: A Policy-Led Approach Cought Between Green Growth and Affordable Housing. *In:* AFFOLDERBACH, J. & SCHULZ, C. (eds.) *Green Building Transitions: Regional Trajectories of Innovation in Europe, Canada and Australia.* Cham: Springer.

PRELLER, B., AFFOLDERBACH, J., SCHULZ, C., FASTENRATH, S. & BRAUN, B. 2017. Interactive Knowledge Generation in Urban Green Building Transitions. *The Professional Geographer,* 69**,** 214-224.

PRINCE, R. 2017. Local or global policy? Thinking about policy mobility with assemblage and topology. *Area* 49(3), 335-341.

RAPOPORT, E. & HULT, A. 2017. The travelling business of sustainable urbanism: International consultants as norm-setters. *Environment and Planning A,* 49**,** 1779-1796.

ROBINSON, J. 2015. 'Arriving At' Urban Policies: The Topological Spaces of Urban Policy Mobility. *International Journal of Urban and Regional Research,* 39**,** 831-834.

ROSELAND, M. 2000. Sustainable community development: integrating environmental, economic, and social objectives. *Progress in planning,* 54**,** 73-132.

ROSOL, M., BÉAL, V. & MÖSSNER, S. 2017. Greenest cities? The (post-)politics of new urban environmental regimes. *Environment and Planning A,* 49**,** 1710-1718.

RUTHERFORD, J. 2008. Unbundling Stockholm: The networks, planning and social welfare nexus beyond the unitary city. *Geoforum,* 39**,** 1871-1883.

SCHEURER, J. & NEWMAN, P. 2009. Vauban: A European model bridging the green and brown agendas. *Unpublished case study prepared for the Global Report on Human Settlements*.

SCIENCE FOR ENVIRONMENT POLICY 2015. Indicators for sustainable cities. In-depth Report 12. *In:* PRODUCED FOR THE EUROPEAN COMMISSION DG ENVIRONMENT BY THE SCIENCE COMMUNICATION UNIT (ed.). Bristol: UWE.

SENGERS, F. & RAVEN, R. 2015. Toward a spatial perspective on niche development: The case of Bus Rapid Transit. *Environmental Innovation and Societal Transitions,* 17**,** 166-182.

SHARIFI, A. 2016. From Garden City to Eco-urbanism: The quest for sustainable neighborhood development. *Sustainble Cities and Society,* 20**,** 1-16.

TEMENOS, C. & MCCANN, E. 2012. The local politics of policy mobility: Learning, persuasion, and the production of a municipal sustainability fix. *Environment and Planning A,* 44**,** 1389-1406.

TEMENOS, C. & MCCANN, E. 2013. Geographies of Policy Mobilities. *Geography Compass,* 7**,** 344-357.

VANWYNSBERGHE, R.; SURBOGR, B. & WYLY, E. (2013) When the games come to town: Neoliberalism, mega-events and social inclusion in the Vancouver 2010 Winter Olympic Games. *International Journal of Urban and Regional Research* 37(6), 2074-2093.

WESTERHOFF, L. 2015. *City stories: from narrative to practice in Vancouver's Olympic Village. Doctoral Dissertation,* Vancouver, The University of British Columbia.

WESTERHOFF, L. 2016. Emerging narratives of a sustainable urban neighbourhood: The case of Vancouver's Olympic Village. *Articulo - Journal of Urban Research [Online],* 14.

WHILE, A., JONAS, A. E. & GIBBS, D. 2004. The environment and the entrepreneurial city: searching for the urban 'sustainability; fix'in Manchester and Leeds. *International Journal of Urban and Regional Research,* 28**,** 549-569.

WHILE, A., JONAS, A. E. G. & GIBBS, D. 2010. From sustainable development to carbon control: Eco-state restructuring and the politics of urban and regional development. *Transactions of the Institute of British Geographers,* 35**,** 76-93.

ZHU, M. 2008. Kontinuität und Wandel städtebaulicher Leitbilder. Von der Moderne zur Nachhaltigkeit. Aufgezeigt am Beispiel Freiburg und Shanghai. Technische Universität Darmstadt, Darmstadt.

Table 1. Case study examples of green neighbourhoods in Freiburg, Vancouver and Luxembourg.

Table 2. Methods and data sources

Table 3. Characteristics of green trajectories for Rieselfeld, Vauban, the Olympic

Village and Hollerich Village