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Planning for Rapid Change in Cities

Editor
Karina Landman

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Editorial

Rapidly Changing Cities: Working with Socio-Ecological Systems to Facilitate Transformation

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Abstract
Cities across the world are changing rapidly. Driven by population growth, migration, economic decline in rural areas, political instabilities, and even more recently, the Covid-19 pandemic, urban systems and spaces are changing to accommodate moving people and new functions. In many cases, these trends contribute to increased levels of inequality, poverty, food insecurity, and unemployment, while the warnings about the impact of climate change continue to raise concerns. Though some have called this a new urban revolution, others have referred to, in a more apocalyptic turn, the end of cities. In response, many writers are encouraging smarter cities, whereas others are promoting a post-urban context and a return to small communities. High levels of uncertainty are characteristic, along with increased intensities of complexity, rapid fluctuation and unbounded experimentation. This raises many questions about the nature and implication of change in different cities situated in vastly contrasting contexts. This thematic issue of Urban Planning focuses on five narratives from cities across the world to illustrate various drivers of change and their implications for urban design and planning. The editorial introduces these narratives, as well as commentaries from leading academics/practitioners and highlights several divergent experiences and common threats. It argues that to deal with the rapid and often large-scale changes, planners need to view human settlements as socio-ecological systems and plan for change and uncertainty to facilitate the co-evolution of humans and nature.

Keywords
complexity; rapidly changing cities; socio-ecological systems; sustainable development; urbanisation

Issue
This editorial is part of the issue “Planning for Rapid Change in Cities” edited by Karina Landman (University of Pretoria, South Africa).

1. Introduction

Cities across the world are changing rapidly. According to recent World Bank (2020) estimates, 55% of the world’s population live in cities and this is likely to increase to 70% by 2050. The speed and scale of urbanisation give rise to many challenges such as the demand for affordable housing, well-connected transport systems, basic services, and jobs. At the same time, governments need to deal with rising conflicts and increasing numbers of displaced people living in urban areas. Yet, in addressing these needs, other problems are increased such as the over-use of scarce natural resources and increased vulnerabilities of the poor. Large-scale expansion on the urban periphery contributes to urban sprawl, while climate change risks increase the vulnerability of many coastal areas and informal settlements. Added to these is the challenge linked to combatting the Covid-19 pandemic, giving rise to simultaneous health, social, and economic crisis. This exposes how well cities are planned and managed or not, with the consequent implications on whether the city can cope and function (World Bank, 2020). This illustrates the complexity of interrelated factors that drive urban change in the world. Understanding how to plan for and manage change in complex systems is becoming more important than ever (Nel, du Plessis,

& Landman, 2018), especially in the context of multiple complexities in cities (Watson, 2003) and the presence of 'wicked problems,' which have no clearly defined problem or criteria for solution (Rittel & Webber, 1973, p. 160). Considering cities as socio-ecological systems (SES) nested within the global SES offers a position from which the city can be studied as a problem of organised complexity (du Plessis, 2008).

This thematic issue of Urban Planning focuses on rapidly changing cities and seeks to interrogate the role of planning to accommodate new circumstances or situations emerging in cities across the world. How do we plan for uncertainty or deepening levels of complexity? How do planners encourage adaptation in different parts of human settlements within the limitations of strict rules and regulations? How does planning allow for evolutionary transitions demanded by a changing world? The purpose of this thematic issue is to rethink the planning and development of urban spaces and systems in terms of their contribution to a revised set of values, viewpoints, and mechanisms that may be needed to address rapid change in contemporary cities.

2. Cities as SES

Hes and du Plessis (2015) maintain that the current mechanistic worldview cannot adequately explain the present-day reality, especially as it relates to living systems; hence they advocate an ecological worldview. Such a worldview acknowledges that people are part of living systems and all that comes with such systems, such as flows, relationships, interdependence, and evolution. Everything that exists is part of a greater whole and the web of life (Hes & du Plessis, 2015). This means that humans are not separate from nature but members of the web of life.

The Resilience Alliance (2010, p. 16) describes SES as complex, integrated systems in which humans are part of nature and ecosystems integrated with human society. Hes and du Plessis (2015, p. 27) say:

> Social-ecological systems are far more than coupled human-nature systems in which humans rely on ecosystem services. Instead, social-ecological systems represent the combination of the 'exterior,' as created by biogeochemical processes and activities (in which humans and their technologies have come to play a disproportionate part), and the 'interior,' as created by, and experienced through, processes of thought and shared cultural phenomena.

Cities are also SES. The view of the city as a complex, adaptive socio-ecological system changes our perception of it as an artefact to that of the city and its various urban spaces as "an ever-changing socio-spatial-temporal meta-process, comprising innumerable interacting and nested processes resulting from self-organisation and adaptation and resulting in the emergence of unpredictable patterns and events" (du Plessis, 2011, p. 4). Working with change and uncertainty and looking for the potential inherent in specific places can enable an alignment between people and place to allow for the continuous co-evolution of humans and nature (Mang, Haggard, & Regenesis, 2015). The increasing concerns about rapidly changing cities have opened up many questions related to the practices of transformation in cities to address various challenges and create better opportunities in the future.

3. How Can We Deal with These Changes? Exploring Five Narratives and Years of Experience

This thematic issue seeks to build on these discussions and broaden the views on how we can think about, and respond to rapidly changing cities. Specifically, we are interested in what happens in cities across the world or how they are changing and what this means for urban planning in the future. Through this endeavour, we hope to show that change does not have to be considered as only negative, but that while there are certain concerns, these may also open up opportunities for improvement at various levels.

The first narrative is situated in Japan and focuses on nature-based solutions to deal with rapid changes in urban environments. Roggema, Tillie, Keeffe, and Yan (2021) propose multiple responses and strategies to include nature in development processes towards more resilient and sustainable environments. The discussion highlights the importance of understanding various rates of change in specific parts of the city to apply multiple deployment strategies to ensure that rapid change include a focus on access to nature. It is argued that this would improve the quality of life and enrich ecological systems.

In the second story that focuses on China, Lam, Li, and Yu (2021) reconsider rapid change from a different angle by offering a counter approach to rapid urbanisation. The article proposes a two-fold strategy to assist rural development opportunities through physical and virtual connectivity, introducing the notion of digital ruralism. This would focus on, firstly, Transit-Orientated-Development (TOD) to assist with access to health, governance, mobility, as well as environmental, social, economic, and human capital. The aim is thus to link human forces and commodities in rural areas. The second pillar focuses on Information & Communication Technology (ICT) to access technology lifestyle and smart living opportunities. They point out that together TOD and ICT offer a mechanism to address most of Maslow's Hierarchy of needs.

Rapidly changing cities are often characterised by an increase in population and the need to address the climate change challenge through, for example, Blue-Green Solutions (BGS). However, rapid urbanisation and densification can also reduce the amount of green open space, especially in the form of play

spaces for children. In the third narrative, Mottaghi, Kylin, Kopljar, and Sternudd (2021) acknowledge the relationship between humans and nature and show how the interaction between the natural environment and human behaviour affects different affordances in a park in Sweden. This is also influenced by the design of public spaces. The authors illustrate the co-benefits of multi-use for ecological values (BGS) and social values (play spaces for children) and advocate that planners and designers should give special attention to design and hierarchy to allow both these types of values to be addressed.

The next two articles shift the attention to major spatial transformation in two rapidly growing cities in the Global South. Rapid urbanisation creates a need for more housing and services, which often occurs on the urban periphery. The fourth story situated in Lahore, Pakistan, highlights three types of developments that are contributing to large-scale transformation. These developments were led by: 1) private developers; 2) the military; and 3) the government, respectively. They engulfed pre-existing villages and set in motion a process of resistance. Utilizing a framework of 'access-assemblages,' Cermeño (2021) shows how planning becomes an instrument in the hands of these powerful groups to legitimize exclusionary visions to the detriment of larger sections of the society. However, the discussion also shows that through a process of resistance, the territorialisation of land is often countered through de-territorialisation, setting in motion constant change through the emergence of re-/de-territorialisation.

The final narrative draws on military and enclave urbanism to highlight different ways of containment in Egypt. Ashoub and ElKhateeb (2021) point out that containment is used as a political tool for controlling the middle-class in Cairo. This does not only occur through typical fenced in gated communities built on the urban periphery in the desert but also through the containment of active citizens in the old city and neighbourhood of Heliopolis through new transport infrastructures such as bridges, fly-overs, and high-ways. In this way, the new infrastructure becomes a 'wall of roads' making it even harder for pedestrians and public transport users—by far the majority in the city—to move around in urban space. The authors argue that spatial interventions become a tool to constrain political freedom by disassociating citizens and undermining effective opposition through a limitation of public space and mobility.

The five narratives are complemented by two commentaries from planners with great experience in practice. The first commentary obliges us to pause for a moment and reflect on the many debates on changing urbanisation. It is a call to listen to lessons of wisdom from the past and adopting these to our future professional work. The think piece offers ten lessons from 55 years of experience and concludes that the ultimate goal of the work of built environment professionals should be to contribute to a better, more qualitative sustainable built environment. However, as pointed out, this is a never-ending process—always continuing in search of better actions and projects. Therefore, the discussion is a call for action, for hope to believe that despite worrying signs, things must and can change. Verschure (2021) argues that together with the power, spirit, and awareness of the younger generation, supported by the older generation, urban change can become an opportunity to change for the better.

The second commentary also focusses on the role of Planning to facilitate change to deliver better outcomes for all and questions whether Planning would still want to work towards change in rapidly expanding changings cities and whether it would be able to contribute to create something better. Drawing from the origins of Planning to highlight its transformational ability, it proceeds to suggest five considerations to ensure a constructive role in working with change. This would include understanding systemic connections in cities, highlighting that a failure to introduce transitions to address conditions threatening life and ecosystems on the planet threatens life everywhere. Responses should thus be aligned to current challenges and use these crises to push for systemic and structural change to bring about a new system. Similarly, to the first commentary, it is a call for action, for planners to continue dreaming and, therefore, Oranje (2021) concludes with a message to planners to do what has to be done in the world to bring about positive change.

4. Conclusion: Working with SES and the Role of Planning

This thematic issue presents seven divergent accounts and a reflection of attempts to understand the rapid changes and responses to these in multi-cultural societies and different contexts. While some of these stories focus more on the findings of research projects or observations of changes occurring in space, others are geared more too specific interventions related to the improvement of cities and public space. However, there are also several common threats present in these accounts, including: 1) a need to reconnect to nature or consider both social and ecological values; 2) to acknowledge that change is an ongoing process; and 3) to be able to deal with increased socio-spatial complexities emerging from the interaction between humans and their environment in various contexts.

What is evident, though, is that rapidly changing cities does not necessarily mean the end of cities, but may offer a new opportunity to utilize change for the better. It does not imply an urban revolution, but rather an evolution towards a more healing and thriving environment (Landman, 2019). For this to materialize, there is a need to consider cities as an integrated socio-ecological system in which humans are part of nature and ecosystems integrated within society. A view of cities as SES will allow urban planners to work with complex systems

nested in cities and therefore to use change and various forms of domination and resistance to open up greater opportunities for all people. Urban planners, therefore, need to view human settlements as a socio-ecological system and plan for change and uncertainty to facilitate the co-evolution of humans and nature.

Conflict of Interests

The author declares no conflict of interests.

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Article

Nature-Based Deployment Strategies for Multiple Paces of Change: The Case of Oimachi, Japan

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Abstract
In this article a planning approach is proposed to accommodate different paces of urbanisation. Instead of responding to a single problem with a Pavlov-type of response, analysis shows that the transformational tempi of different urban landscapes require multiple deployment strategies to develop urban environments that are sustainable and resilient. The application of nature-based solutions, enhancing both human and natural health in cities, is used as the foundation for the design of deployment strategies that respond to different paces of urban change. The results show that urban characteristics, such as population density and built space is, partly, dependent on the underlying landscape characteristics, therefore show specific development pathways. To create liveable and sustainable urban areas that can deal holistically with a range of intertwined problems, specific deployment strategies should be used in each specific urban context. This benefits the city-precinct as a whole and at the local scale. Even small nature-based solutions, applied as the right deployment strategy in the right context, have profound impact as the starting point of a far-reaching urban transformation. The case-study for Oimachi in Japan illustrates how this planning approach can be applied, how the different urban rhythms are identified, and to which results this leads.

Keywords
deployment strategy; nature-based solutions; rapid urbanisation; resilience; transformation; urban change

Issue
This article is part of the issue “Planning for Rapid Change in Cities” edited by Karina Landman (University of Pretoria, South Africa).

1. Introduction

Rapid urbanisation is a phenomenon which is mostly related to fast urban growth in developing countries. The Global Risks 2020 Report (World Economic Forum, 2020) looks at five areas that face particularly daunting challenges in the face of rapid and unplanned urbanization: 1) economic stability and social cohesion, 2) runaway climate threat, 3) accelerated biodiversity loss, 4) digital fragmentation and 5) health systems under pressure. Urban environments, and not only the ones that change rapidly have increasingly to deal with these risks. It leads to Inadequate housing and the development of slums, poverty, poor sanitation and health and the spread of diseases, waste and pollution, and unemployment and urban crime (Bodo, 2019). Rapid urbanization threatens sustainable development (DESA, 2013) and has profound influence on mental health (Trivedi, Sareen, & Dhyani, 2008).

The World Bank therefore aims to build sustainable cities and communities through an urbanization process

that is green, inclusive, competitive, and resilient, contributing to the Sustainable Development Goal 11 (United Nations, 2020) implementation of the New Urban Agenda (United Nations, 2017) as well as the World Bank's goals to end extreme poverty and boost shared prosperity. It does so by focusing on four strategies: to help cities strengthen their planning systems and local capacities to better design, plan, and manage city assets and urban environments, to maximize multiple financial resources for cities through enhancing fiscal and financial systems, to promote territorial development in developing countries and cities and to build resilience to disasters and climate change.

Nature-based solutions is recently acknowledged as a potential effective planning approach to deal with a large part of the found issues in rapidly urbanizing cities. Rapid urbanization presents one of the most urgent challenges of our times. Cities must cope with poor air quality, heat island effects, increased flood risk and the frequency/severity of extreme events (e.g., droughts and heat waves), increasing crime and social inequity, poverty and degraded urban environments, amongst other negative consequences. Climate change adaptation and mitigation as well as sustainable management are therefore key challenges for cities in Europe and around the world. What must be developed therefore is a robust, wide evidence-base and reference framework of nature-based solutions—measures that mimic the complex features and processes of natural ecosystems—for local/regional city authorities and other policy and decision makers to increase climate resilience and address inclusive urban regeneration in cities (Lafortezza & Sanesi, 2019). Nature-based solutions offers an innovative opportunity to optimise the synergies between nature, society and the economy (Faivre, Fritz, Freitas, De Boissezon, & Vandewoestijne, 2017). They are capable of sparking social innovation in cities and accelerate the transition to sustainability. They do this by fostering innovative planning and governance, as well as new models for business, finance, institutions and the wider society (Wolfram & Frantzeskaki, 2016).

The term 'nature-based solutions' is coined in the European Union and is an umbrella term for a number of different approaches that use nature to improve urban sustainability, like green infrastructure, green space, restoring rivers, ecosystem services, and ecosystem-based adaptation (Mccormick, 2020). In the European Union research and innovation policy agenda (European Commission, 2015) the following description is given:

> Nature-based solutions aim to help societies address a variety of environmental, social and economic challenges in sustainable ways. They are actions inspired by, supported by or copied from nature; both using and enhancing existing solutions to challenges, as well as exploring more novel solutions, for example, mimicking how non-human organisms and communities cope with environmental extremes. Nature-based solutions use the features and complex system processes of nature, such as its ability to store carbon and regulate water flows, in order to achieve desired outcomes, such as reduced disaster risk and an environment that improves human well-being and socially inclusive green growth. This implies that maintaining and enhancing natural capital is of crucial importance, as it forms the basis for solutions. These nature-based solutions ideally are resilient to change, as well as energy and resource efficient, but in order to achieve these criteria, they must be adapted to local conditions.

Hence nature-based solutions are seen as deliberate interventions seeking to use the properties of nature to address societal challenges.

Failing to provide a green, natural environment for humans leads to stress and illnesses. In urban areas without sufficient green space, increased levels of health problems are found. The lack of exercise in these urban environments presents children and adults with obesity (Epstein, Paluch, Roemmich, & Beecher, 2007). More kids living in these precincts suffer from attention disorder at school (Flouri, Papachristou, & Midouhas, 2018) or encounter ADHD and similar illnesses (Li & Sullivan, 2016). The psychological problems amongst adults (Mennis, Mason, & Ambrus, 2018; Thompson et al., 2012) cause higher levels of stress and in-house violence (Bureau of Crime Statistics and Research, n.d.). and higher crime levels compared to other areas. This evidence points at urban areas that are not the healthiest environment for humans. However, the solution is as simple as alien: to include more green space and nature in urban environments. Abundant, accessible and close to where people live. The 'extinction of experience' (Pyle, 1978) with "nature in childhood has a direct bearing on attitudes to the environment in later life. Children who spend time in green spaces between the ages of seven and twelve tend to think of nature as magical" (Tree, 2018, p. 294). Absence of noise pollution and bad air quality are associated with lower chances at Alzheimer's disease (Chen et al., 2017). The costs of health care for treating depression, anxiety, stress, phobias, suicidal impulses, obsessive compulsive disorders or panic attacks are estimated at £12.5 billion for the National Health Service, £23.1 billion for lost output of the economy and £41.8 billion for reduced quality of life and loss of life of humans, in the UK alone, and this can be alleviated by spending more time in nature (Bird, 2007). Contact with its natural environment, or biophilia, is therefore essential for a healthy population. Biophilia is the "rich, natural pleasure that comes from being surrounded by living organisms" (Wilson, 1984).

> For a million years our survival depended on our ability to read the weather, the stars and the species around us, to navigate, empathize and cooperate with our environment. The need to relate to the landscape

> and to other forms of life—whether one considers this urge aesthetic, emotional, intellectual, cognitive or even spiritual—is in our genes. (Tree, 2018, p. 297)

Living in an environment loaded with stimuli, multiple forms of communication and information requiring attention demands constant 'directed attention' which is tiring and requires an enormous effort to block out distractions, resulting in symptoms of impatience, planning impairment, indecision and irritability (Kaplan, 1995). A natural environment offers indirect attention and a 'soft fascination,' providing a broad absorption demanding little effort and delivering plenty of space for reflection and mental recovery (Kaplan, 1995; Kaplan & Kaplan, 1989). In our current urban environments this space is ever more compromised. The city lacks mental space in favour of physical spaces fulfilling urban programs mostly for economic benefits. A better balance in mental and physical components in developing cities would increase its resilience, creating a ReciproCity (Roggema, 2019, lecture note). Humans have the deep ability to respond to nature and to be calmed and reassured by particular natural settings and views, such as leafy plants and greenery, still or slow-moving water spatial openness, free-standing trees and unthreatening wildlife, providing the best recovery responses in modern-day stress tests and recover swiftly from stressful, energy burning fight-or-flight responses (Ulrich, 1983; Ulrich et al., 1991).

Though in many policy documents sustainability, climate adaptivity and ecological principles are put forward as major guiding principles for shaping future societies, the current planning 'machinery' tends to respond in the same way, no matter what the context is. The main concern is that planning is incremental, path-dependent, while nature-based solutions require a break with past trends. The common planning approach takes a singular problem as the point of departure, solves the problem in a programmatic way then plans for it in a spatial way, allocating uses to areas. This implicitly neglects a range of developments and changes, such as climate change, biodiversity loss, social cohesion and a series of other urbanization issues. The question then is how well our planning system is capable to respond to rapid change whilst progressing to a sustainable nature-based and healthy future environment? Here, a major inhibitor of change must be overcome: 'Path dependence,' a concept where active memory conditioned by past decisions has a controlling influence on decision making. This concept leads to self-reinforcement that is detrimental to the creation of climate-sensitive infrastructure. Unless path dependence is broken through a combination of reforms, the shift towards the full adoption of nature-based solutions will not occur (Davies & Lafortezza, 2019).

2. Research Problem

Rapid urbanization is often seen as a development that is typical for developing countries. This may, for a large part, true, but the phenomenon of urbanization is certainly not limited to the developing part of the world. In many cities in the developed world rapid urban change occurs also. However, the main difference is that in these cities often a long history of less rapid transformation can be witnessed. The historic periods of intermittent rapid and slow paces of transformation have succeeded each other, reflecting not only the time and technology to build cities but also the local landscape patterns. Planning approaches in many developed countries nowadays only react to one or few major problems and solve these in a linear way, often not taking into account the specifics of the grown urban areas. This lack of contextual responsiveness stands in the way of a sustainable urban development (Kropf, 2001) and the development of the city towards a natural urban environment is therefore compromised. This is caused by the beforementioned single problem focus, incentivised by the rapid change itself and the economic profitability or commercial feasibility, rather than taking ecology, culture and social well-being at the heart of urban planning. The process of redesigning cities to create more resilience (Folke et al., 2010; Gunderson & Holling, 2002; Pickett, Cadenasso, & McGrath, 2013), regenerative (Du Plessis, 2012; Girardet, 2014; Zari, 2018) and ecologically sound urban environments (Garcia & Vale, 2017; Mostafavi & Doherty, 2016; Sharifi, 2019) is often constraint by the slow machinery of governmental planning and market opposition (Davoudi et al., 2012; Lindblom, 1959).

The existing planning paradigm is predominantly linear, path-dependent and tends to repeat solutions for one issue or a specific problem. For instance, when housing shortage is a concrete motive dominating the planning process, after which the way the demand can be accommodated, for instance with the single focus on finding a location where the required amounts of houses can be built. Hereafter, the urban development process continues with establishing a land-use plan that makes the new use possible and an urban design prescribing how the new area will look like. Herewith, planning fails to respond holistically and accurately to a range of issues, often lacks engagement and support, and tends to repeat the solutions of the past. A thorough inclusion of ecological and green systems, structures and spaces is often absent or misplaced. By the time green and other sustainable solutions are agreed on, financed and ready to be implemented other changes happening to cities have caused a tremendous transformation. This means the originally well-thought solutions for a more sustainable city are solutions of the past rather than the future. Especially when the future is uncertain and potential changes are unprecedented, the response is too late, not fit for purpose and misses the objective it served initially. Therefore, an alternative, more adequate response is needed, allowing green, water, ecology, social cohesion, or the growth of food to keep pace with urban developments. Instead of lengthy planning processes, in which the solutions are compromised, and generally averaged

out amongst all (hard) interests, responsive or anticipative planning would accommodate the transformational rhythms of each urban area by using a range of spatial strategies, each matching with their typical pace.

This calls for a more specific, an 'eco-acupuncturistic' planning (Houghton, Foth, & Miller, 2015; Landry, 2005; Ryan, 2013) or Swarm Planning (Roggema, 2012) approach in which the nature of urban change becomes receptive to suitable nature-based solutions. A different pace of urban change should be reflected in the way spatial responses are undertaken. A slow transition, with small changes at spatial and timescales, would require small, temporal interventions creating microclimates of green space, while faster change, at larger time and spatial scales, asks for implementing structural green systems. This new planning approach is holistic and takes into account a spectre of problems, developments and changes, and connects these with the specifics of an area in terms of capacity and pace to change, adaptability, and grain of the urban fabric, formed by the landscape and its historic development (Figure 1). A way of planning that is capable of finetuning the relationship between the 'hosting' urban environment and the symbiotic spatial intervention that could increase the quality of green spaces so healthier and more ecological environments emerge.

The research question is therefore: How can accurately be responded to the different paces of urban change, in order to optimize the quality of life for humans and non-humans through nature-based solutions. The basis for this is found in the objective to provide an urban environment for people and the ecology to stay healthy long-term. In order to accurately respond to the context in which this can be achieved the intervention and the typology of urban transformation need to be matched. When the different types and paces of changing urban environments are understood, applicable deployment strategies can be developed and applied to designs for specific areas.

The Oimachi district (Figure 2), an urban environment south of the Tokyo Central Business District, is used as the case study area to analyse and test the new planning approach. At first view, the district can be characterised as an intensely used area. In contemporary urban design and planning literature, the intensity of an urban area is conceptualized as a vital characteristic to increase the sustainability and resilience, and is defined as the togetherness of diversity, proximity/compactness, connectivity and density (Cassaignau & Jung, 2018; Dovey & Symons, 2014; MVRDV, 2006; Rowe & Ye Kan, 2014). The vitality in terms of a diverse, compact and dense urban environment might increase resilience and sustainability in social and economic terms, it may also deprive the possibilities for a green and healthy precinct. The interplay of intensively used spaces, relatively quiet zones or even neglected and underused voids (Jonas & Rahmann, 2014; Rietveld & Rietveld, 2014; Roggema, 2018) should therefore be embraced as a quality of a neighbourhood.

The overall characteristics of the Oimachi district reflect the intensity of the area. According to the Japan Statistics Bureau and Statistics Centre, in 2000 the population density for Shinagawa-ku was 142.87 persons/ha (Wendell Cox Consultancy, 2001), which is higher than Inner London at 113.52 persons per/ha and similar to Hackney at 147.90 persons/ha located at the fringe of the City of London (Greater London Authority, 2018). The Oimachi District, one of the five districts in Shinagawa City, has rapidly developed with the progress of industrialisation and urbanisation in the beginning of the 1900s. In December 2020, 104,893 people live on 4.73 km^2 of land, a population density of 221.77 persons/ha. According to the city statistics in 2006, 57.3% of the area is considered built-up, in which 39.3% for

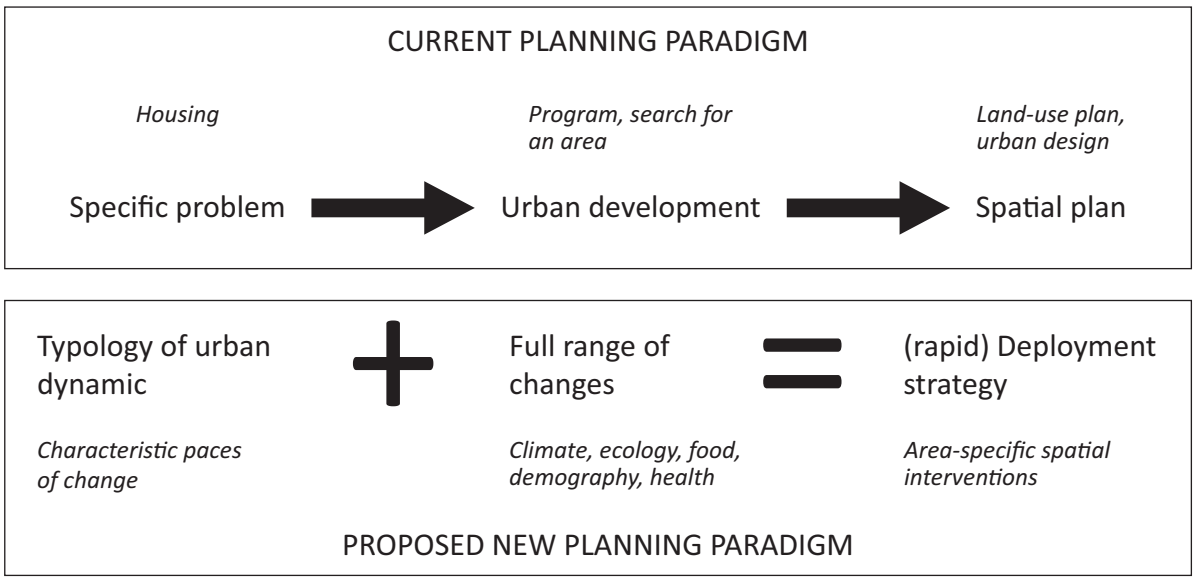

Figure 1. Proposed new planning paradigm.

Figure 2. The area around Oimachi station, Japan. Source: Google Earth.

residential, 7.2% commercial, 31% office and industrial, and 15.8% green spaces. The amount of built area relatively to open or green spaces illustrate the sort of intensity of the precinct. In general, this is related to higher stress levels, mental illnesses and other health problems of its residents. The lack of green spaces and contact with nature is impacting the way humans behave. In order to increase tranquillity and stress relief, more green spaces are to be included the urban environment.

3. Methodology

Increasing the green environment in size and quality is the objective, then the deployment of ecological measures should be implemented at a pace the problems will not surpass them. When urban areas undergo a rapid change, alternative (green) initiatives will need to be rapidly deployed in order to keep up with the pace of change. Similarly, when areas undergo slower changes implementation of nature-based solutions can take a longer period and have a more structural character. Every area requires their own response. This is reflected in the applied methodology, which is an eclectic and intertwined combination of applicable action-research (Kindon, Pain, & Kesby, 2007; McIntyre, 2007; Selener, 1993) methods for spatial design, such as design charrettes (Howard & Somerville, 2014; Roggema, 2013). The design of the research approach is coherently brought together in six parts (Figure 3 and Box 1).

4. Results

The main finding of this research is the different urban areas each have a specific history, landscape basis, urban typology, transformation pace and appearance. In the Oimachi area we have found four fundamentally different zones (Figure 5): the fine-grain traditional neighbourhood (1), the modern urbanity (2), the old coastline (3) and the reclamation landscape (4). The existence of these zones is underpinned by analyses of the urban mapping, landscape basis and urban sensing.

4.1. Urban Types

Table 1 reflects the differences between the four urban zones in population density, the amount of built-up area and existing green spaces. The scale of each zone is also different. The roji-area (1) is characterised by a relative high population density, small scale built-up entities, and small public spaces with little and small areas of green (Figure 6). It has a mixed use of residential, small businesses and restaurants. The modern urbanity zone (2),

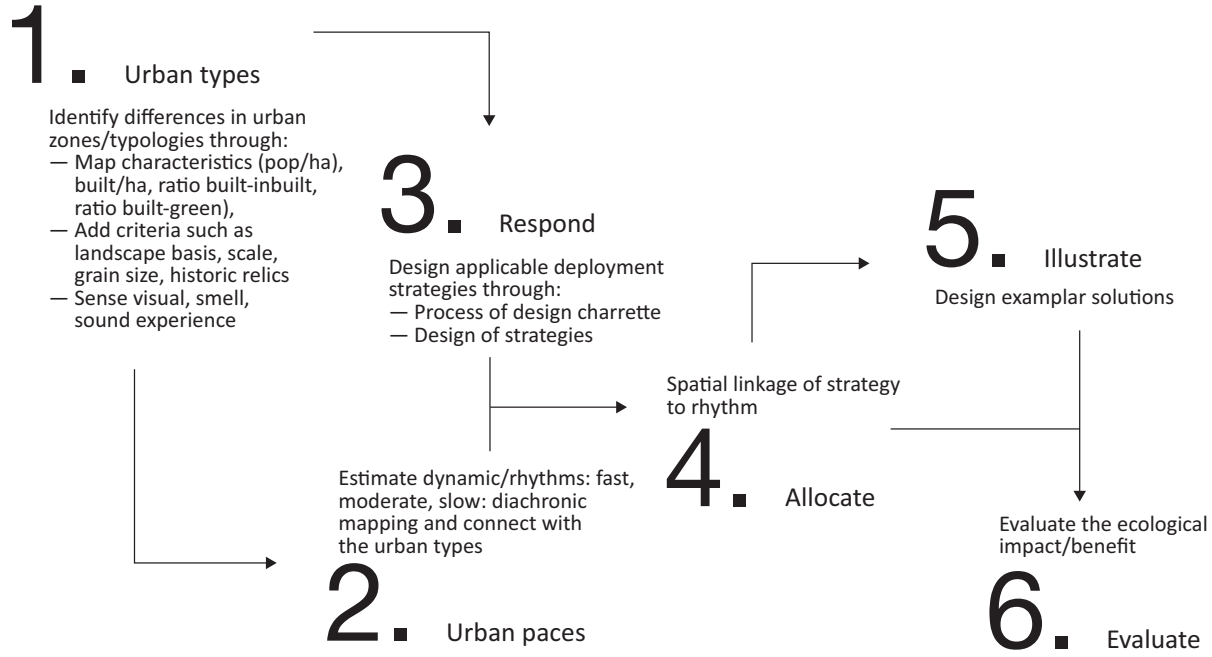

Figure 3. Methodology used for constructing a rapid deployment strategy for Oimachi.

Box 1. Methodological steps.

1. Urban types:

- The characteristics of the area (pop/ha, built area/ha, ratio built-unbuilt, ratio built-green space) are mapped (Dennis et al., 2018; Vanderhaegen & Canters, 2017);
- Additional aspects such as landscape basis, scale, grain size, historic relics are identified using landscape layer mapping (Kuitert, 2013; Pinzon Cortes, 2009); and
- Sensing urban experiences (Borer, 2013; Degen & Rose, 2012; Diaconu, Heuberger, Mateus-Berr, & Vosicky, 2011; Pink, 2007; Rapoport, 2016), such as sound, view and smell are collected through site visits and wandering the precinct.

2. Urban paces: For every area its dynamic/rhythm is determined through a diachronic spatial mapping analysis (Cialdea & Maccarone, 2012; Van Bree & Kessels, 2014) to illuminate slow and fast variables, the dynamics of change, cycles of resilience (Gunderson & Holling, 2002), adaptative capacity (Brooks, Adger, & Kelly, 2005) and transformation (Garcia & Vale, 2017; Pickett et al., 2013; Roggema, 2012), to understand processes of emergence (Goldstein, 1999; Krugman, 1996). Subsequently the layer-approach is applied to identify the different timeframes or rhythms (De Hoog, Sijmons, & Verschuuren, 1998; Frieling et al., 1998) and distinguishing higher and lower dynamics of specific land-uses (Sijmons, 1992) to determine the changeability/rhythm of the urban layers (Roggema, Van den Dobbelsteen, Biggs, & Timmermans, 2011). The urban paces are then linked to the identified urban types in step 1.

3. Respond: In response to the findings in steps 1 and 2, applicable deployments strategies are designed in a creative, collaborative process. This process is based on the design charrette methodology (Condon, 2008; Lennertz & Lutzenhiser, 2006; Roggema, 2013), an intensive form of action research, in particular useful when problems are tense and complex. The design charrette process involves a range of stakeholders, experts, professionals, citizens and businesses in a creative way. For example, one of the methods used is the building of plasticine models to decrease conflicts of interest and expel rationalised vested interests from the discussion. The models (Figure 4) represent the collective results as strategic outcomes of the charrette by using research by design methodology (Hauberg, 2011; Milburn & Brown, 2003; Roggema, 2016; Rosemann, 2001; Swann, 2002) that are supported by all participants. This allows for the exploration of uncharted territory and develop new and innovative design solutions.

4. Allocate: The fourth stage in the research process allocates the typical strategies to suiting areas. The pace of change (step 2) is herewith connected to research by design outcomes (step 3).

5. Illustrate: Spatial designs are subsequently conceived as an illustration of the applied strategies.

6. Evaluate: In the final stage the benefits for the quality of urban green and ecology of the design-solutions are assessed.

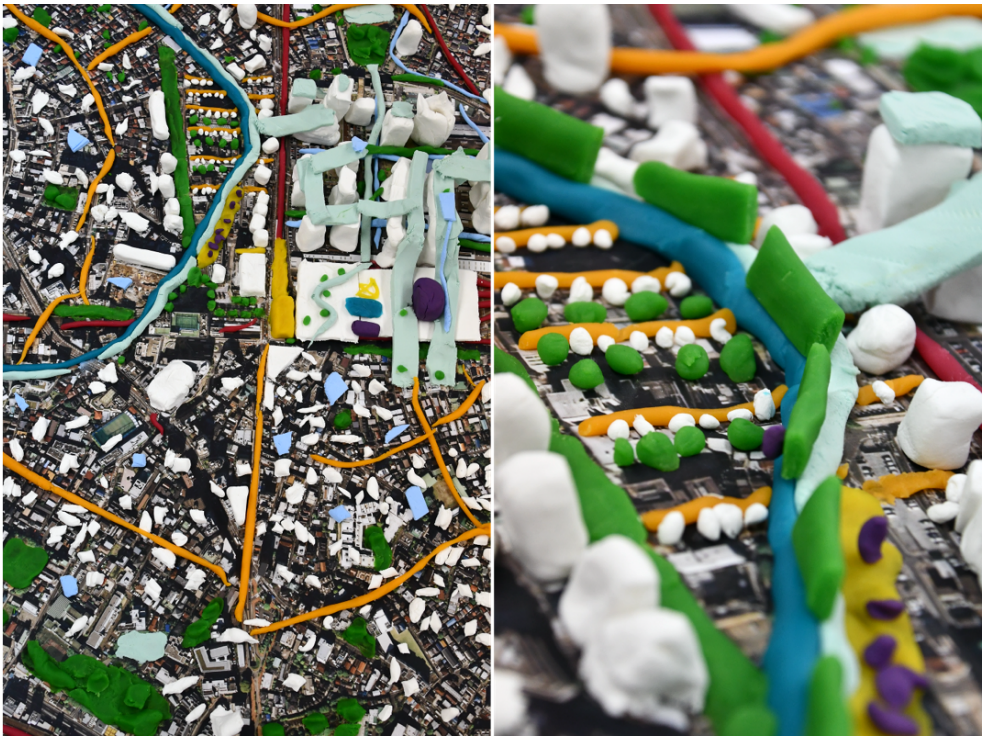

Figure 4. Plasticine modelling of the collective design propositions.

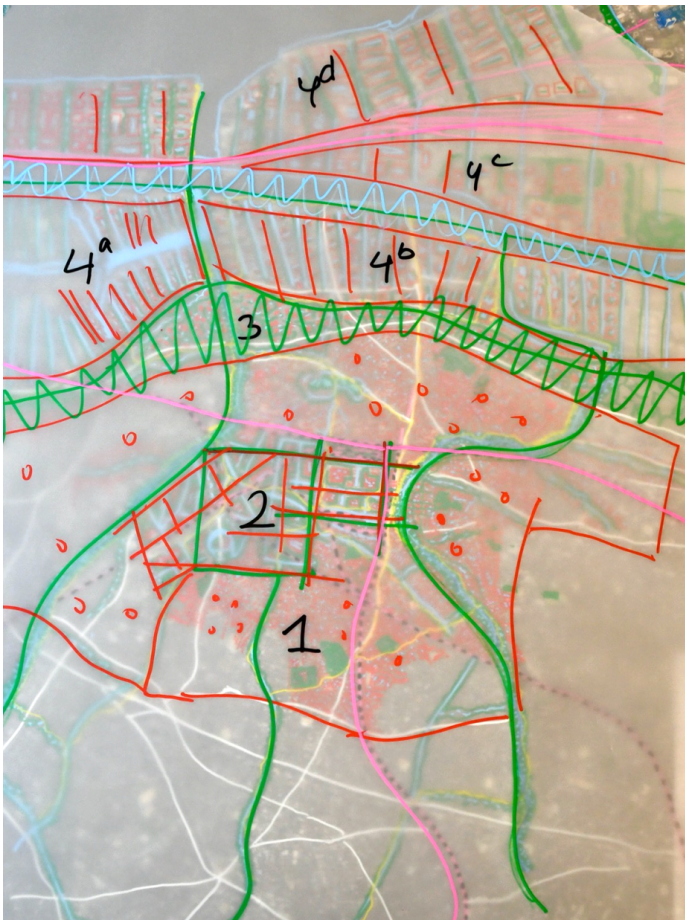

Figure 5. Four urban landscape typologies in Oimachi.

Table 1. Urban characteristics.

	Oimachi district	Fine grain—roji area (1)	Modern urbanity—around station (2)	historic (3) Coastal ridge—	landscape (4) Reclamation
Population persons/hectare	213.94	346.94	203.61	242.24	96.04
Built form/hectare (number of buildings)	30.52	57.64	28.66	41.65	3.91
Ratio built—open space (unbuilt)	48.56%	33.28%	29.68%	37.29%	64.54%
Ratio built form—green space	8.80%	2.64%	2.26%	4.70%	12.85%
Scale/grain		Small scale, fine grain	Large scale, much open space with large grain	Average scale, fine grain	Extra-large scale, large logistics

mainly around and north of Oimachi station has a relatively low population density in a larger scale urban grain, with larger sizes of public spaces and more and larger green areas (Figure 6). The use is related to transport and leisure. The old coastal ridge (3) has an average population density in a small-scale urban environment with relatively spread-out green spaces. The area is dominated by residential. The reclamation landscape (4) has a very low population density and is characterised by very large-scale building blocks for logistics purposes. Green spaces are often left-over space.

The population density has changed dramatically during the first part of the 20st century, when the area urbanised. The density jumped from nearly 8 persons/hectare in 1890 to almost 200 in 1940 (Figure 7). After this period of rapid growth, the population density fluctuated at continued high levels.

The original landscape can be witnessed through historic remnants, such as old watercourses, typical elevation and the ecological habitats. On the map of 1881 (Figure 8, left) landscape patterns are visible and current urban form can be recognised.

The scale and spatial differentiation already appear as result of the interplay of elevation, the water system and landscape. The landscape therefore determines four urban typologies. The area that later becomes the dense roji-neighbourhood (1) is formed on the somewhat higher grounds where small plots of farmland are irregular formed with non-straight roads and small but different shapes and sizes. This can currently be seen

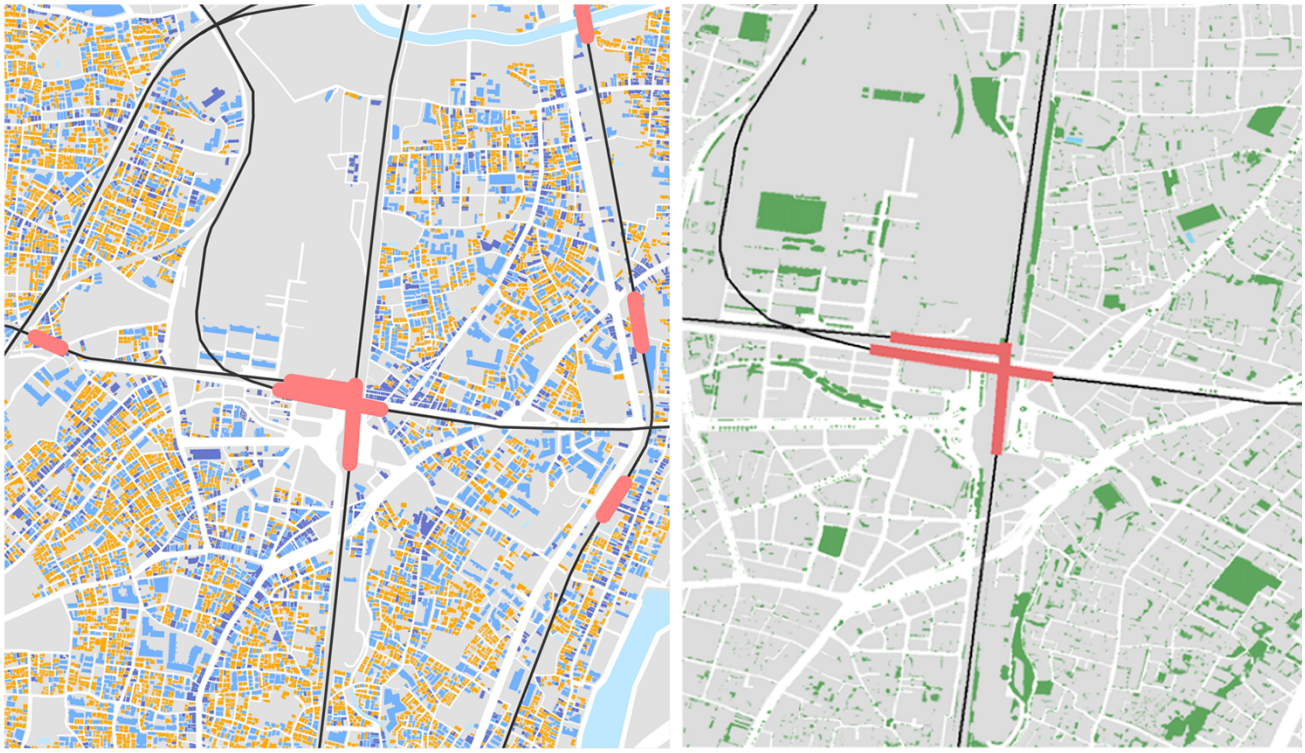

Figure 6. Contrast in scale and green spaces between the roji area and modern urbanity. Source: Courtesy of KEIO University and Tokyo Prefecture.

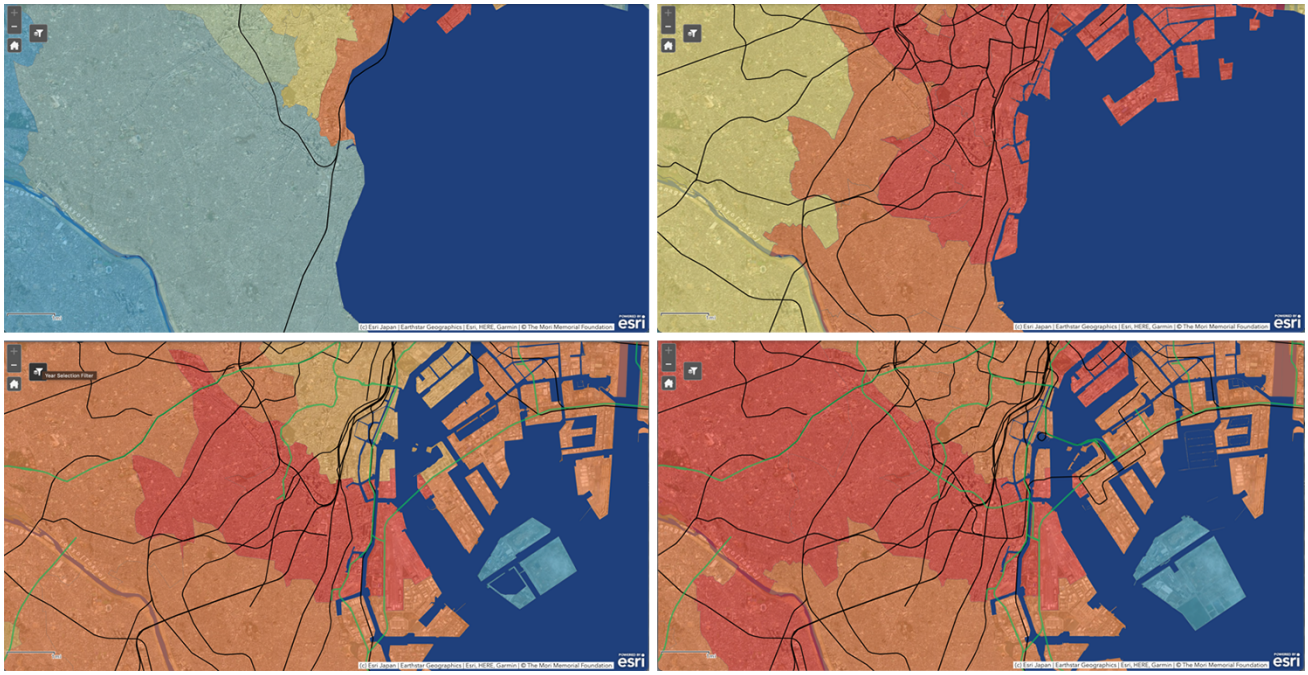

Figure 7. Population density (persons/ha) in 1890 (7.68), 1940 (198.4), 1990 (152.45) and 2015 (171.0). Source: Institute for Urban Strategies (2020).

as a complex urban area where the clarity in the order of urban spaces is limited and functionality is seemingly inefficient. The larger plot sizes in the landscape are located on the lower grounds near the waterways where they were used as grasslands and rice-paddies. Their larger scale has led to mono-functional urban entities that are currently spread out near the railway lines forming the modern urbanity area (2). The coastal ridge (3, Figure 8, right) is the former coastline and can still be seen as the most dramatic drop in elevation in the entire area. The rocky underground caused a perfect basis for the first settlements as here people could build homes easiest and were safe for any risk from the sea. The sturdy underground provides difficult conditions for

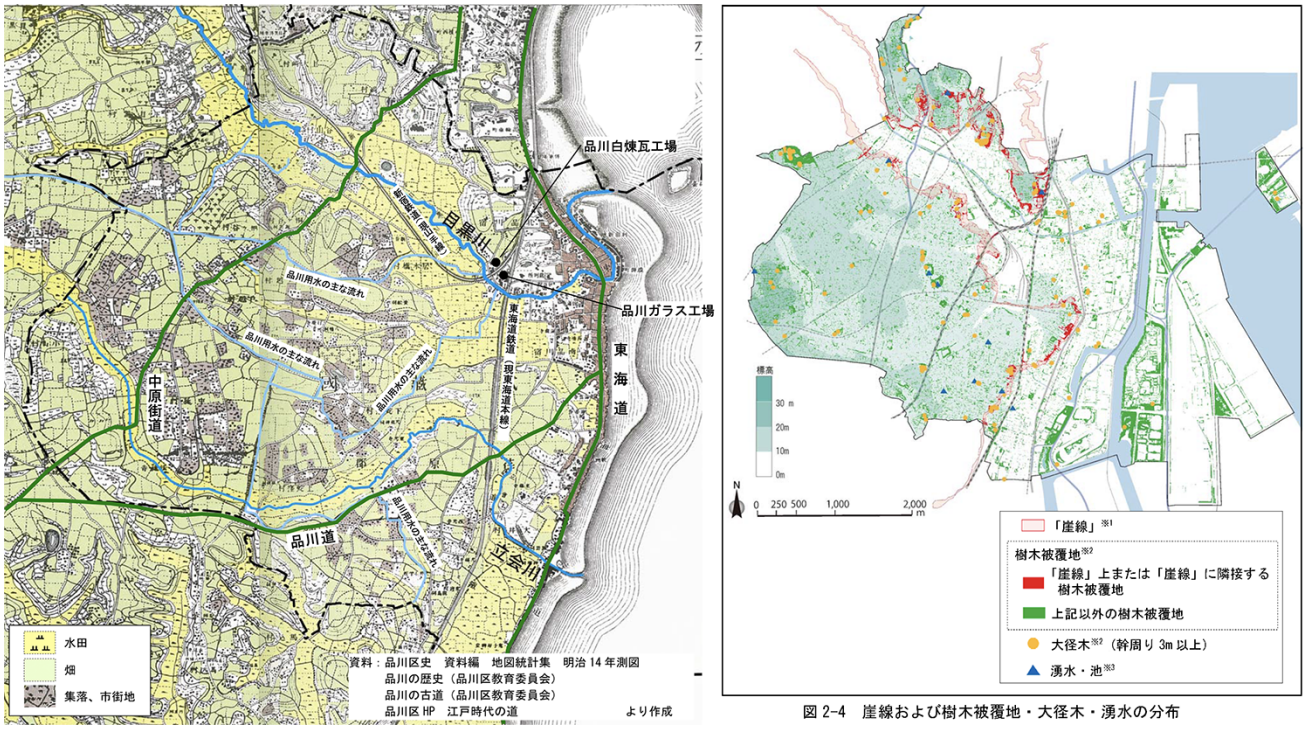

図 2-4　崖線および樹木被覆地・大径木・湧水の分布

Figure 8. The Oimachi landscape in 1881 (left) and green cover in current urban environment, depicting the old ridge in red, large trees in orange and wells in blue (right). Source: Courtesy of the City of Shinagawa.

growing, as it takes effort and time for a tree to mature. Once this however is achieved the rewards is likewise: a rich and sophisticated enduring green environment in which a high-quality residential settlement is embedded. The landscape of the 'to be reclaimed' land (4) from the Tokyo bay consists of reclaimed land as a dewatered polder system or gained through sand suppletion. It had to be won from the water in well organised units, efficiently reclaimed by the available techniques at the time. This urban area therefore is artificial, rational and, depending the time of reclamation, of a large or very large scale. The economic drivers are dominant hence water and green are submerged in the local urban activities, and only appear (or left over) if the space is not usable for an economic purpose.

The urban characteristics and landscape specifics are supported by the actual sensed atmospheres when wandering the city at different times of day and week. The roji-area is a tranquil and intimate area feeling enclosed. At lunchtime and in evenings it is buzzing with activity, but other times of day one can hear people talk occasionally. During weekends it is a quiet place. Where weekdays are full of food smell, the weekend smells are dominated by cleaning and washing odours. The modern urbanity area in the direct vicinity of the station, is busy during peak hours, even in the late evening. The rest of the day it is unexpectedly quiet, near empty, during the night it turns into a desolate area. The weekends are buzzing with families and young people seeking thrills and entertainment. The active periods of the week the gasoline smells reflect the dominance of traffic, while during weekends the smell of barbeques is apparent. The area is open and exposed to views, implying a lack of privacy, and the weather. The coastal ridge is tranquil with abundance of old trees that generate a green smell. It is a quiet place, stable during day/night, week/weekend. It offers secluded living where people can hide and withdraw from public life. The reclaimed landscape is a noisy place, full of industrial activities. On weekdays it is a constantly active area, during the day and (most of) the night, when it smells like oil and harbour. The weekends show a different side when the area is quiet and desolate, and it smells fish and sea.

4.2. Urban Paces

Through diachronic mapping the estimated dynamic or rhythms of urban areas are illuminated. To identify the 'pace' of change, the built environment is mapped in nine different periods, from 1909 until 2005 (Figure 9). This shows what changes and persists in the urban space.

The roji-area appears on the map just after 1890, and the basic urban pattern has not changed significantly ever since the rural landscape transformed in an urbanised pattern (Figure 10, upper). The built structures are only disturbed by large infrastructure interventions such as railway lines and some broad roads. The majority of roads and alleys however remain unchanged since the neighbourhood was conceived. The pace transformations take place in this area are very modest and slow. The modern urbanity area around Oimachi station has a different dynamic. The station itself made its appearance, and is subsequently expanded, the area around the railway tracks is constantly reconfigured with new

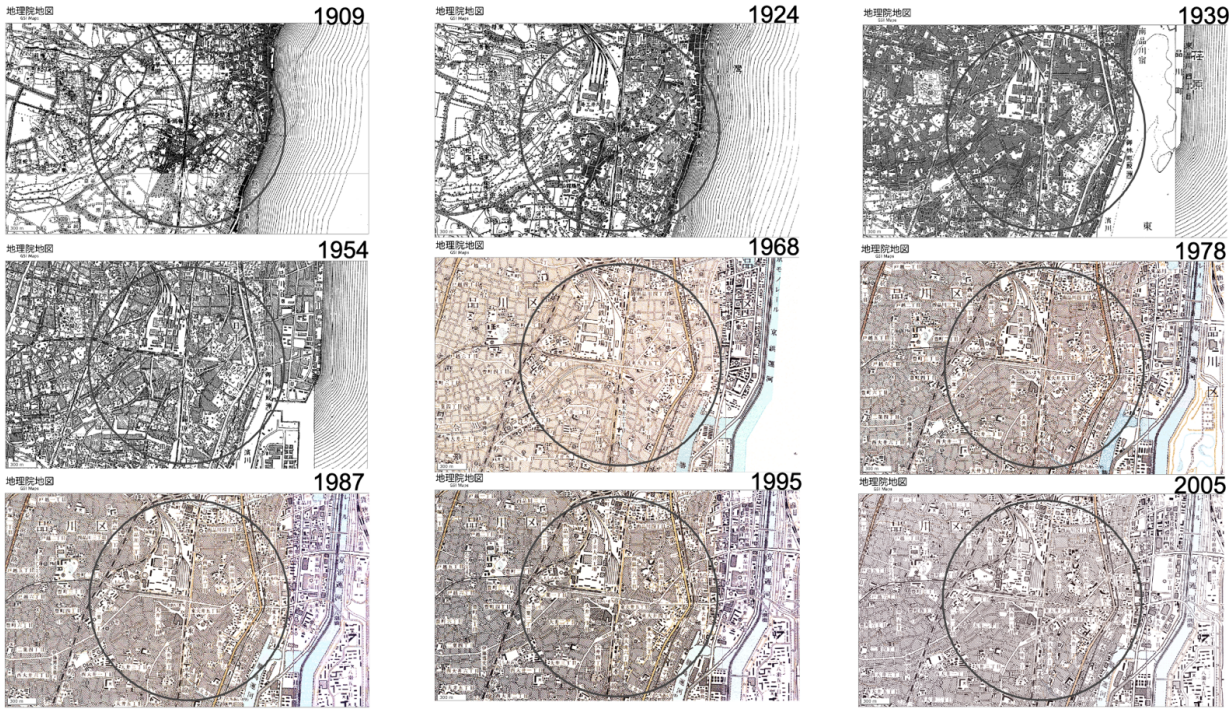

Figure 9. Diachronic mapping 1909–2005, indicating urban changes. Source: Courtesy of the Geospatial Information Authority of Japan.

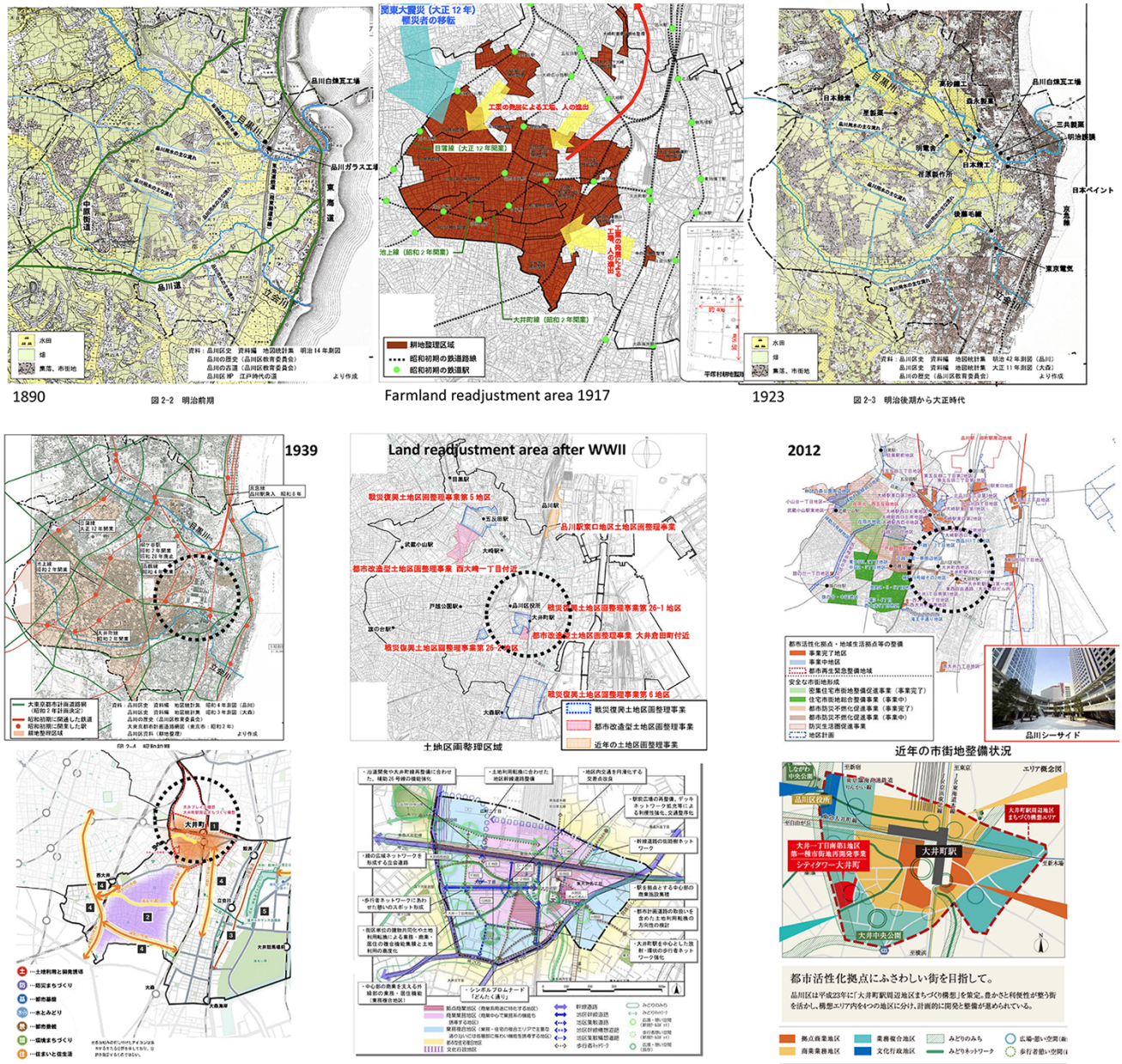

Figure 10. Period of change in the first decades of the 20st century: from a rural to an urban landscape (upper three maps) and permanent dynamic conditions around Oimachi station (lower six maps). Source: Courtesy of the City of Shinagawa.

buildings open spaces and changing uses (Figure 10, bottom). Up until 2015 new buildings are added, which differ in size and use. This makes this area where the fastest transformations have taken place. The coastal ridge is the most stable area. Ever since its origin the homes and buildings hardly changed, and the infrastructure remains identical and at the same place. This makes this area the slowest transforming area. The first pieces of the reclaimed landscape appear on the 1940 map, while larger expansions are constructed during the 1960 and subsequent decades. The larger blocks and orthogonal structure of water and infrastructure lead to an unchanging framework within which built structures once in a while are replaced. The change of pace in this area is, after the land is reclaimed relatively low.

The paces the four areas are changing can be linked to the urban types and their raison d'être (Table 2). These linkages are used to define the applicable responses.

4.3. Respond

To create applicable responses or deployment strategies the type intervention needs to be aligned with the area. Applicability of the intervention is not straightforward and therefore spatial principles have been developed that are better suited to the pace of transformation in an area. Rapid strategies are deployed when the transformation pace is slow and more structural, slower deployments are required when the changes are fast as these areas benefit from enduring green structures.

Table 2. Relation between density, scale, landscape and pace of change.

	Population density	Scale & block size	Landscape basis	Pace of change
Roji	Very high	Very small	Old farmland, higher grounds	Slow
Modern urbanity	Low	Large	Grassland close to watercourses	Fast
Coastal ridge	Moderate	Small	Cliffs of the old coast	Very slow
Reclaimed landscape	Low	Very large	Artificially made land	Moderate

Rapid deployment principles (Figure 11, left) that have been created for stable urban precincts to deploy quickly and at a small scale. These principles are used to incentivise developments, to ignite a process towards green ecological urban environments within stable contexts. Moderate deployment principles (Figure 11, centre) take a longer time to implement but can be applied in the foreseen future, periods within the next 5–10 years. These interventions are suitable for environments that are changing at moderate paces. Structural deployment principles (Figure 11, right) are deployed in rapid changing environments. These urban contexts require a stable intervention, which might take some time to implement but give the area a stable green ecological framework within which spatial developments of different dynamic can be accommodated.

4.4. Allocate

Understanding the urban types and their spatial rhythms makes it possible to allocate the deployment principles accurately. For each of the four urban landscape types a series of principles are deemed suitable (Figure 12). The allocated design principles in roji area mainly focuses on adding extra qualities and productivity by enhancing existing and introducing new green spaces, ecological areas, small-scale places for the growth of food, water storage and purification, energy generation and adding small shops and restaurants. The modern urbanity area can be enriched through additional residential, rooftop farming, water recycling systems, and connected public green spaces. This area offers the opportunity to collectively generate local renewable energy and improve ecological connections within and outside this area. The coastal ridge forms the main ecological gradient, connecting the higher landscape with the reclaimed land by establishing new and enlarging current ecological corridors. In the reclaimed landscape itself the hidden blue-green structures can be re-introduced and be emergently brought back in the urban landscape, following the orthogonal parcelling of the polder-works.

4.5. Illustrate

The proposed planning approach aims to provide a holistic, site specific response to different paces of transformation. It brings together a range of problems impacting urban life, such as climate change, demographic change and liveability. The historic development trajectory in slow or fast modes is used to identify the most suitable spatial responses, aiming to create a sustainable and resilient urban environment through nature-based solutions. These responses are created as deployment principles, which, in combination, are applied to a concrete area. The benefits are multiple and range from improving biodiversity, enhancing urban climate, increasing productivity and generating local resources. This has profound effects on the liveability, health and economic well-being of the local residents.

The design illustrates the interconnectedness of spatial propositions at two scales, the entire precinct and the local public spaces, such as roji's, watercourses or

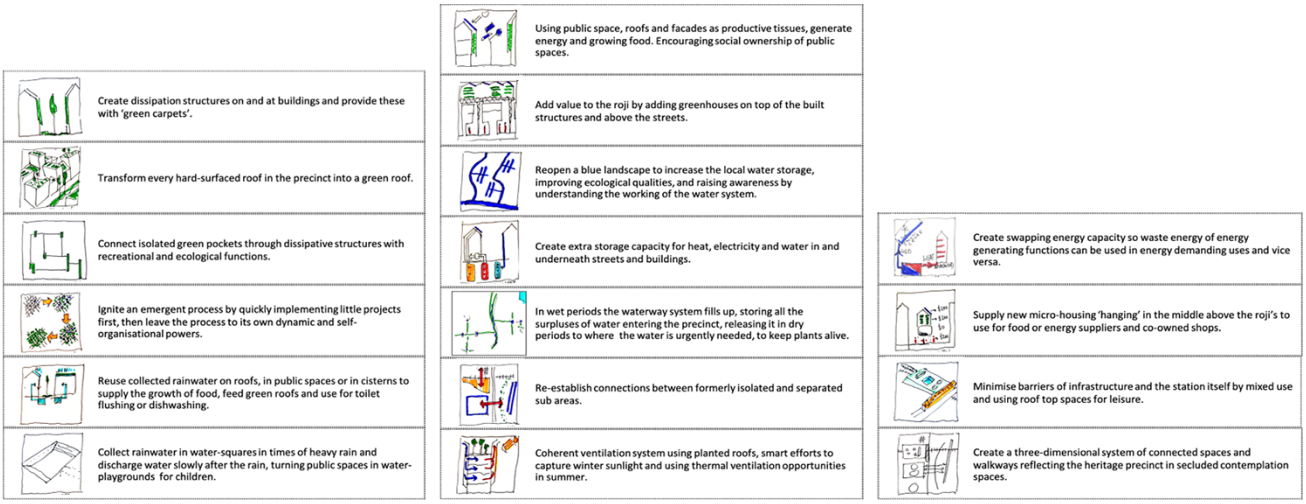

Figure 11. Spatial principles for slowly, moderately and rapidly transforming environments.

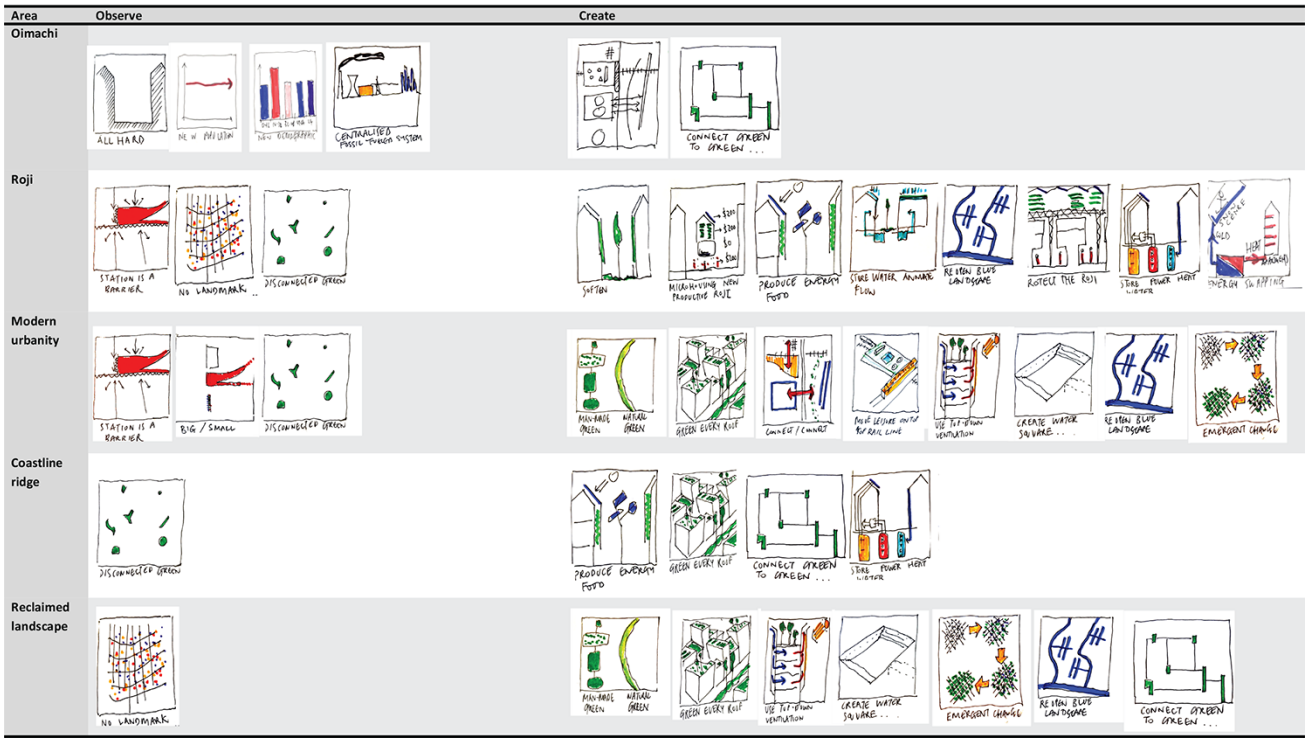

Figure 12. Allocation of deployment principles to specific urban areas.

squares. At the precinct scale the main watercourses are re-established as open, publicly accessible spaces (Figure 13) with ecological added value. It allows for a greater connectedness of green spaces, urban integration and an improved urban climate. These two waterways are connected by the orthogonal system in the urban modernity area, creating a spatial framework for this rapidly changing environment. Within this basic framework of the lower dynamic uses such as green, ecology and water, new and temporal uses with higher

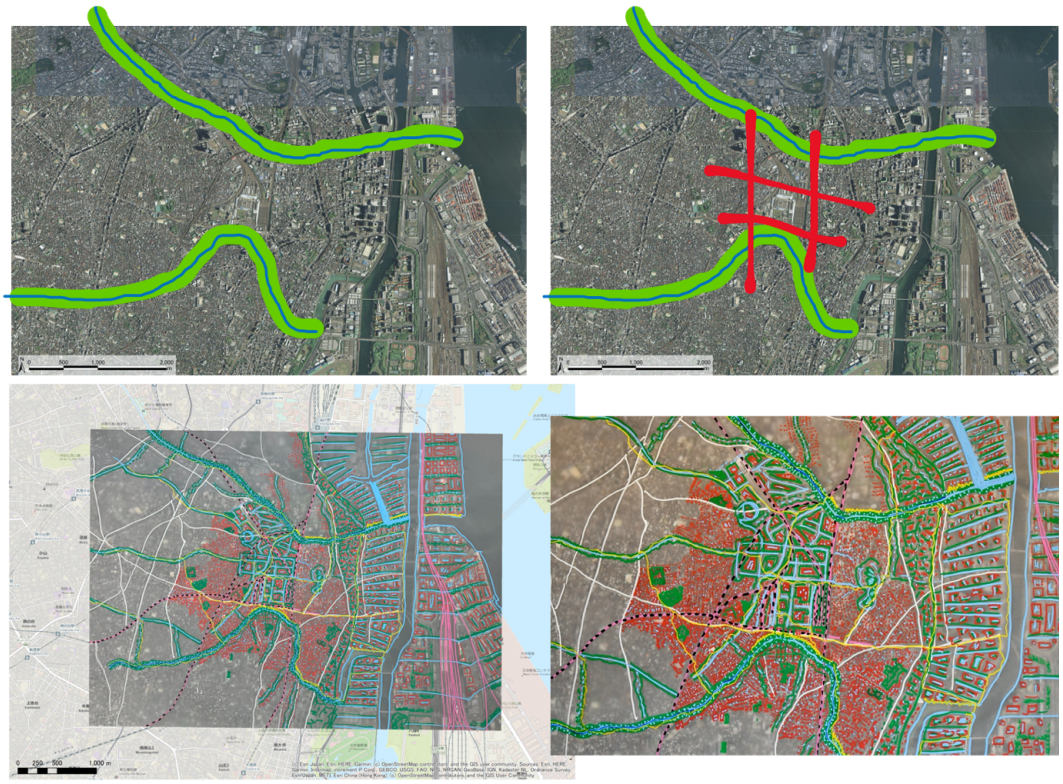

Figure 13. Urban design in consecutive steps.

dynamic, can be embedded without compromising the overall quality and loss of resilience and orientation.

Within the precinct framework the blue-green connections are intensified at the lower scale. The deployment strategies relate the large spatial framework with smaller scale environments. The visualisations show the transformation of the current situation towards a green and productive urban environment (Figure 14). In and above small streets additional productive spaces are created and integrated in existing buildings. Currently hidden waterways are transformed into ecological valuable and clean water corridors that are attractive to the residents.

4.6. Evaluate

The ecological values of the different deployment strategies are also beneficial for the 'health' of the (urban) ecosystem itself, its abiotic elements, habitats and species it can potentially accommodate. In a natural ecosystem the finely tuned relations between species and with their abiotic environment makes that each species as well as some key abiotic elements (rivers, soils/surfaces etc) have an ecological value within that system. Species diversity increases the resilience and value of the natural ecosystem (Odum & Barrett, 2005). With losing key species an ecosystem as well as its additional values can collapse. Agriculturally productive urban landscapes can be mixed with ecological qualities (Roorda et al., 2011). The rapid deployment interventions provide building blocks for an urban ecosystem restoration strategy. By introducing new green blue 'patches' and 'corridors' a new green blue 'matrix' emerges in OImachi. The corridor-patch-matrix theory (Forman, 1995) can be applied at many scales. Each type of intervention provides certain conditions and has specific characteristics such as size, shape, location,

Figure 14. Design propositions for local public spaces. Source: Courtesy of Bill Galloway.

species level and so on and with that has a certain ecological value. Below the water system and the four typologies will be discussed.

The importance of restoring the ecological value of the rivers and water system lies in the reconnection it establishes between the mountains, the low-lands and the bay area. Oimaichi, located in the lowlands is a part of this larger system. Also, at a lower scale the new waterways are a fundamental corridor, providing wet-dry, and nutrient rich/poor gradients resulting in different habitats and related species. Hence, ecological values will further increase.

In the roji area, pots and pans are often used to grow vegetables and flowers at the front door. Throughout the neighbourhood this forms a valuable green matrix for other plants, insects, birds and small mammals. Introducing a large greenhouse on top of these neighbourhoods would block a lot of sunlight and alternatives for this small-scale gardening, such as rooftop and façade gardening should be found to prevent that ecological values will decrease. The modern urbanity area of the Oimachi station will densify but will also give space to new parks and connections at ground level to the river system. New buildings will be provided with green facades and roofs and will connect to each other and to ground level. This area provides the opportunity to construct green-blue patches and corridors at building, street and neighbourhood scale. The ecological value can be high although an overall long-term strategy for this area is required to guide individual developments. The old coastal ridge still has an ecological gradient from the hills to the lower reclaimed lands of the bay. There are still some old trees and green structures forming the basis for new patches and corridors. The reclamation landscape allows for introducing new waterways and connections to the bay. Wet-dry and fresh-saltwater gradients provide conditions for new habitats. Ecological values increase as they provide many species with new habitats and breeding spots such migrating species of fish and birds. As this area is a working port, hybrid functions (hard and soft quays for example) have to be introduced. Principles of nature-based urbanism need to be extracted on site (Tillie, 2020).

5. Conclusion

In this article a new planning approach is proposed which holistically links the entirety of urban problems with the path-dependency of transformational paces. Where traditional planning often preludes to one, familiar, response to a single problem, including the pace of change in the planning process prevents a mismatch of spatial solutions for different urban contexts. Therefore, it is concluded that when the type of deployment strategy is related to the pace of change of the urban area, a more suitable spatial response is provided.

The proposed planning approach consists of a process in which firstly the urban characteristics are identified to understand the context of operation, which is then linked to the typical pace of change in different areas. Once this context is understood a creative design process is organised to develop the responsive strategies that fit the urban specifics and rapidity of change. The range of possible deployment strategies are then used in a concrete area to design solutions at precinct and local intervention scales.

This planning approach improves urban sustainability in different ways. First, small deployment strategies take large effect. Especially in denser urban contexts there is often not much space for extended ecological or sustainable urban redevelopment. An incentivised, deployment strategy offers a way to implement small interventions enforcing a crucial change that start an emergent development towards a more liveable environment. Second, improving green and ecological values for human and biological health. Green and ecological transformation add to the overall ecological value of an area, especially when these areas are connected with each other. Implementation of deployment interventions fitting the changeability of urban precincts that is linked with each other will lead to an entire network of plants, animals and humans. Third, applying deployment strategies that fit the dynamics in a certain area resonate with the residents and changes will therefore be higher valued and more appreciated. For people's daily living conditions this means a difference between a hostile, concrete and unpersonal walk to the train station or an enjoyable stroll in between the clean and green. Applying the right deployment strategy changes the mechanism. And finally, introducing a deployment strategy, or a range of strategies, in an area starts a process of physical and psychological change. It forms the starting point for spatial transformations in a larger area. Even when a deployment itself may be small or temporary, the impact of such an intervention could be far reaching as it starts a process of greening a larger area, improving social coherence in a neighbourhood and marks a decisive momentum change in thinking about the possibility to create a better environment.

The context for urbanisation in a developing and developed context is different. Where rapid urbanisation in a developing context is often related to poverty, social inclusion, economic wellbeing or providing basic infrastructure, and the solutions mostly respond to only one pace of transformation, e.g., rapid, in developed cities the development process of urban areas consists of a range of tempi. In this article it is concluded that in these contexts the response should therefore be more diverse and adjusted to the pace of change a neighbourhood is accustomed to. However, this said, a nature-based approach has benefits in both contexts, as it brings the sustainability and resilience to a higher level, providing people and the natural world an environment that is ecologically rich and benefits human health, both physically as mentally. Therefore, even if urgent problems are social, economic and basic, creating a green urban

space brings about change and perspective that could be farther reaching than a singular response to an instant problem. Cities and countries in both the developed and developing world can therefore benefit from this approach. Every city has to larger or lesser extent neighbourhoods that transform faster or slower. The results of this research can be used to apply a planning approach that is taking into account these differences hence make the response better suited with increased quality of the urban environment, human health and ecological quality. Overall, applying multiple deployment strategies offer a supportive condition for establishing rich human connections, improving the quality of life, enrich ecological systems and creating a better urban environment.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

A Demand-Side Approach for Linking the Past to Future Urban–Rural Development

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Abstract
Is economy-led urbanization the only answer to urban planning? By 2050, about 70% of the world population will live in urban areas, intensified by rapid urbanization in developing countries. A new urban development framework is critically relevant to investigating urban living's emerging complexity for advancing human-social-economic-environmental sustainability. The multi-disciplinary study explores a roadmap for solving industrialization's adverse effects to inform future resilient development in developing countries. The classical Maslow's Hierarchy of Needs (MHN) and some scholars have stated that human physiological needs would be prioritized and fulfilled by developing countries, and psychological needs would be satisfied and desired by developed countries after fulfilling physiological needs level. Our study argued that transit-oriented-development (TOD) and ICT could simultaneously fulfill some essential physio-psychological needs with digital-ruralism. Structural equation modeling (SEM) was adopted to test the indicator-based MHN theory developed by literature, urban quality of life (Uqol) evaluation between the developing and developed countries, and backed by digital-ruralism success in developing China. The Uqol evaluation identifies the developing countries' subjective well-being demand as the health, mobility, governance, environment, social, economy, human capital, technology-ICT, smart living, and lifestyle, which are used to transform the classical MHN model to the indicator-based MHN model. The SEM subsequently illustrates that the observed well-being indicators are positively correlated to the TOD and ICT, defined by the proposed urban-ruralism development framework. The study contributes to an innovative approach to reconnect the classical MHN theory to contemporary sustainable urban planning while narrowing the socioeconomic-environmental gap between the developed (urban) and developing (rural) domains, which encourages a paradigm shift for future resilient urban development in the developing countries.

Keywords
digital-ruralism; Maslow's Hierarchy of Needs; post-industrial development; quality of life; resiliency; sustainable urban development

Issue
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1. Introduction

In the past and now, the city is the heart of global power where economic, cultural, social, and political centers locate. It has since remained a major attraction and triggered human migration and dislocation, mainly for job opportunities. City development dictates the ways of human living and the fabrication of our natural landscape. Although urbanization provides employment, social living, and urban lifestyle to urbanites, the rosy picture of urbanization driven by economy-led urbanism is responsible for 80% of the world's resource consumption. Many urban problems such as crime, mental health, homelessness, an influx of immigrates, unemployment,

poverty, pollutions, and planetary problems, including climate change, ecological degradation, biodiversity loss, result in lower quality of life (QOL). These current challenges for cities' sustainability goals have been highlighted and discussed on the global agenda for work (CIMI, 2018).

Rapid urbanization led by the first and second industrial revolutions has shaped the urban landscape in developed countries and some parts of the world's developing regions. United Nations predicted that three out of four people will habitat, live, work, or commute to work in the urban area in the future. Although globalization's trend fosters economic growth and urban development, it undermines social and environmental sustainability because of overexploitation on our labor and natural resources and the misuse of capital, which disrupts the balance of sustainability and degrades people's QOL. For example, the manufacturing towns and cities, such as Pittsburgh (USA), Detroit (USA), Wakefield (UK), Burnley (UK), and Mirafiori (Italy), have been hurt by high social deprivation and job loss, and Dongguan city and many other industrial towns in developing China have gone through the same historical setbacks. They need effective revitalization plans to tackle the pressing social-economic-environmental-cultural issues and to ease the development gaps between the densely populated city center and the marginalized countryside, especially the pleas for solutions at the local level. Therefore, we should rethink the conventional economy-led urban development strategy and search for a better path to build our future habitat.

Indeed, economic growth is essential for improving livability. However, limited natural resources fix the scheme of social, economic, and environmental sustainability. Premised by the rule of demand and supply, a notion of growth and development based on equilibrium becomes the new standard for optimization and sustainability. Speedy urbanization in the developing world signifies that matching urban resources (supply) and QOL needs (demand) is crucial for future regional and global sustainable growth (Park, 2017). How well governments can allocate their resources to build a sustainable habitat and improve their citizens' living environment becomes overly critical in urban policymaking and planning; in return, the citizens should think and behave to support the introduced urban development policy. Their mutual understanding and cooperation are needed for realizing the sustainability scheme. Thus, investigating the residents' well-being demand is the first step for paving the feasible way for policymaking and planning.

1.1. Digital-Ruralism Support in Developing China

In the case of developing China, it adopted a transit-ICT development approach on solving its three rural issues (San Nong) relating to the agricultural industry, rural conditions, and farmers' ways of life, while combating its urban challenges. The Chinese rural development strategy relatively simulates the same DNA as the urban-rural development network of city-town-village for developing countries introduced by Rondinelli (1983). Further to follow the 2030 Agenda of the UNDP advocating to embark on a development journey leaving no one behind (UNDP, n.d.), the central government implemented digital-ruralism to narrow the well-being and digital gaps between urban and rural areas. Transit-oriented-development (TOD) and ICT development policy become the primary pursuit of the central and local governments (Qiang, Rossotto, & Kimura, 2009).

Often prioritized by the developing countries in the beginning stage of urban development, TOD is for economic development first and foremost. In 1978, infrastructure started to develop China when 90% of Chinese work in the countryside. During the industrialization period, many youngsters moved to the city for better job opportunities and living standards. The rural residents are mainly aged farmers with low income and education because they are physically isolated from the marketplace and urban areas. Since then, the high-speed railway network has been rapidly built to cover the whole country, from the well-developed capital city Beijing to the less developed landlocked region Ningxia to different China's major cities for logistic support and improving liveability. So far, 35,000 kilometers of the high-speed rail network has been built, exceeding the rest of the world's total length combined ("From nobody to somebody," 2020). It speeds up the urbanization process substantially while facing similar setbacks as the developed countries, such as the unsustainable living environment in the densely populated city center, marginalized post-industrial cities and towns, and run-down rural areas. Thus, the central government introduced the ICT-driven digital-ruralism development policy two decades ago. It has since attracted a handful of urbanites moving back to the countryside to operate e-business and work in tourism industries besides farming.

China modified the action-based ICT eEurope 2005 and i2010 development frameworks addressing its county and local village conditions in terms of demographic, economic, cultural, and political backgrounds to tackle the economic and digital divide between the urban and rural areas. It launched the National ICT Development strategy (2006–2010) to boost the economy and social improvement in the agricultural-based rural areas, installing ICT-enabled hardware and establishing ICT help centers in the designated villages or counties to narrow the socioeconomic and digital gaps. The physical infrastructure, such as roads, high-speed railways, other public transportation modes, and post offices facilitated by ICT, has been built to serve consistent economic growth in remote communities. E-government, e-learning, e-health services, e-entertainment, and e-shopping make up the e-business environment in the ICT-enabled rural areas. The infrastructure enhancement, human capacity, and service enrichment provide a holistic environment to

advance the economy, society, culture, and governance to merge the gap between urban and rural areas (Statistical Report, 2017).

By March 2020, China had 904 million netizens, and 99.3% are mobile phone users, with a remarkable surge trend over the past years (Figure 1). Rural Internet users had 255 million occupying 28.2% of China's total netizen population, up 1.5% from 2018. Urban Internet users had dropped from 73.3% to 71.8% (649 million) of China's total netizen population (Figure 2). The total Internet user sizes' distribution was 78.6% (710 million) for e-shopping, 85.0% for e-payment, 94.1% for e-entertainment, and 76.8% for e-government services in China (Statistical Report, 2020).

Figure 3 shows the narrowing of the increase in Internet penetration rate between urban and rural areas. The popularity and accessibility of ICT in China's urban and rural areas set an extremely favorable digital-ruralism development environment. According to the National Bureau of Statistics, the number of 5G terminal connections has exceeded 200 million, ranking first globally. However, a shortage of Internet skills, limited literacy level, and an aging population were significant factors preventing non-netizens from accessing the Internet in rural areas, waiting for improvement (Statistical Report, 2020).

Nevertheless, the snowball effect triggered by ICT is unimaginable and unmeasurable. ICT favors e-business; besides, it accommodates residents' safety needs. For example, security would be an important issue in rural areas due to its low population density and remoteness; a smart living space can be furnished with artificial intelligent surveillance systems. Thus, ICT becomes one of the critical components in future urban-rural digital development, with TOD to fulfill the Maslow's Hierarchy of Needs (MHN) and impact society (Freeman, 1996). With such progressive digital-ruralism support in developing China, urban location will not be a critical factor for urban migration when the fundamental physio-psychological needs can be satisfied in rural areas through digital-ruralism. Remarkably, through infrastructure development (physically and virtually), China moves most of its 1,4 billion population out of poverty in 2020, accounting for 80% of world poverty reduction and creating the world's largest

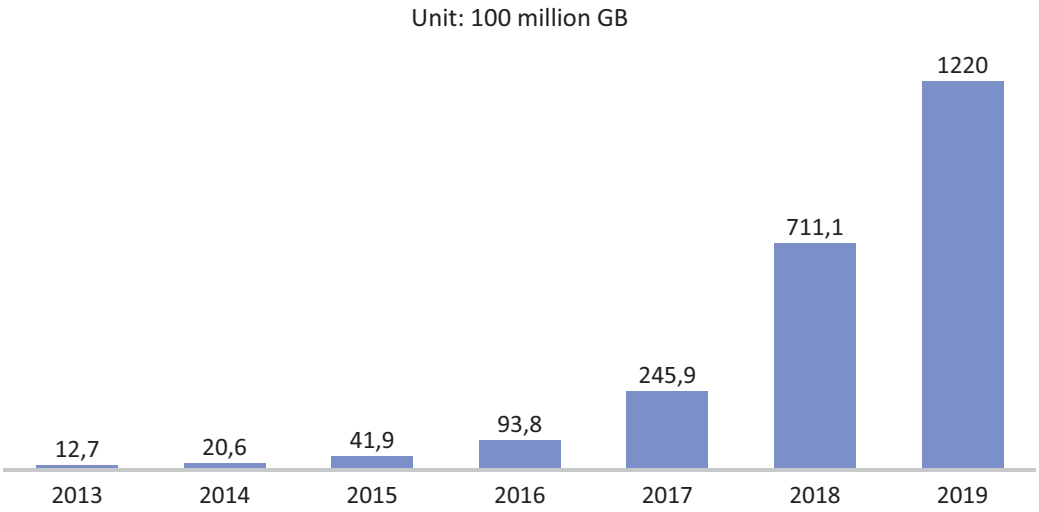


Figure 1. Mobile Internet access traffic in China. Source: Statistical Report (2020).

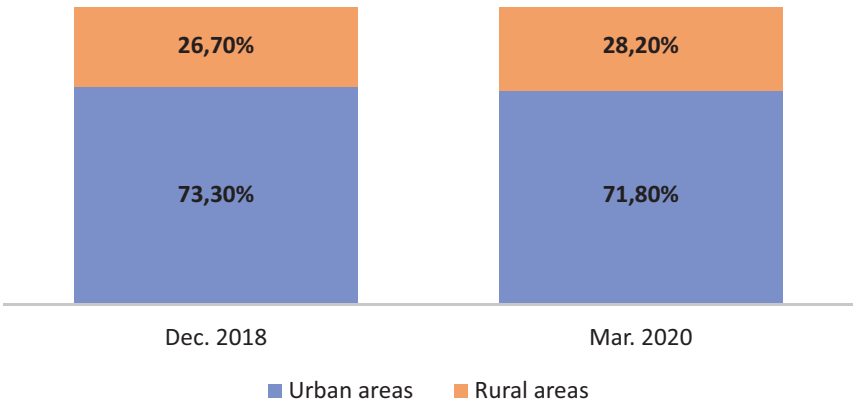


Figure 2. Urban and rural structure of Internet users. Source: Statistical Report (2020).

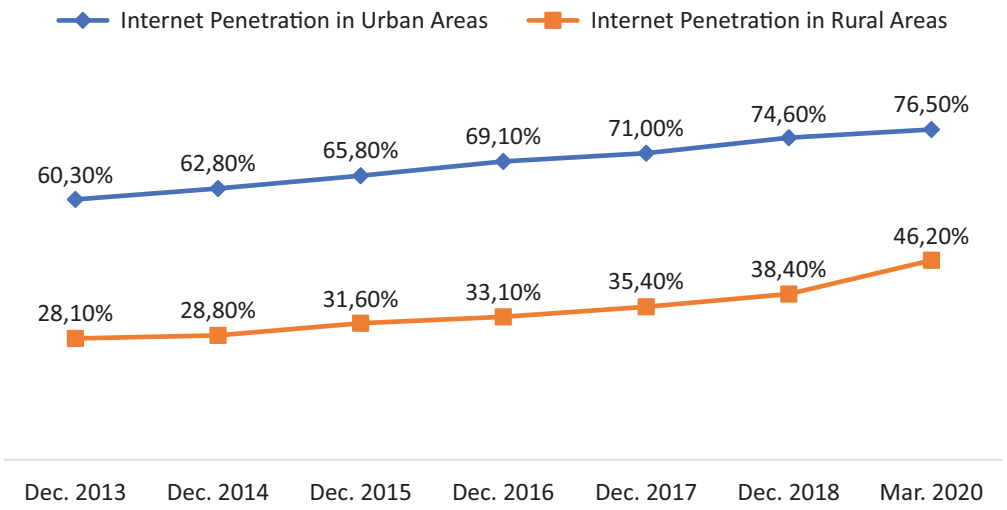


Figure 3. Internet penetration in urban and rural areas. Source: Statistical Report (2020).

middle-class per country in 2020 according to United Nations. China's digital-ruralism strengthens socioeconomic activities in remote areas and sheds light on a TOD-ICT-led urban-ruralism (UxR) development framework for the developing countries.

1.2. Sustainable Urban Development, TOD and ICT Impacting on MHN

Most of us agree that QOL is a broad and vague concept, and its multitude of concepts makes it very difficult to be understood precisely and inclusively even though various definitions of QOL have been found from almost every academic discipline concerned institutions. QOL is a kaleidoscope with all these ever-evolving segments inside. Subjective well-being surveys consistently show that more equal societies contribute to the highest life satisfaction and happiness (Helliwell, Huang, & Wang, 2019). Well-being depends upon good health, positive social relationships, and accessibility to necessary resources such as mobility and employment (Ballas & Tranmer, 2011), more than economic satisfaction in the domain of overall life satisfaction, which has been highlighted in the urban quality of life (Uqol) evaluation (Table 1). Relevantly to the sustainable urban development (SUD) equilibrium, MHN is the different levels of motivations and human needs evolving and correlating along the city development lifecycle, which is the impetus for distributing the resource and labor equitably and sustainably, disregarding the external factors. MHN is the alpha principle, vaulted by the human-physical-contextual environment, the powerful synthesizer upholding all the relevant disciplines contributing to the overall QOL. Often, the MHN basic physiological need level is most likely acquired by the developing countries' pre-requisite for an upgrade of the higher psychological need level to catch up with the developed countries (Maslow, 1943). What if TOD and ICT can serve the two MHN levels altogether? The well-being gaps between the developing and developed countries or the urban and rural areas would subsequently be made closer. We will discuss the possibility in Sections 2 and 3.

In the urban production system, all built environments serve human needs, whereas infrastructure is the backbone of any economy (Zanabria Ruiz, 2015). TOD and ICT are the means for achieving SUD and the main actors for building the logistics and virtual communication network in the pursuit of digital-ruralism. As a potent sustainable urban planning tool, TOD is famous for its effectiveness in shaping the urban form and imposes a significant impact on enhancing the urban QOL (BOT, 2020). ICT acts as the catalyst by networking virtual connectivity for smart growth. TOD and ICT foster sustainable urbanization because they provide efficient communication and effective mobilization of labor forces and goods. For example, AI technology, driverless vehicles, online shopping platforms, solar plants, and wind farms can be facilitated and monitored by the 5G network to increase aggregate value (productivity accumulated from different divisions of labor).

ICT is the key to value creation and competitive advantages, especially after labor, land capital, and overall productivity factors in a developed country. The faster the Internet access and the more comprehensive the coverage leads to the higher the human productivity. People worldwide can exchange intangible ideas and knowledge, financial activities, entertainment, and social activities in the digital world without time-space constraints. ICT facilitates the output generated from human capital, monetary capital, cultural context, and natural resources distributed through TOD networks more precisely and sustainably. The narrative of TOD and ICT's power on affecting MHN, defined by the conceptual UxR development framework, has been unprecedentedly documented in the post-industrial society. The following sections will discuss and test the new development framework with a demand-side approach.

2. Research Design and Methodology

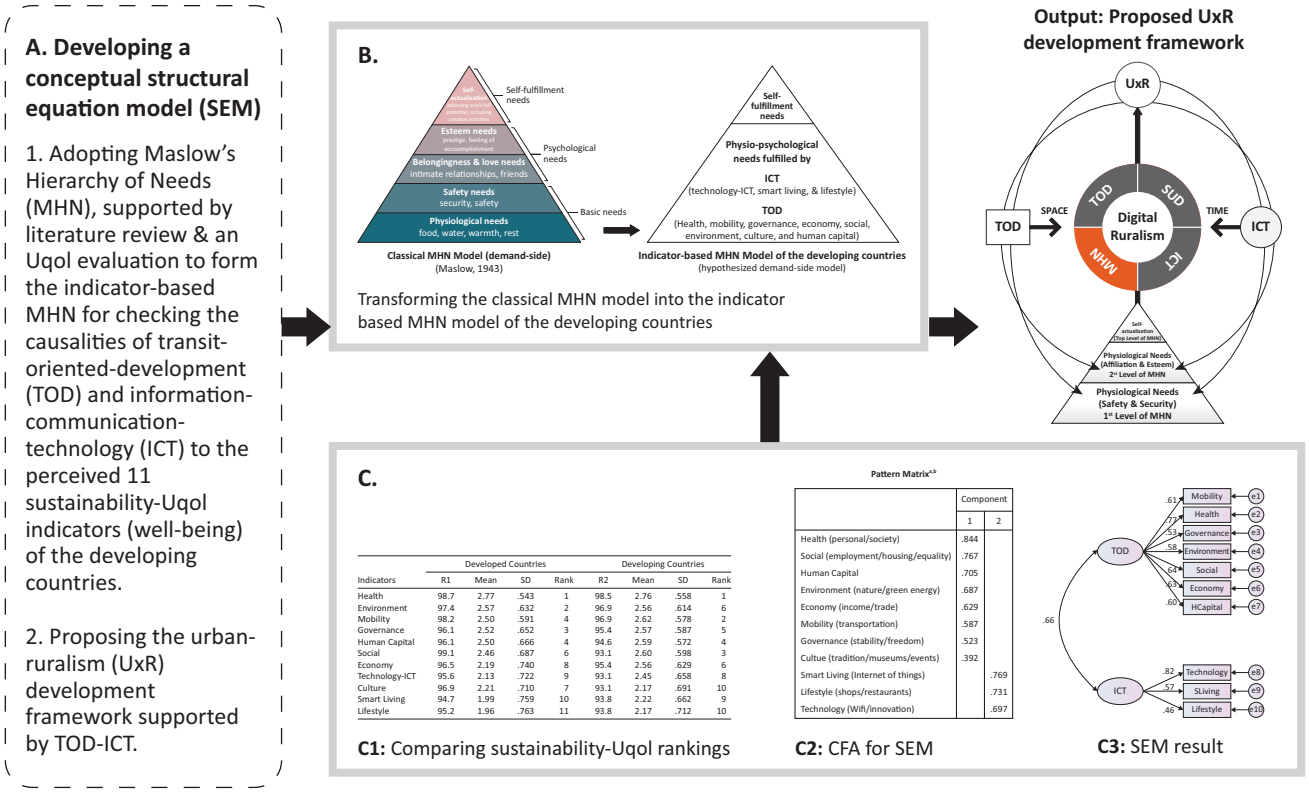
This section analyses and justifies the proposed UxR development framework by proving ICT and TOD's roles in enhancing the critical sustainability-Uqol (well-being) indicators defined by the developing countries. Three objectives for accomplishing the task include: (1) to illustrate a well-being gap between the developing countries and developed countries through an Uqol survey; (2) to revise the classical MHN model into the indicator-based MHN model (Figure 6) based on the findings from (Table 1); and (3) to illustrate TOD and ICT are related to the defined sustainability-Uqol indicators positively through a structural equation modeling (SEM: Figure 7) goodness-of-fit test.

The classical MHN theory is essential for developing the indicator-based MHN model (Figure 6) to construct the theoretical SEM for testing. The SEM is a relationship path of TOD and ICT measured by the well-being indicators (indicator-based MHN). First, we established the theoretical model (Figure 4–B) from the literature review and a sustainability-Uqol evaluation (Figure 4–A1 and 4–C1). Second, we conducted a confirmatory factor analysis (CFA) and SEM to test the strength of prediction recommended by (Anderson & Gerbing, 1988; Williams & Hazer, 1986), attempting to prove the association of the 11 observed well-being indicators under the two latent constructs (TOD and ICT). The research design prompts for initiating the proposed UxR framework: A + B (Figure 6) + C (Methodology: Table 1, Figure 7) = Output (Figure 8).

Wheeler (1996) argued that SUD is possible if mutual understanding and cooperation among the stakeholders, especially the city government and the residents. To understand the urban condition, evaluating subjective perceptions on the objective living environment is fundamental (Campbell, 1976; Low et al., 2017; Marans, 2014; Marans & Stimson, 2011; Mukherjee, 1989; Sedaghatnia, Lamit, Ghahramanpouri, & Mohamad, 2013; Veenhoven, 2000) and necessary for drafting the effective local development plans. More specifically, the Uqol evaluation is affected by the demographic attributes, and that these attributes are influenced by the objective living environment (Campbell, 1976; D'Acci, 2014; Marans & Stimson, 2011). Therefore, we conducted a sustainability-Uqol survey to document the well-being disparities between developed and developing countries to state a need for livelihood improvement in the developing countries.

2.1. Sustainability-Uqol Survey Design

After defining the Uqol with SUD, TOD, ICT, MHN, and the digital-ruralism support in developing China, we asked: What is good Uqol and bad Uqol according to residents' needs? To drive for resilient development while improving livelihood, we conducted a sustainability-Uqol evaluation to learn about the well-being demands between the developing and developed



Indicators	Developed Countries R1	Mean	SD	Rank	Developing Countries R2	Mean	SD	Rank
Health	98.7	2.77	.543	1	98.5	2.76	.558	1
Environment	97.4	2.57	.632	2	96.9	2.56	.614	6
Mobility	98.2	2.50	.591	4	96.9	2.62	.578	2
Governance	96.1	2.52	.652	3	95.4	2.57	.587	5
Human Capital	96.1	2.50	.666	4	94.6	2.59	.572	4
Social	99.1	2.46	.687	6	93.1	2.60	.598	3
Economy	96.5	2.19	.740	8	95.4	2.56	.629	6
Technology-ICT	95.6	2.13	.722	9	93.1	2.45	.658	8
Culture	96.9	2.21	.710	7	93.1	2.17	.691	10
Smart Living	94.7	1.99	.759	10	93.8	2.22	.662	9
Lifestyle	95.2	1.96	.763	11	93.8	2.17	.712	10

Pattern Matrix[a,b]

	Component 1	2
Health (personal/society)	.844	
Social (employment/housing/equality)	.767	
Human Capital	.705	
Environment (nature/green energy)	.687	
Economy (income/trade)	.629	
Mobility (transportation)	.587	
Governance (stability/freedom)	.523	
Cultue (tradition/museums/events)	.392	
Smart Living (Internet of things)		.769
Lifestyle (shops/restaurants)		.731
Technology (Wifi/innovation)		.697

Figure 4. Research design.

countries in the digital age. The Uqol questionnaire (https://forms.gle/CFG9HDiitZDenxs96) was designed by referring to the subjective-well-being questionnaire (GNH, 2015) with modification. A professional panel composed of Professors/scholars and PhD students discussed and tested the questionnaire who are the experts in sustainable urban planning, sociology, environmental, architecture, and design engineering from the Interuniversity Department of Regional and Urban Studies and Planning in the Politecnico di Torino, Italy twice. Convenient sampling was conducted via online and offline channels for six months in 2018–2019. Distribution channels include Facebook, WhatsApp, WeChat, emailing, and collaboration with a non-profit-organization.

2.1.1. Demographic and Geographical Profile

The sample total is 358 (64% developed countries and 36% developing countries) from 47 countries. In Figure 5, female respondents (56%) are more than male respondents (44%). Age 26–35 occupies the highest portion (38%) of the sample, followed by age 16–25 (20%), 36–45 (17%), 46–55 (14%), and 56+ (11%). 43% are postgraduate, 29% are undergraduate, and 28% below undergraduate. In the professional group, 36% are students, 49% are employed, and 15% are either retired or unemployed. The sample profile reflects a young diversified, and well-educated group of representation, which would serve as the applicable sample to advise the future SUD requests. The wide coverage of countries presents a comprehensive study, but to collect more regional data in-depth investigation is still needed. In the future, we would like to invite the concerned researchers and institutions to collaborate in conducting more regional surveys so that the stakeholders can review the different pieces of a picture without puzzling. We have the questionnaire interpreted into French, Russian, Arabic, Portuguese, Spanish, Italian, Indonesian, and Chinese.

2.1.2. Comparison of Mean Score Rankings: A Demand-Side Evaluation

The 11 sustainability-Uqol criteria embed the four components of TOD, ICT, MHN, and SUD identified by the extant literature and supported by China's digital ruralism accomplishment. The theme of 'sustainability enhances urban livelihoods' was adopted to select the 11 indicators out of 72 indicators from the relevant sustainability-Uqol indices: (CIMI, 2018; GPCI, 2018; MQCR, 2018; SCI, 2018; SCMI, 2017; SPI, 2018; WHR, 2019), which had been verified in a panel discussion. IBM SPSS Statistics 20 English version software was hired to run the raw data collected. The main question presented to the international respondents was: "Which factors/indicators are important in your IDEAL living environment?" in a 3-point Likert scale set (1 = least important to 3 = most important). We conducted Descriptive Statistics, Cronbach's Alpha reliability test, normality test, and Mean Score test. The techniques for running the data have been practiced and illustrated by (Kingsford & Chan, 2019). The Cronbach's alpha reliability test (Likert scale bigger than 0.7) justified that the chosen scale was suitable, the data collection instrument was strongly reliable, and the responses were consistent with the survey (Shen, Lu, Peng, & Jiang, 2011; SPSS, 2006). We set the mean score threshold at 1.5 ($\mu = 1.5$), which benchmarked any sustainability-Uqol criteria with a mean score $\mu_a > 1.5$ as an indication of the significance of the identified indicators listed. The test result shows that the null hypothesis ($\mu = 1.5$) was rejected with a p-value:

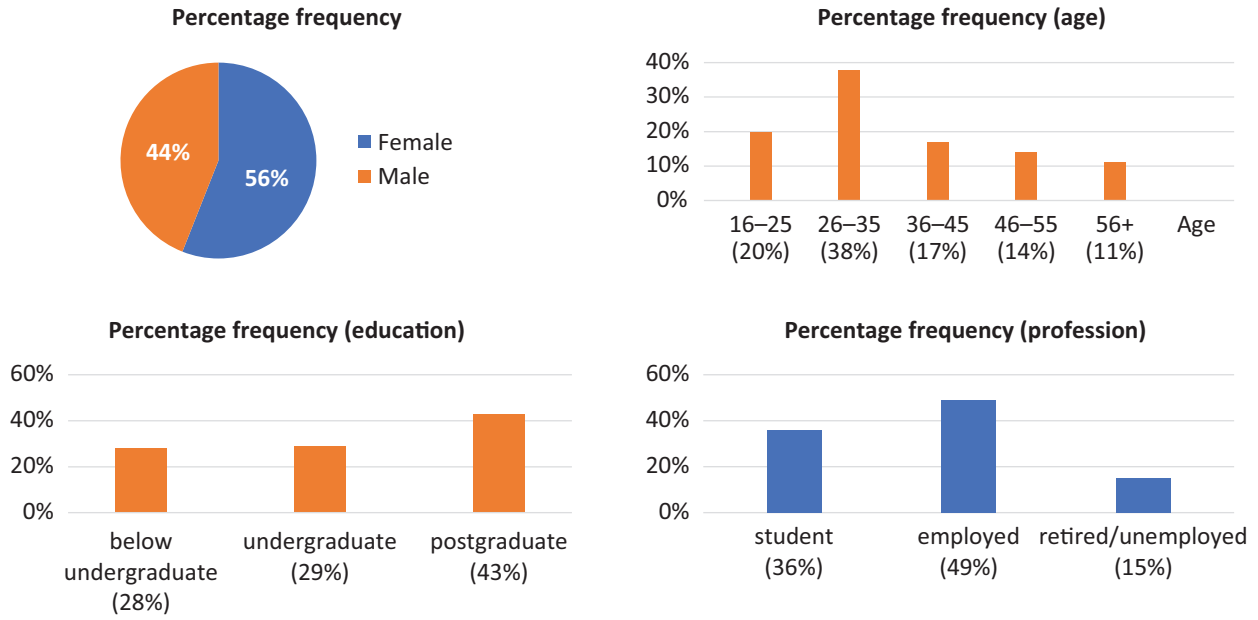


Figure 5. Demographic profile.

0.000 < 0.05 and a frequency rate of over 90%. The 11 sustainability-Uqol (well-being) indicators were validated. It allowed the CFA and SEM for a model-fit test (Gokdemir & Dumludag, 2011; Sullivan & Artino, 2013).

Table 1 displays three sets of ranking characteristics. First, the top-ranking of health unanimously signifies that urban development should be human-oriented. Second, a similar ranking section composes human capital, technology-ICT, smart living, and lifestyle, showing that those critical sustainability-Uqol indicators are the respondents' universal well-being demand from both the developing and developed regions. Third, a more significant ranking division showing the well-being gaps in the environment, mobility, governance, social, economy, and culture exist between the developing and developed countries. The lower the ranking number shows, the stronger the well-being demand perceiving by the respondents. The developing countries perceived the environment, governance, and culture (sixth, fifth, and tenth) as less critical than developed countries (second, third, and seventh). The developing countries ranked mobility, social and economic demand (second, third, and sixth) relatively stronger than the developed countries (fourth, sixth, and eighth), indicating a well-being gap of mobility, socioeconomic development disadvantage to the developing countries due to the different urban development stages (Lam, 2021). To Ali and Nsairat (2009), the developing countries often valued economic and social development over environmental sustainability to the developed countries. Worth noting, they both ranked economy relatively low at sixth and eighth out of 11 indicators, implying that the economy-led development policy might need a modification. In this case, developed countries are recognized as urban, and developing countries are rural (China is an industrialized country facing the same urban issues as the developed countries, and its rural area is like the developing countries in terms of development). The well-being gaps between them (developed-urban vs. developing-rural) can be narrowed by adopting digital-ruralism as China's case, rationalizing the UxR concept. Thus, the validated 11 sustainability-Uqol indicators can provide the information for constructing the indicator-based MHN model.

2.2. Constructing the Indicator-Based MHN Theoretical Model

This section transforms the classical MHN into the more time-sensitive and indicator-based model for undergoing SEM examination. According to the classical MHN theory, human needs categorizing by MHN are satisfied through activities fulfilled in different life domains, including health, residential/food/safety, work, and home, leisure, education, social, friendship/family/love, and spiritual (Shek & Lee, 2007; Sirgy & Lee, 2016). MHN provides a core principle for categorizing and analyzing residents' needs to identify life satisfaction (Harifah, Nasrudin, & Foo, 2014; Maslow & Boeree, 2006; Renne, Curtis, & Bertolini, 2009). On the one hand, developing countries appeal to fulfill physiological needs of socioeconomic-driven offerings such as health care, convenient transportation, employment, welfare, infrastructure development, and a well-performed corruption-free government (Mukherjee, 1989). On the other hand, Kahneman, Diener, and Schwarz (1999) suggested that environmental-cultural context and self-identity sit at MHN's psychological level, which is often desired by the developed countries. In the digital period, the identified well-being demand (Table 1) expected by the develop-

Table 1. Comparison of mean score rankings of sustainability-Uqol.

	Developed Countries				Developing Countries			
Indicators	R1	Mean	SD	Rank	R2	Mean	SD	Rank
Health	98.7	2.77	.543	1	98.5	2.76	.558	1
Environment	97.4	2.57	.632	2	96.9	2.56	.614	6
Mobility	98.2	2.50	.591	4	96.9	2.62	.578	2
Governance	96.1	2.52	.652	3	95.4	2.57	.587	5
Human Capital	96.1	2.50	.666	4	94.6	2.59	.572	4
Social	99.1	2.46	.687	6	93.1	2.60	.598	3
Economy	96.5	2.19	.740	8	95.4	2.56	.629	6
Technology-ICT	95.6	2.13	.722	9	93.1	2.45	.658	8
Culture	96.9	2.21	.710	7	93.1	2.17	.691	10
Smart Living	94.7	1.99	.759	10	93.8	2.22	.662	9
Lifestyle	95.2	1.96	.763	11	93.8	2.17	.712	10

Notes: Total sample size: 358 (developed countries: 228; developing countries: 130) Respondent rate: R1 & R2. Reliability test for the 11 indicators: Cronbach's Alpha (all countries = .845; developed countries = .848; developing countries = .825). P-value: 0 < 0.05. Developed countries: Australia, Austria, Belgium, Bulgaria, Canada, Croatia, Czechia, Finland, France, Germany, Greece, Ireland, Italy, Japan, Latvia, Netherlands, Poland, Republic of Korea, Romania, Spain, Sweden, UK, and USA. Developing countries: Argentina, Azerbaijan, Bangladeshi, Benin, Brazil, China, Colombia, Egypt, Ethiopia, Ghana, India, Indonesia, Iran, Kazakhstan, Lebanon, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Philippines, Russia, South Africa, and Sri Lanka. Source: UN (2014).

ing countries are health, mobility, social, human capital, governance, environment, economy, technology-ICT, smart living, culture, and lifestyle attaining to both MHN levels. As such, we revised the classical MHN into the indicator-based MHN model disregarding the hierarchical division with the modern well-being indicators. We claimed that TOD-ICT could fulfill the MHN's physio-psychological level and bridging the human-social-economic-environmental-digital gap between the urban and remote rural areas, advocated by the ICT implementation policies in Europe and digital-ruralism in developing China. Figure 6 displays the contextual MHN's transformation to the indicator-based MHN model, which will be used for studying the cause-effect relationship of the sustainable-TOD-ICT to the observed MHN (well-being indicators).

2.3. SEM

SEM technique was adopted for validating the indicator-based MHN model because it is an efficient and robust statistical technique to analyze a series of inter-relationships and causal relationships among multiple observed variables and detect latent constructs simultaneously in a model. The hypothetical latent constructs TOD and ICT were identified from the literature and measured by the sustainability-Uqol criteria to form the SEM for testing its causality significance. There were two stages involving the reliability test of measurement model CFA and model fit test of SEM. In Figure 7, the Kaiser-Meyer-Olkin value is 0.818 > 0.5 (Hair, 2019) and a significant probability of 0 < 0.05 for the Barlett test of Sphericity (Shan, Le, & Yiu, 2017), it means the matrix is correlated and factorable, not identity matrix. As the study was designed to inform developing countries' future urban development policy, the developing countries' data were used to undergo an SEM fit-test. The developing countries' data were collected from 106 > 100 respondents for five or fewer latent constructs is acceptable (Awang, 2012). The CFA result displays two significant factors: Eigenvalue > 1 (Seo, Torabi, Blair, & Ellis, 2004). It indicates that factor one consists of health, social, human capital, environment, economy, mobility, and governance, and factor two has technology, lifestyle, and smart living. The culture of factor one was dropped because 0.392 < 0.50. The CFA result transformed the indicator-based MHN model into the hypothetical SEM.

We used Analysis of Moment Structures (AMOS vers. 20.0, IBM) to perform SEM goodness-of-fit test because it can run the non-normal data to examine the structural path coefficients for a robust estimation (Awang, 2012). Three hypotheses were designed to draw a causal path diagram (see Tables 2 and 3). Figure 7 illustrates the testing result of the hypothetical SEM:

H1: TOD has a significant positive relationship with health, governance, mobility, environment, social, economy, and human capital.

H2: ICT has a significant positive relationship with technology, lifestyle, and smart living.

H3: TOD and ICT are correlated positively.

The goodness-of-fit assessment derives from Chi-square/df = 1.532 < 5, probability level = 0.000 < .05 (Marsh & Hocevar, 1985), RMSEA 0.071 < 0.08 (Browne & Cudeck, 1992), GFI 0.91 > 0.90 (Joreskog & Sorbom, 1984), and CFI: 0.93 > 0.9 considered a good fit (Baumgartner & Homburg, 1996; Bentler, 1990).

All the tested factor loading were fit in the model with a score close to or between 0.5 to 0.8. Hypotheses (H1 and H2) of ICT and TOD significantly impact the MHN model's defined physio-psychological level. All corresponding factor loads of the measurement are positive, stating that the ten observed variables are effective indicators for measuring TOD and ICT. In other words, TOD and ICT are the cause for affecting the ten indicators

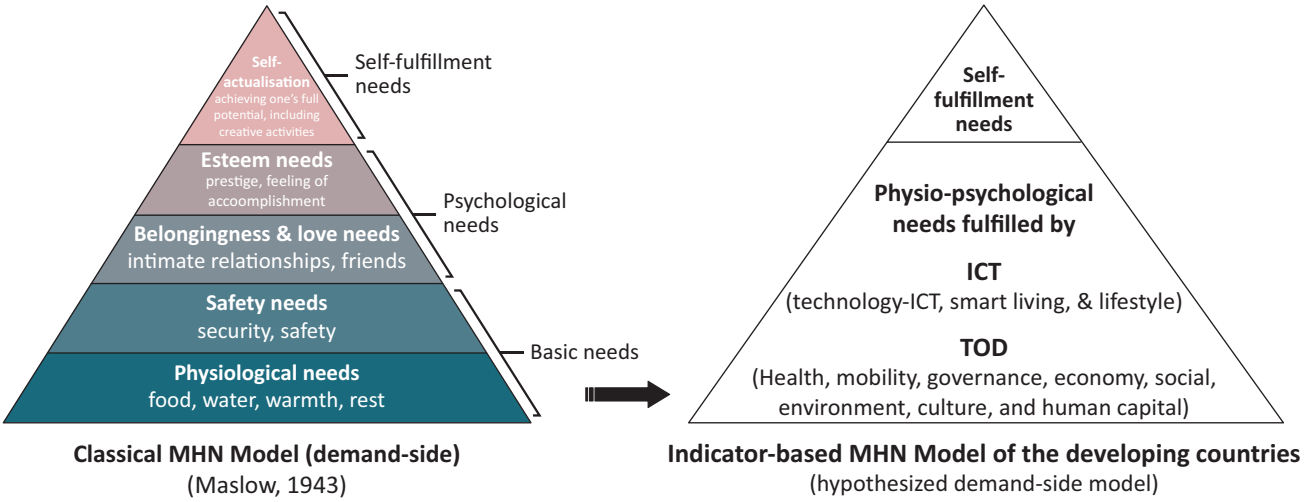
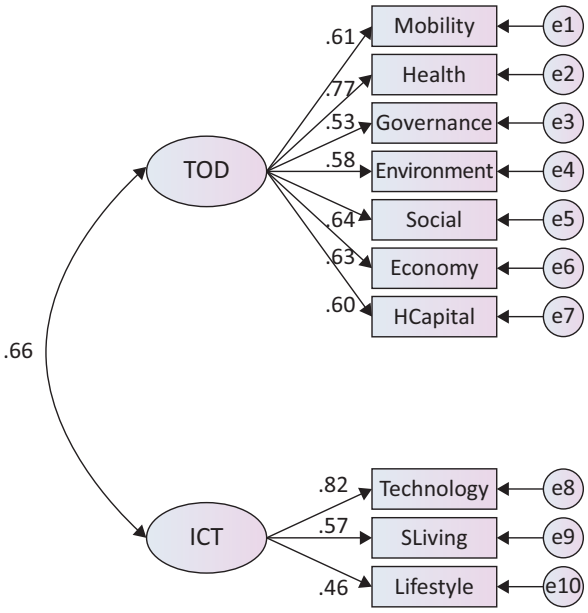


Figure 6. Transforming the classical MHN model into the indicator-based MHN model of the developing countries.

Pattern Matrix[a,b]

	Component	
	1	2
Health (personal/society)	.844	
Social (employment/housing/equality)	.767	
Human Capital	.705	
Environment (nature/green energy)	.687	
Economy (income/trade)	.629	
Mobility (transportation)	.587	
Governance (stability/freedom)	.523	
Cultue (tradition/museums/events)	.392	
Smart Living (Internet of things)		.769
Lifestyle (shops/restaurants)		.731
Technology (Wifi/innovation)		.697

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 4 iterations.
b. Developing countries are used in the analysis phase.



Fitness Indexes:
ChiSq = 52.095; df = 34; ChiSq/df = 1.532
GFI = 0.914; AGFI = 0.862; CFI = 0.934; RMSEA = 0.071

Figure 7. Results of CFA and SEM.

statistically significant with p-value = 0 < 0.05. TOD plays a significant role in affecting health (0.77), social (0.64), economy (0.63), mobility (0.61), human capital (0.60), environment (0.58), and governance (0.53) which, while ICT contributes significant to technology (0.82), smart living (0.57), and lifestyle (0.46). H3 is supported by a correlation 0.66 < 0.85 (Awang, 2012). The acceptance of the indicator-based MHN model was justified by the significant positive relationships between the two latent factors to the observed well-being indicators.

Table 2. Results of SEM testing.

Model-Fit category	Name of index	Level of acceptance	Index Value	Tested Result
Parsimonious fit	Chi-sq/df	Chi-sq/df < 5	1.532 < 5	good
Absolute fit	RMSEA	RMSEA < 0.08 Rang 0.05–0.1 is acceptable	0.071 < 0.08	good
	GFI	GFI > 0.90	0.91 > 0.90	good
Incremental fit	CFI	CFI > 0.90	0.93 > 0.90	good

Notes: * = Goodness-of-fit indices of SEM suggested by Awang (2012). Critical Number is 98, sample size is 106 > 98; bootstrapping: 2.000 times.

Table 3. Results of hypothesis testing for the respected path.

Hypothesis statement of path analysis	Estimate	P-value	Results on hypothesis
H1: TOD has a significant positive relationship with health, governance, mobility, environment, social, economy, and human capital.	0.53–0.77	0.00	supported
H2: ICT has a significant positive relationship with technology, lifestyle, and smart living.	0.46–0.82	0.00	supported
H3: TOD and ICT are correlated positively.	0.66	0.00	supported

Although SEM is called causal modeling, the conclusion should come from the research design (Figure 4) rather than a statistical model. The above path diagram of the fitted SEM and the indicator-based MHN model proves that MHN = TOD + ICT, which means TOD and ICT, can theoretically contribute to physio-psychological needs listed in the revised MHN model. Together with the literature, the findings of mean score ranking comparison (developed-urban vs. developing-rural), the indicator-based MHN model, and the SEM testing result significantly validated the conceptual UxR development framework (Figure 8). Whereas the human habitat is a complex-adaptive system evolved in hierarchical order exhibited by villages, towns, cities, countries, and the world, we need to evaluate the micro-entity to learn and predict the next inline macro reality for understanding urban development. Thus, more empirical studies from the supply side are needed to strengthen the practicality of the new development framework.

3. Discussion and the UxR Development Framework

In Section 2, the quantitative justification shows that TOD-ICT could theoretically contribute to physio-psychological well-being enhancement, regenerating the classical MHN on the ordering of human needs. Figure 7 shows TOD and ICT's causal flow to the ten observed well-being indicators and their correlational relationship from the demand-side perspective. SEM validated the indicator-based MHN model presenting the rationale of the UxR development framework.

From the European perspective, mirrored by the illustration of 'eclectic atlas' and the 'diffuse city' introduced by Stefano Boeri and Francesco Indovina, respectively, the observed urban phenomena in the European landscape not only a visual presentation, but also reveals the historical context shaped by human behavior and demand. A recognization of human habitation can be networked by an array of satellite towns disregarding geographical constraints and implying the UxR development path's possibility. The planetary urbanization experiences of developed Europe play like an urban development lesson for developing countries. Indeed, the EU has designed the workable blueprint for future urban-rural sustainable development. China's success in learning from the EU proves that the EU's digital development approach is worth implementation. It made the belief that whoever can access broadband Internet connectivity within rural areas can achieve economic and cultural progress, and the mix of endogenous and exogenous forces interacting at the local level encourages urbanites to move into the rural area (Roberts, Beel, Philip, & Townsend, 2017). As such, a new concept of urban-rural development should be introduced to harness the relationship between the urban establishment and the vast rural potential of growth to realize sustainable goals

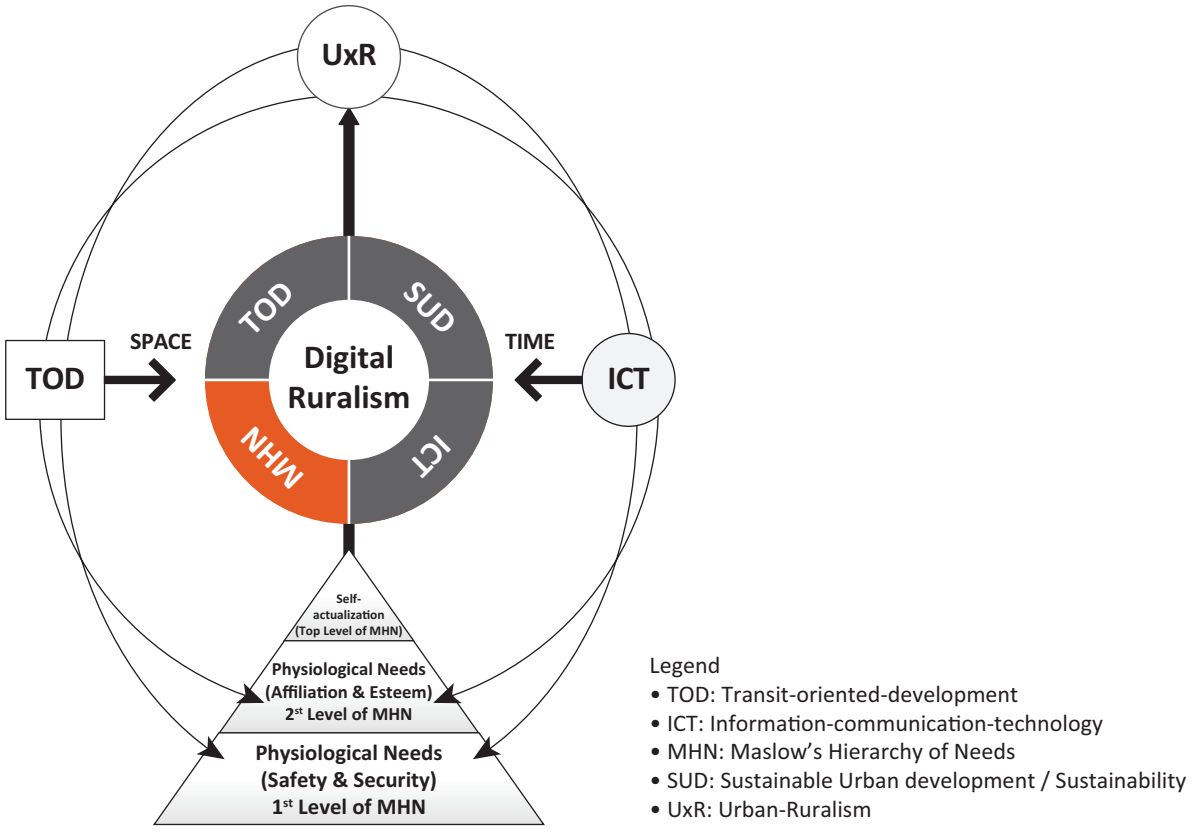


Figure 8. Proposed UxR development framework.

and enhance human well-being. It reassures the new sustainable development path for developing and preserving the future urban-rural landscape in developing countries.

4. Conclusion

In the post-industrial society, where TOD-ICT advancement (physical and virtual connectivity) allows many activities to be done almost anywhere, location choices are increasingly free of geographical limits empowered by digitalization. By referring to the action-based ICT eEurope 2005 and i2010 development frameworks and China's digital-ruralism, the social, economic, environmental, cultural, and digital divide between the urban and rural areas (developed-urban and developing-rural) can be narrowed by ICT. With the maturity of digital technology, urbanization will shift back to the countryside, where the smart living mode is defined by e-employment for self-reliance, the Internet of things, e-health, e-education, e-commerce, e-entertainment, and e-chat.

The demand-side research illustrates that TOD-ICT contributes to health, mobility, governance, environment, social, economy, human capital, technology-ICT, smart living, and lifestyle without location constraints in developing countries. It provides new knowledge for modernizing the classical MHN into the indicator-based MHN. In such a new theory, the UxR development framework can fulfill the contemporary MHN's physio-psychological needs almost instantaneously. Likewise, it envisages that the past and present of the developed countries might not be necessary to be the future of developing countries.

Our study concluded that the economy-led urbanization path is critical for initiating smart growth in developing countries; however, the development process should be guided by understanding and providing for the human needs while optimizing the sustainability goals. By adopting sustainable development strategies such as TOD-ICT, the application can develop local capacity to access external markets and internal resources (nature and human resources) to confront accessibility–socioeconomic inequalities within places. It highlights the harmony between urban and rural development, energizing interaction between cities, towns, and rural areas to the local, national and global marketplaces, merging the development gaps divided by multi-scalar geography. In future development, more empirical studies applying big data cloud well-being ratings and mapping should be conducted so that the new framework can stand the challenges of time and space. The enhanced economy-led urbanization development path would be one of many choices considered by the developing countries' policymakers and urban planners because it will help prevent them from running into the same historical setbacks as the developed countries while securing resilient development.

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Conflict of Interests

The authors declare no conflict of interest.

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Article

Blue-Green Playscapes: Exploring Children's Places in Stormwater Spaces in Augustenborg, Malmö

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Abstract
The urbanisation of cities increases the demands on, and complexity of, urban land use. Urban densification is challenging urban green space. Cities have responded to this challenge by adopting a multiple-use strategy where different functions share space. Shrinking open space has to contain solutions for everyday functions such as bicycle parking, waste sorting, blue-green stormwater systems, and playscapes. Values and functions that can reinforce and amplify each other are therefore of interest to study. The present article explores the possibilities for blue-green solutions (BGS) to be used as part of children's playscapes. BGS are aboveground, ecological stormwater facilities, introduced to prevent flooding and support biodiversity while adding recreational and aesthetic qualities to the urban environment. The objective is to discuss the extent to which ecological and social values can reinforce each other in terms of encouraging children to engage with BGS natural elements. The researchers have studied the Augustenborg residential neighbourhood in Malmö. The area was primarily investigated through a postal survey, which identified a remodelled park with a floodable sunken lawn as a potentially attractive area for children's activities. The park was analysed as a potential playscape and supported by on-site observations. The study shows that even if BGS largely meet children's play values, due to existing socio-spatial structures, children are not using the offered play features. The article discusses the results in terms of how stormwater management may enhance the actualisation of play potentials in children's everyday living environment.

Keywords
affordance; blue-green solutions; children; everyday life; play possibilities; urban design; urban open space; urban water management

Issue
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1. Introduction

The world's urban population is increasing dramatically (UN, 2019). Cities are not only getting denser in terms of population but also more compact to include more dwellings and services. The densification of cities is usually presented as a sustainable way of locally handling a growing urban population, for example by reducing CO^2 emissions from travel or by offering proximity to everyday destinations (Jenks, Burton, & Williams, 1996). When urban areas are densified, urban open space is put under pressure and needs to be adapted for multiple uses.

This may drive different forms of inequality and issues such as how different user groups relate to certain areas and increase the complexities found in urban space.

Changing urban open space largely challenges possibilities for children's outdoor play by reducing the amount of urban green spaces and natural features in cities. In Sweden, families with young children are changing residential habits and residing more in inner cities (Karsten, 2014; Karsten & Felder, 2015; Statistics Sweden, 2005). Places and areas traditionally allocated for children's play, such as schoolyards and neighbourhood parks, are being used for other building purposes (Kylin & Bodelius, 2015; Nordström, 2014; Statistics Sweden, 2018). The importance of play for children's physical health, social development, and general well-being is pointed out in several research studies. Outdoor play enhances physical activity in children and thus promotes physical health, helping to prevent issues such as obesity and underdeveloped motoric skills (Martensson et al., 2014; Pagels et al., 2014). The activity of play also has bearing on the social and psychological aspects that children have to practice (Berg, 1992). Studies about the role of greenery, nature, and other environmental aspects that provide the opportunity for play show that children's engagement with nature also affects their health, cognitive development, and abilities in a positive way (Chawla, 2015; Faskunger, 2007). It takes space to find places to play, and these outdoor spaces for children are diminishing in the discourse of contemporary urban planning.

Climate change is one of several urban challenges calling for the transition of urban space to improve resilience. Extreme rain events are expected to occur with higher intensity and frequency (UN Office for Disaster Risk Reduction, 2019). Blue-green solutions (BGS) are surface open solutions complementary to underground stormwater pipe facilities to handle urban flooding. Malmö municipality accelerated the implementation of BGS after serious flooding on 31 August 2014. The retrofitting of urban open space, such as parks and streets, to accommodate BGS was enacted through the (re)development of urban areas. Such adaptations are adding to the complexity of rapid urban changes (i.e., Mottaghi, Kärrholm, & Sternudd, 2020), putting pressure on urban green space and potentially leaving less space for children.

BGS can be designed and incorporated into the urban open space in many different ways. BGS that imply green elements and natural features could potentially amplify the possibility to co-create play spaces. However, BGS can also be designed and executed in a way that takes away space from children's recreational places. This highlights a potential conflict between goals in ecological and social sustainable development and emphasises the necessity to study the play possibilities generated by BGS in urban space.

This article explores the possibilities for BGS to be used as part of children's playscapes in the Augustenborg neighbourhood in Malmö. The objective is to understand the extent to which ecological and social values can reinforce each other in terms of creating environments with affordances for children's play. We draw on 'affordance' as a concept to concentrate on interrelated qualities and features of an environment, while investigating possibilities for playful movements that BGS in Augustenborg offer to younger (3–6 years old) and middle (7–10 years old) children. The area is primarily investigated through a postal survey, to recognise the best potential place for children's outdoor activities. The identified area—the neighbourhood park—has subsequently been analysed with a reviewed method to assess the possibilities to play and with on-site observations to realise different aspects that influence the actualisation of those possibilities.

2. Theoretical Background

James J. Gibson (1979) introduced the concept of affordance to account for the possibilities for action that an environment offers to animals, including humans. A developed concept of affordance includes responses to sequentially revealed offers for action as in 'nested affordances' (Gaver, 1991). Affordances can also be considered as dependent on personal history or imagination as in the concept 'carried affordances' (Kopljar, 2016). The concept of affordance is applicable to study that which is directly present in an environment. Heft (1988) drew on Gibson's affordance and focused more on the characters of physical affordances of the environment. He outlined a transactional worldview that accounts for the ever-changing interaction between humans and environments (Heft, 2013). Included in this, he studied physical affordances for children. While affordance is always there to be perceived, his work reveals how good children are at perceiving affordances, since they are open and "less pervasive as compared to adults" (Heft, 1988, p. 31). Heft explains affordances as "perceptible properties of the environment that have functional significance for an individual" (Heft, 2010, p. 18) and recognises the theory as a suitable one to study "interrelated qualities of environments and environmental features that often fail to appear in conventional accounts of environmental perception" (Heft, 2010, p. 22). He describes affordance as a relational concept that is dependent on the physical properties of both the environment and the user (Heft, 1989). The final action depends on how individuals connect to the environment. Heft (1989) differs between 'potential affordances' (action possibilities) and 'actualised affordances' (utilised possibilities, revealed when actions are taken). While there are a variety of potential affordances, depending on how individuals detect them, there are a limited number of actualised affordances. Heft's work is later followed by other researchers (i.e., Kytta, 2004; Lerstrup & Konijnendijk van den Bosch, 2017) focusing on characterising an ideal environment where children are likely to actualise multiple affordances. In this article, we borrow affordance

theory to shift from looking at BGS as just ecological pieces of the urban landscape to the attached pieces connected to the surrounding environment.

3. Methodology

We initiated our study with Augustenborg urban housing area (Figure 1). The importance of the research was revealed through an ethnographic pilot study in 2017, but we will not go through that material in this article. The study included observations and unplanned interviews, looking at how different actors experience BGS through movements and sensory engagement. The mentioned study disclosed the nexus between the materiality of BGS and the experiential environment. The data collection, for the present article, started with a postal survey in Winter 2018, which helped us select a more narrow and focused study area. Based on the result, one area (the park) was identified as a potential play area and was analysed concerning different features of BGS based on the classification of outdoor environment for children proposed by Heft (1988) and Lerstrup and Konijnendijk van den Bosch (2017). Later in Summer 2020, on-site observations were carried out as a complement to the previous methods.

3.1. The Augustenborg Neighbourhood

Our case study is an administrative district in Malmö within Sweden called Augustenborg. Malmö went through an economic crisis in the late 1980s after its main industries collapsed. Thus, the city followed new development strategies by shifting towards neoliberal and sustainable planning strategies (Baeten, 2012;

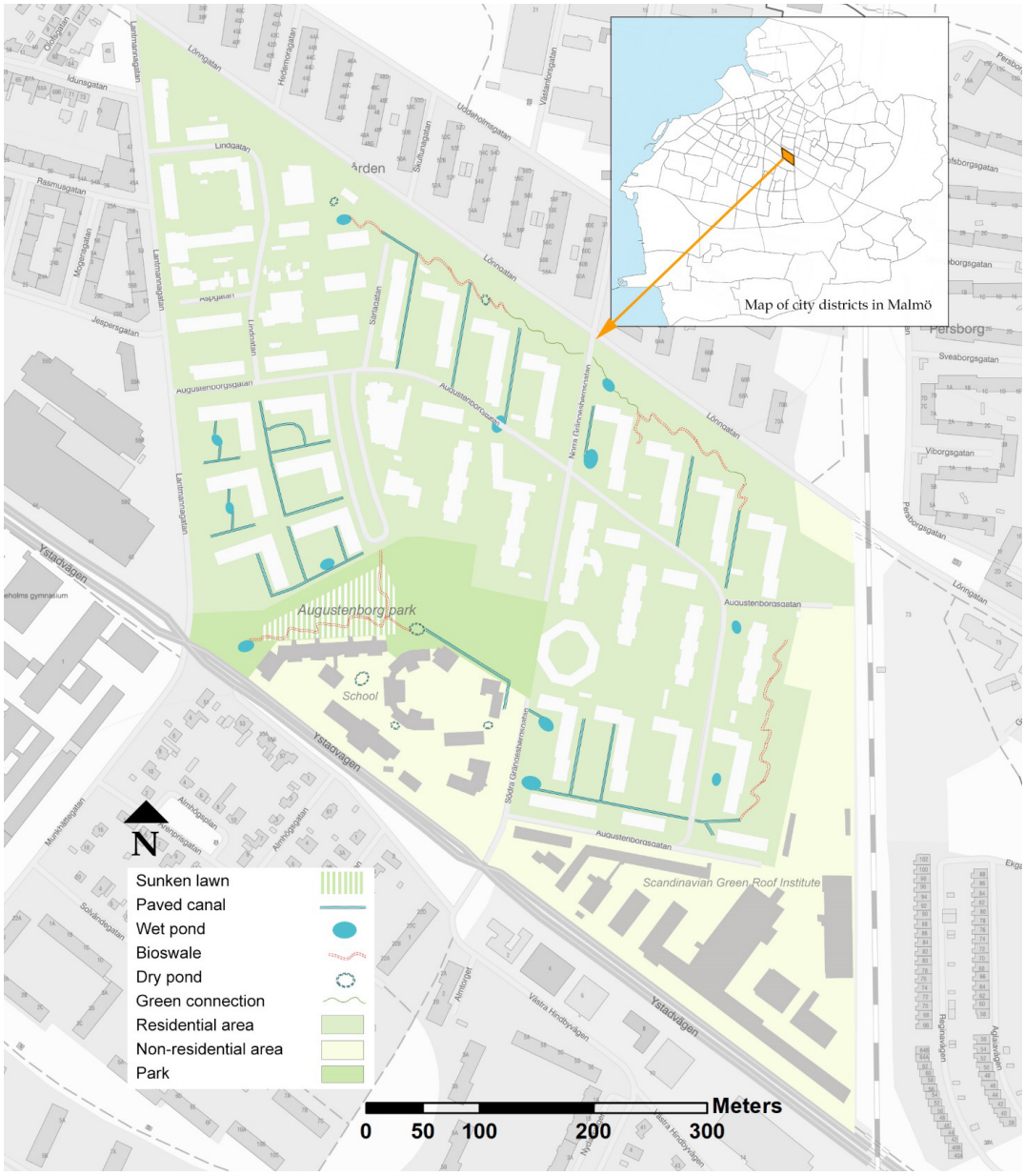

Figure 1. Map of Augustenborg showing BGS in urban open space. Source: Mottaghi et al. (2020).

Holgersen & Malm, 2015). Augustenborg is an urban neighbourhood accommodating 3,875 inhabitants within 1,887 households (Malmö stad, 2019; updated on 27 September 2019). The neighbourhood was planned as a post-war green housing area in 1947 and was developed entirely by the municipal housing company MKB from 1948 to 1952. The housing blocks are mostly 3–5 story and are open block type, providing a range of rental apartments (Tykesson & Ingemark Milos, 2001). The residential landscape is connected to the neighbourhood park. The original intention with the interconnecting park in Augustenborg was to let the green areas expand from the central park into the spaces between the residential buildings and in that way erase the borders between plots used for housing and the park area (Tägil, 2020). In the 1970s, the area lost its popularity as a desirable living area. Social problems such as criminality, unemployment, and changes in the requirement of housing standards appeared to evolve and people started to move out of the area.

In 1998, Eco City Augustenborg was proposed as a redevelopment project to enhance the social and ecological status of the area. Since the area previously suffered from the consequences of flooding, the main design concept was to improve the management of urban flooding through embedding BGS on its already green landscape. The neighbourhood park was largely remodelled into a floodable sunken lawn. Other objectives were to improve waste management and apply participatory development and environmental approaches by involving the community (Stahre, 2008). Despite the introduction of participatory initiatives such as *Gnistan*, a social meeting place for children who are 6–14 years old that organises activities both indoors and outdoors, and *Växtvärk*, with pedagogical and gardening activities for children, the initiatives were not focusing on the potentials of BGS as such (Martinez Avila, Hanson, & Alkan Olsson, 2020). We chose this specific case because it is a pioneer retrofitting urban project in which the landscape was redeveloped to accommodate the urban runoff from heavy rainfalls through different types of BGS. The project has been proven to technically function well (Sörensen & Emilsson, 2019). Moreover, it is a well-known test-bed project for urban resilience in Europe and it won the UN World Habitat Award in 2010 because of its approach to sustainable development. Some research has been done regarding the technicality of BGS in the Augustenborg area (Emilsson & Sörensen, 2020; Nilsson, Nilsson, & Persson, 2020). However, the intersection between the blue-green infrastructure and potential social values for children remains unexplored.

3.2. Postal Survey

An extensive postal survey, designed mainly for other inquiries, was used to collect information from inhabitants in Augustenborg about what BGS actually mean to them in their everyday life. The questionnaire was designed mostly in the form of Likert scale questions, asking the inhabitants about their use, proximity to, and experience of three types of BGS: a sunken lawn, wet ponds, and paved canals implemented in the neighbourhood. Two questions were included to gain a general impression about which types of BGS are possibly the most attractive to children. These questions were asked separately for each type of BGS. Also, the demographic section asked about the number of children and adults in each household. Table 1 shows the three included children-related items. The questionnaire was sent to all households in Augustenborg in November 2018 and collected back by the end of the year. It was answered by 328 households.

3.3. Assessment Tool

According to the survey (explained in Section 4), the sunken lawn which covers a large part of Augustenborg Park was recognised as the area most frequented by children. Hence, for our study area, we selected an area of the park with a variety of terrain changes and vegetation. This area includes BGS with ponds, bioswales, and canals interplaying with the sunken lawn, together with hills and different vegetation. The area is surrounded by a school, a kindergarten, a musical playground, a dog park, and sports fields (Figures 2 and 3).

To initiate the discussion on play possibilities offered by BGS in the park, the research team searched for affordance-based assessment tools. By observing a

Table 1. Children-related items in the questionnaire.

I usually see this age group there (you can choose several options).	Children ☐	Teenager ☐	Young ☐	Middle-aged ☐	Senior ☐
I go there with children.	Never ☐	A few times a year ☐	A few times a month ☐	A few times a week ☐	Everyday ☐
Enter the number of children & adults in the household (include yourself).		Children under 18		Adults	

Note: The first two questions were asked separately for the sunken lawn area (in the park), wet ponds, and paved canals located in Augustenborg outdoor environment.

Figure 2. Augustenborg park setting.

nine-year-old boy in his daily life, Heft (1988) developed a functional taxonomy for children's outdoor environment by applying the concept of affordance. He was inspired by the five affording features formulated by Gibson (1979) as Places, Attached objects, Detached objects, Substances, and Events. Heft's work inspired other researchers to develop several assessment tools for children's outdoor environments (i.e., Refshauge, Stigsdotter, Lamm, & Thorleifsdottir, 2015; Woolley & Lowe, 2013). Lerstrup and Konijnendijk van den Bosch (2017) developed an assessment tool for the outdoor environment to evaluate meaningful action possibilities for younger (3–6 years old) children. By meaningful action possibilities, they mean the possibilities for actions that are perceptible and important to children. The tool evolved from the functional significance that was already being proposed by Heft (1988; Figure 4). The assessment tool contains functional categories and summarises features for analysing affordances of outdoor settings by developing the classes that have already been highlighted by Gibson and Heft. Lerstrup and Konijnendijk van den Bosch (2017) underlined the form-based features of open ground, sloping terrain, shielded places, rigid fixtures, moving fixtures, loose objects, loose material, water, creatures, and fire playing roles for meaningful actions to be carried out by younger children.

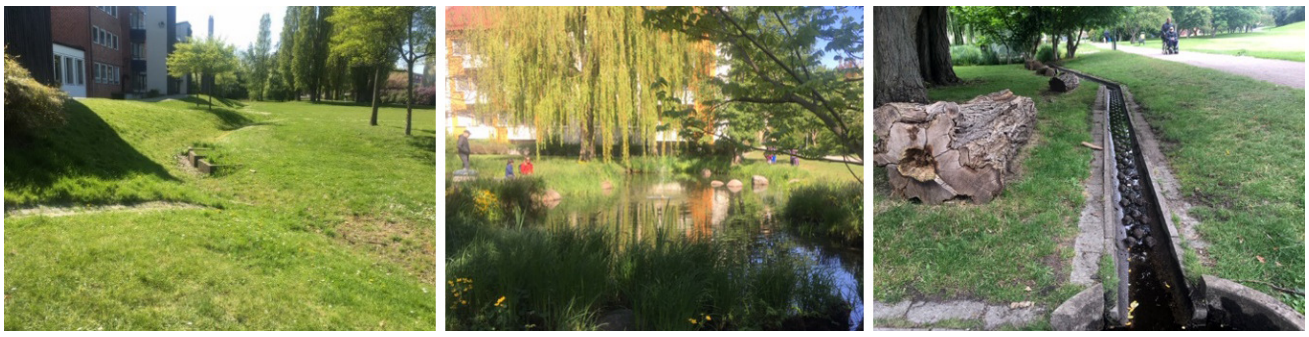

Figure 3. BGS in Augustenborg. From left to right: large bioswale; small pond along the park; and concrete canal along the park.

Affording features (Gibson, 1979)	Functional classes of outdoor features (Heft, 1988)	Activities[a] (Heft, 1988) and(Lerstrup et al.)	Classes of outdoor features (Lerstrup et al.)	Key activities[b] (Lerstrup et al.)
Places (Immobile)	Flat, relatively smooth surface	Walking, running, cycling, (skating, skateboarding), *driving, playing ball, song games, games in bigger groups*	Open ground	Run, drive, walk
	Relatively smooth slope	(Coasting down), rolling/sliding/running down, rolling objects down, *jumping down, climbing up; for ditches: jumping over, building over, hiding in, sitting in*	Sloping terrain	Roll, slide, clamber
	Shelter	Microclimate, prospect/refuge, privacy, *hiding in, lying in, sitting in*	Shielded places	Hide, as frame
	Aperture	Locomoting from one place to another, looking and listening to adjacent places		
Attached Objects, (Immobile, countable)	Attached object	Sitting-on, jumping-on/over/down-from, *running around, hiding behind, building on*	Rigid fixtures	Climb, balance, jump
	Climbable object	Exercise/mastery, looking out from, passing from one place to another, *lying-on, climbing, balancing-on, hanging by arms, hanging in legs*		
	Non-rigid attached object	Swinging-on, *swaying-in, seesawing-on, looking out from, spinning, sitting in, lying on, springy jumping*	Moving fixtures	Swing, sway, seesaw, spin
Detached Objects (Movable, countable)	Graspable/ detached object	Drawing, scratching, throwing, hammering, batting, (spearing, skewering), digging, cutting, tearing, crumbling, squashing, building of structures, *picking, gathering, sorting, arranging, making patterns, as accessories, as tools, throwing, sawing, carving, bending, breaking, thatching, crushing, hacking, tasting, eating, kicking in, walking on foot extensions*	Loose objects	Arrange, modify, as tools, props, treasures
Substances (Movable, not countable)	Mouldable material	Construction of objects, pouring, modification of its surface features, *moving around, moulding, smearing, kneading, smashing, digging-in, raking, sifting, kicking in, gliding in*	Loose material	Dig, move, mould, smear
	Water	Splashing, pouring, floating objects, (swimming, diving, boating), fishing, mixing with other materials to modify their consistency, *gathering, throwing into, jumping in, floating with the stream, building of dams*	Water	Pour, mix, splash, float
Events (Changes)		*Following, catching, caring for*	Creatures	Look for, handle, care
		Feeding, poking with sticks, sitting by, follow cooking, drawing with charcoal, putting out	Fire	Feed, look after, sit by

[a]Regular font: Heft and Lerstrup et al. In brackets: Heft only. Italics: Lerstrup et al. only.
[b]Key activities = distinctive and attractive activities for each class.

Figure 4. Activities and classes of outdoor features. Source: Lerstrup and Konijnendijk van den Bosch (2017, p.54).

We borrow the taxonomy to explore such materially present offers for play—affordance features—by the BGS in the park. We assessed the area with the aforementioned tool to identify the children's possibility for play, offered by the BGS.

3.4. On-Site Observations

As researchers who are not users of the area on an everyday basis, we needed to move from looking at a place in our study towards exploring children's being in the place interacting with BGS features. To explore whether children interact with BGS affordance features and utilise the play possibilities, observations were carried out in Summer 2020 on dry days of Thursday 2020.07.16, 14:30–15:30; Friday 2020.07.17, 13:00–15:00; Saturday 2020.07.18, 17:00–18:00; Sunday 2020.07.19, 15:00–16:00; and a rainy day of 2020.08.28, 15:00–16:00. During the six hours of observation, 63 children were observed, of which 34 are estimated as younger (3–6 years old) children and 29 are rated as middle (7–10 years old) children. Coming up with an exact age of the children without carrying interviews is impossible, and since we intended to minimise influencing the user behaviour, we estimated the belonging age group without approaching them directly, based on size, abilities, and skills.

Since the studied group was composed of children, we tried to avoid taking photos or filming, which is restricted by law in Sweden. The observational methods used in this study include making field notes, sketches, and tracing maps, to understand how children move around in the park, as well as which features of BGS children include in their movement and play. The methods allow documenting activities and behaviours with minimal researcher interference. Tracing allows registering people's movements in limited spaces with lines on a plan of the studied area (Gehl & Svarre, 2013). It thus maps spatial movement but is limited when it comes to mapping the duration of movements, as well as stops or significant tempo changes.

Throughout the observation, we also used complementary methods, such as taking notes and doing sketches. The combination of methods not only allowed us to start from an incident and explore related

associations, but it also helped us to move from individual interpretations to more general ones later on (Lury & Wakeford, 2012). The observations and the collected material then enabled us to reflect on mobility as an "experienced and embodied practice of movement" (Cresswell, 2010, p. 19). The research team initially considered carrying out the observation during Spring 2020. However, the plan was postponed due to the Coronavirus pandemic outbreak in February 2020, which had a serious impact on everyday life. This also became very noticeable to the researchers during the occasional park visits. The situation changed slightly in summer, mostly after people started their summer vacations and spending more time outdoors. Yet, the pandemic was likely affecting people's use of space during our observation, like other aspects of daily life.

4. Results

The results from the survey revealed that children are not only most observed in the sunken lawn (compared to canals and ponds) but also compared to the other age groups, this group was mentioned as the most active group around it. Half of the respondents confirmed children's presence around the sunken lawn. The numbers for the canals and ponds are 42% and 44% respectively. Moreover, the families living with children (68 out of 328 households) use the sunken lawn area together with kids more frequently than other types of BGS. The percentages of families visiting BGS with kids at least a few times per month are 74% for the sunken lawn, 67% for ponds, and 63% for canals.

After gaining a general impression of the park as a potential area for children's activities, we took the study further to explore if the park provided children with BGS-related play affordance features highlighted by Lerstrup and Konijnendijk van den Bosch (2017). Fire was the only class we excluded from this study, due to not considering it as a direct affordance feature of BGS. The assessment result (easier to be read together with Figure 2) indicates that the sunken lawn contains a large *open ground* that is a flat, relatively smooth surface to run, drive, or walk on. Different parts of the park provide *sloping terrain* for children to roll, slide, or clamber. These features are prominent in the hills and around the large bioswale. Behind the large hill (across the playground), around the dry pond and large wet pond, dense natural areas with different trees and vegetation are situated. Such places offer *shelters and shielded places* to hide or use as a frame. In the dry pond, along the large bioswale, and around the large pond, several concrete objects serve as *rigid fixtures* offering children the possibilities to climb, balance, and jump. Due to the presence of large amounts of vegetation, and especially those with more flexible parts such as branches as *non-rigid attached objects* (*moving fixtures*), there are some possibilities to swing but not much to sway, seesaw, and spin. Various types of bio-waste like coarse, woody debris, and fallen leaves provide children with *graspable detached objects* (*movable and countable*) to arrange, modify, or use as tools like props and treasures. Due to the location of the sunken lawn in the downstream part of the stormwater system, the soil moisture is usually higher than in other parts of the area. It is even higher in the lower parts of the lawn like inside the bioswales. Hence, there are usually *mouldable materials* (*movable and not countable*) available for children to dig, move, mould, and smear, depending on weather conditions. Plenty of *water* is available for children to pour, mix, splash, and float things on. However, the amount is fluctuating. The wet ponds are usually full of water. Other elements of the canals, dry pond, bioswales, and the entire lawn, depending on the time and intensity of rain, may temporally hold some water too. Different kinds of animals, such as birds and worms, are occasionally in the area. These *creatures* may create some events for children (i.e., to look for, chase, handle, and care for).

Following the mentioned results, we carried out observational studies by focusing on exploring if and how children in the park actualise the above-mentioned possibilities for play. The observational results come from tracing users, while the observer was mostly sitting on the only two benches available, which are in sight of the study area. Pink (2012) explains that places provide a template for practice and to understand the pattern of practice, understanding a place through a series of routes, rather than as a bounded locality, is essential. Being in an urban environment is formed along paths rather than in places, and places are shaped by coming and going to and from different locations and situations, i.e., through movement (Ingold, 2008). Here we applied a tracing method which helped us relate the users' practices to a wider environment. The tracing maps are illustrated in Figure 5 and will be discussed later, together with the information documented through field notes and sketches. Each map has been developed on a different occasion and is tagged with the observation date and time performed in July and August 2020. The pattern of people's movements in or around the studied area is presented with red lines. Each user is given a number in red. Family gatherings are shown with numbers in black. The lines specifically representing children's movements are marked with yellow circles. The perimeter of the circle is shown in yellow if the child was only a passer-by and the circle is filled in yellow if the child stayed and performed in the area.

5. Discussion

This study researches the potential multi-functionality of BGS in terms of possibilities to be used as children's playscapes in Augustenborg and explores attributes that influence the actualisation of those possibilities. The discussion will partly reflect on the potential for co-benefits or conflict between goals in ecological and social sustainable development and partly challenge the discourse

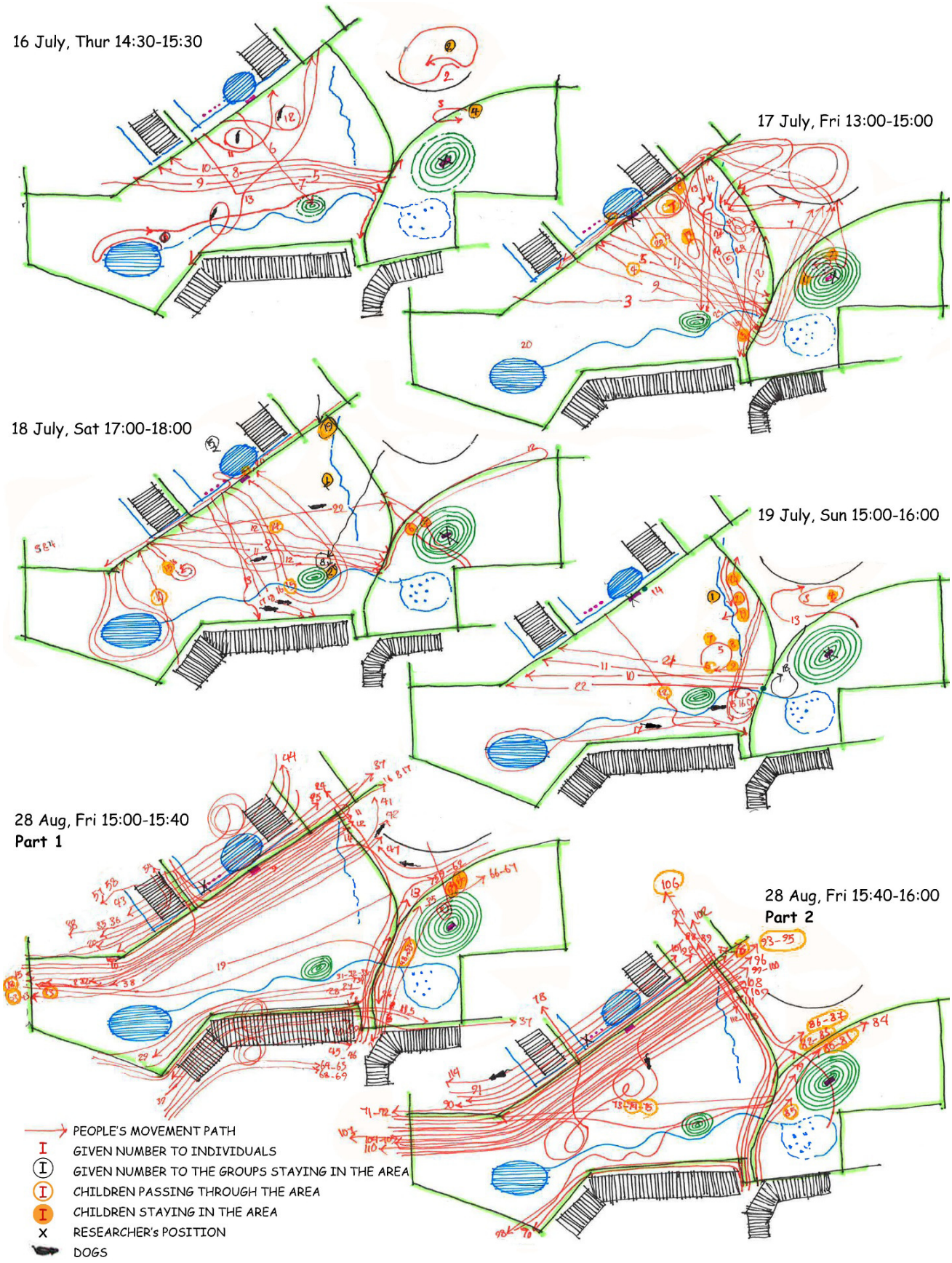

Figure 5. Tracing maps from field studies, July–August 2020.

that it is possible to fill diminishing urban open space with added layers of functions without radically lowering the quality of place.

The result from the survey shows that, according to the respondents, the BGS in Augustenborg afford some degree of interaction with children. It indicates that children's presence is the highest for the sunken lawn that covers a large share of the park. The children-related, strategically planned land uses around the park such as the kindergarten, school, playground, and open sports fields also acknowledge the possible frequent presence of children within the proximity of the park. Studying the park by assessing the BGS-related play affordance features, with a reviewed affordance-based assessment tool, also revealed a wide range of play potentials in the park. The result indicated promising play potential for a variety of children's activities. However, the potentials per se cannot guarantee the use of a place by children. This fact stood out while exploring the park through observations and looking for whether and how children interact with BGS. The results of observations are partially presented in Figure 5.

The observational result showed very different dynamics at the place in different visits. Temporal changes largely influenced the number of people and their behavioural patterns. The use of the area altered with i.e., how warm it was, how windy it was, if it was rainy, which day (weekday or weekend) or which season (vacation time or school time) it was, etc. The sunken lawn was mainly used as a shortcut for commuting distance and travel time reduction. This function could be affected by how wet the lawn was (i.e., on rainy days). The commuting tempo was quite high in this area. In general, the area looked like it was being used as a transition area in which, during working days, the pace of movement was quite high. The area was also very popular with dogs. No dog could keep from exploring the lawn. However, although BGS offered many possibilities for play in the park, children's use of BGS affordance features was limited. Following, we discuss possible explanations based on the observational study.

First, children were most often controlled by authority figures like parents. It became clear how their use patterns were influenced by their parents' use of space. Families with kids only recognised the playground as their main play destination. If the adult did not spend time in other parts, the children did not get involved with other play features either and the sunken lawn remained an isolated green island, absent of children. If the natural play values have not been recognised by the authority figures, how will children be able to discover them, when they have not been given possibilities to spend time in other parts? For children, experiencing an environment requires being in the place and spending time there. Without that, it would be difficult to develop visual perceptions, which according to Heft (2010, p. 16) "is a process of detecting what is immediately in view." As observed, children were interested in BGS affordance features in the area, but the matter of concern was having a chance for engagement. Whenever children followed the authority figures to the playground, even if they walked fast, every chance a child could get resulted in interacting with the nearest terrain change. For example, a little boy was following his mother on his mini-scooter. Suddenly, he stopped and left the mini-scooter on the sidewalk. He jumped onto the lawn, bent over, and put his hand inside the pipe underneath the road. After a few seconds, he walked back toward the mini-scooter and left the area. Another example was a little girl walking with her mother towards the playground. She turned her head towards the lawn and immediately decided not to walk straight anymore. She went into the lawn, played with the slopes of the little bioswale, chased some birds further down, and finally continued walking towards the playground.

Interestingly, excepting the open ground part of the park, the rest of the BGS features in the area are far from passer-by's sights. There is almost an impression that the purpose behind designing the park was not to encourage people to stay there. The entire park is equipped with only two benches, placed far from the obvious terrain changes. This means there was no furniture for adults to sit comfortably and let the children discover the potential affordances while watching them carefully. While affordances are shaped by individual capabilities such as interest (particularly for younger children), they are also affected by external factors such as their authority figures, who are in turn affected by their own affordances and values (e.g., habits, culture, time, etc.). Another observation was that even if children passed by the wet pond, they did not interact with the water because it was either not detected or not attractive. We know that children's interactions with water features are influenced by different parameters such as age, weather, and localities (i.e., Bozkurt, Woolley, & Dempsey, 2019; Kytta, 2002). Yet, it also depends on the socio-cultural practices of authority figures (i.e., the norms and considerations that affect children's perception of affordances largely; Kytta, 2004).

Temporal changes also influenced children's use of BGS in different ways. For example, at weekends, families spent more time at the park. They usually had two favourite spots to gather, close to the small bioswale and the small hill. As mentioned before, we excluded the feature 'fire' from our analysis through the assessment tool. Interestingly, in the observation, fire showed up as a strong unexpected and indirect affordance feature of BGS for family gatherings around their favourite spots. This might be due to reasons related to the microclimate, for example, because of the trees or pleasant humidity. Family gatherings provided an opportunity for the children to stay on the lawn and actualise the potential affordances. By observing a few gathering occasions, we realised children engage with the materiality of BGS in various ways. Mostly, subtle uneven surfaces, as well as surfaces of the small bioswale where digging was

possible, were found to be more attractive for younger children. The lawn only attracted middle children when combined with external detached objects like bicycles (to ride and accelerate) or with other internal attached objects like tree branches (to swing, depending on the child's size, weight, and skills).

Furthermore, children engage with an urban environment as a whole and not necessarily only with those areas that are specifically allocated for their use (Jansson, Sundevall, & Wales, 2016); the spatial configuration and design of an interesting place will capture their attention. While the designed play environments attract children more, they might also make them less motivated to look for affordances provided by places that are not specifically designed for play. If they do not get the chance or motivation to get closer to BGS, they will not recognise their additional natural play potentials. This partially explains why only the small bioswale and the large hill close to the playground were used by children and mostly by the younger children visiting the playground.

Moreover, the results showed how various relations between the environment and human behaviours affect affordances. The relation children establish with the environment is complex and affected by socio-ecological structures (Badland et al., 2016). Play affordances do not always occur directly. They may arise sequentially as nested affordance (Gaver, 1991), relationally as carried affordance, related to personal background (Kopljar, 2016), or compositionally as 'synergistic affordance,' which is the outcome of coincidental actions (Mottaghi et al., 2020). When some people decide to leave picnic trash on the lawn, it is not only due to psychological reasons related to habits or cultural differences, but possibly also to spatial reasons, such as not being close enough to the trash bins, thus introducing a lack of 'good' behaviour. Different behaviours may activate potential affordances through the mediators they generate. Affordances of a place set up human action possibilities as well as their consequences (Heft, 1989). Figure 6 shows an example. A family left the little hill without collecting their picnic trash. As affordances are unique to observer(s), a member of this family recognised the large bioswale as a perfect place to overturn the grill and extinguish the fire. This became interesting to a dog being walked on the lawn, but its owner tried to distract the dog from getting closer. The day after, more trash was added and scattered. Although this spot is one of the two favourite spots for a group gathering, no one was even getting close. The wasted food attracted the birds and turned animals into the main users of the lawn. Their presence mediated the interaction between the park and children and actualised some play affordances as events. This shows how a complex situation may result in play affordance for children.

There seems to be considerable potential for co-benefits when ecological values such as BSG and social values such as children's playscapes collaborate in space. This study shows that Augustenborg Park was used by children as recreational grounds and somewhat as playscapes, but there were limits in the design to attract children to physically engage with BGS since they are not inherently assured to be used by children. To increase the play values, the sociality and spatiality would need to be considered together and included in the planning and design guidelines. Children need to be considered as an important target group in stormwater management since what functions for them usually does for others as well (Shaw et al., 2015). To support children's everyday needs, understanding their perspectives and considering their experiences in the process of design and management of urban spaces is crucial (Horelli, 1998).

In the current situation of climate change, there are arguments to develop more urban open green spaces for managing stormwater. Increasing knowledge on how built and social structures influence the everyday use of BGS would support decision-makers in promoting larger benefits of BGS. In the densification trend, urban open spaces are instead diminishing and being assigned to contain solutions for an adding amount of everyday functions such as bicycle parking, waste sorting, BGS, and play spaces. Some of these functions can be defined in spatial terms, while other functions are more dependent on qualitative values that also have spatial demands and are hence difficult to define in spatial terms. In the overall densification trend, it is important to acknowledge that there is a limit to how spatially small the urban open spaces can be to—through a good design—contain all the needed functions for adequate and sustainable

Figure 6. Example of relations between human actions and affordances of BGS. From left to right: the small hill (one of the two main popular spots for family gatherings); 18 July, inside the large bioswale after one family left; 18 July, park view afterwards; 19 July, trash added and spread out, no family uses this spot anymore, behind the camera, birds gathered around the food waste and a few children run to chase them; and 19 July, more trash in the swale.

urban life. Otherwise, the consequences of rapid urbanisation will limit the possibilities for children's activities to take place in urban space.

6. Conclusions

This research shows that, due to diversity in their nature, BGS offer a variety of potential play affordances to children in Augustenborg Park. However, the study also shows that actualised play affordances were limited and children did not really engage with BGS playing features. Actualised affordances happen at different levels as they are perceived, utilised, and shaped (Kytta, 2002). Any interruption in the process affects the actualisation of affordances. It is not enough to focus only on the quality of BGS play features. Urban planners need to pay attention to spatial design and hierarchy. Urban environments with BGS need to be designed in a way to help users to identify it as a place to stay in, rather than to just pass through. Also, instead of making the affordances offered by BGS compete with other affordances—offered by children places, like playgrounds—it is necessary to make them complimentary of each other. This can happen by producing a series of places that are on similar levels of importance, as well as making BGS affordances more accessible. A rich spatial integration creates a dialogue and symmetrical relations between different places. It not only expands dimensions of play destinations but also provides opportunities for BGS to be perceived and utilised as diverse places to spend time for both children and their authority figures.

An environment might bring perfect play values to children, but not fit the socio-cultural structure of the environment (Ergler, Kearns, & Witten, 2013). Older children are usually able to make their own discovery and adventures in a place, but younger children's use of a place is largely influenced by the socio-cultural practices of authority figures. Hence, authority figures should be considered in the planning process, in terms of allowing them to recognise the offered affordances. This occurs through creating more opportunities for interaction with BGS, for example by adding seating such as benches in relevant areas. Attracting parents to spend time near BGS also gives children time to explore different niches of the environment and to find additional play affordances. This study also shows that play affordances are not always arrangeable. On-going temporal changes and constant sequential and synergistic effects influence the affordance of a given environment. Moreover, individual affordances alter with individual changes as children develop in size, viewpoint, and skill (Gibson, 1979; Heft, 1988).

Children's interaction with nature enhances their cognitive development and health. Since BGS offer various ecological play affordances, it is well worth urban planners putting effort into the actualisation of BGS play affordances, which requires considering children in the early stages of planning. Increasing knowledge of the relations between children and existing urban environments helps the process of decision-making to focus more on how to provide children with a better urban environment to play in. We saw how two different settings of a similar design, like the bioswale, might create different affordances in terms of both stormwater resilience and affording children to interact with the urban landscape. This study highlights a recommendation for maximising the use, spatial, and physical characteristics of BGS, which all need to be discussed together and in relation to the sociality of the environment. This study also shows that, due to the complexity of exploring the relationship between children and their environment, combining different methods can improve the quality of research. On our way to more effective policies and investment opportunities, through which BGS and children playscapes support one another, we still need to improve our socio-spatial understanding of the interaction. Hence, further research is required to recognise what kinds of behavioural patterns BGS may trigger in children and how they respond to children's everyday needs.

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Conflict of Interests

The authors declare no conflict of interests.

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Article

Living and Planning on the Edge: Unravelling Conflict and Claim-Making in Peri-Urban Lahore, Pakistan

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Abstract
In Lahore, Pakistan's second largest city, high population growth rates, decades of rural-urban migration, and rampant land and real-estate speculation have contributed to the rapid urbanization of peri-urban land and the engulfing of pre-existing rural settlements. Lahore's spatial transformation goes hand in hand with an increasingly complex urban governance framework. Historically shaped by colonial planning institutions and decades of political instability as power alternated between military and civilian regimes, Pakistan's governance practices have contributed to increasing levels of urban segregation and inequality. This raises questions around the in- and exclusionary role of planning in fostering or constraining residents' access to housing and services. Comparing three vignettes and drawing upon insights gained from extensive fieldwork, this article employs the concept of 'access-assemblages' to analyze how access to urban resources—i.e., land, housing, and services—is experienced, disputed, and negotiated in the rapidly urbanizing peri-urban fringe of Lahore. The cases represent different spatial and socio-political configurations brought about by a variety of actors involved in the planning and development of the city's periphery as well as in contesting development: private developers, the army, the city development authorities, and the residents of affected villages. The analysis unpacks the planning rationalities and mechanisms that reinforce inequalities of access and exclusions. Unfolding practices that enable or hinder actors' ability to access resources sheds light on the complex layers assembled in urban planning in Lahore and serves as a basis to rethink planning towards a more inclusive approach.

Keywords
access-assemblages; access theory; assemblage; claim-making; housing; land dispossession; peri-urbanization; *qabza*; urban governance; urban politics

Issue
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1. Introduction

The southern fringe of Lahore—the capital of Pakistan's largest province, Punjab, and country's second largest city with an estimated population of 11.13 million—has been rapidly urbanizing over the last four decades (Javed & Riaz, 2020). Nearly thirty years ago, a conflict took place between the Pakistan army and the residents of Charrar Pind—a formerly rural settlement now well within the urban sprawl. The agricultural lands surrounding the village were progressively sold and transformed, as housing projects—locally referred to as housing schemes—were rolled out by the army. Today, the village stands within the Defence Housing Authority (DHA) that serves as modern housing for the affluent classes. Well beyond Charrar Pind, in the southern margins of the city, newly planned housing schemes continue to spring up across what was previously rural hinterland, replacing pre-existing villages. In the past, urban expansion in the northern and western peripheries had been contained by the river Ravi. But in August 2020, Prime Minister Imran Khan launched the Ravi Riverfront Urban

Development Project (RRUDP), an ambitious undertaking that plans to displace residents of the villages along this periphery as well.

Against this backdrop, this article analyzes processes of land appropriation at the peripheries of Lahore and discusses how they affect and are contested or negotiated by local communities. To do that, the article explores urban developers' practices as well as strategies of resistance and negotiation employed by residents of the affected villages. The article uses three ethnographic vignettes to illustrate its analysis of disputes over peri-urban land and their entanglements with different governance actors and planning institutions. These exemplify the ongoing spatial restructuring in the periphery of Lahore and indicate the main actors involved, namely Bahria Town, Pakistan's most powerful private developer; the army's DHA; and the Lahore Development Authority (LDA), a provincial government institution. Through these examples, the article seeks to understand how different actors shape their claims over land, housing, and services, as they enter complex and contentious relationships. For this purpose, the article develops the concept of 'access-assemblages.'

By coupling two different theoretical strands, access theory (Ribot & Peluso, 2003) and *agencement*/assemblage perspectives (Deleuze & Guattari, 1987), an access-assemblages framework allows the exploration of changes in access to urban resources at Lahore's fringes—in this case, access to peri-urban land, housing, and services. It examines how these are experienced, disputed and negotiated, within complex configurations of actors and institutions. The article argues that an access-assemblages frame is fruitful for exploring the in- and exclusionary role of planning, i.e., to what extent current planning practices influence the ability of local populations to benefit from the restructuring of the landscapes they inhabit. In doing so, the article contributes to the body of literature on land transformations and dispossessions in rapidly urbanizing cities. From a theoretical perspective the article seeks to draw attention on the possibilities of access theory for the scholarship of urban planning and to contribute to the expansion of perspectives in assemblage-thinking.

2. Land Appropriation and Dispossessions

As in other major Pakistani cities, Lahore has seen a massive expansion of its real estate market since the 1990s (Javed & Riaz, 2020). This is visible in the ongoing transformation of large swathes of agricultural land (Zaman & Baloch, 2011). However, the rapid development of the urban fringe has not necessarily translated into improved housing access for low-income populations. Instead, the dominant processes of urban development are characterized by exclusionary urban visions, low levels of colonization in housing schemes (Anjum & Hameed, 2007), and displacement of local communities. The resulting extensions of vacant plots and scattered housing societies—many of which as gated communities—have attracted land speculation and benefited the upper-middle classes. Pakistan in this respect is not an exceptional case. The growing literature on peri-urbanization in the Global South describes similar processes of exclusion (Nygren & Quesada, 2020), 'regimes of dispossession' (Levien, 2015), and the challenges to urban planning posed by the proliferation of gated communities (Bagaeen & Uduku, 2010; Landman, 2004). In the Pakistani context, some new work emphasizes the role of secluded residential enclaves in providing relatively safe spaces (Bint-e-Waheed & Nadeem, 2019), but other studies criticize the resulting fragmentation of the city (Gul, Nawaz, Basheer, Tariq, & Shah, 2018). Mallick (2018) goes even further by considering these enclosed housing schemes in particular, and the restructuring of space in Pakistani cities in general, as representative of an emerging material and even ideological project which mediates the aspirations of the emergent upper-middle class through (exclusionary) claims over urbanity and modernity. Those claims are then instrumentalized by land developers for the legitimation of their 'secure' housing societies. Against this pursuit of security, the processes underlying the development of such residential enclaves often involve the use of force or the threat of violence by powerful private or state institutions (Khan, Akhtar, & Bodla, 2014; Levien, 2015). This is well captured by the local idiom of '*qabza*' (Ewing, 2012).

Qabza is the act of taking possession of a specific site and might be translated as seizing, occupying, or trespassing (Ewing, 2012). The concept can refer to land-grabbing in urban development processes (Hull, 2012), or taking control of specific buildings such as mosques (Khan, 2012), but it can also be seen, as Ewing (2012, p. 534) puts it, as a metaphor of "how things operate" in a wide range of domains in the Pakistani context. The growing visibility of *qabza* manifests the importance of illicit mechanisms in processes of land appropriation and demands a reconsideration of classic analyses of dispossession. Often, scholars have discussed the displacement of local communities and the transformation of agricultural land as an example of what Marx called 'primitive accumulation,' or Harvey (2004), in a more recent formulation, refers to as 'accumulation by dispossession.' From a primitive accumulation perspective, however, land dispossession is a precondition for capitalist development, and not a result of it. And where Harvey's notion of accumulation by dispossession does recognize diverse contemporary dispossessions as a result of capital accumulation, the role of financial capital is often overemphasized in this analysis. Both concepts, then, overlook the deeply political processes embedded in practices of land transformation that include both coercive force from above—often exercised by the state itself (Levien, 2015)—and strategies from below. The latter have been often conceptualized through the lenses of 'political society' (Chatterjee, 2004)—spaces of everyday subaltern strategies—and the 'quiet encroachments

of the ordinary [people]' (Bayat, 2013), and, more specifically in the Pakistani context, as contestations through moral claim-making to negotiate the right to stay (Rizvi, 2019). There are, however, also studies of farmers' small-scale encroachments on village communal lands in neighboring Indian Punjab, that show how 'political society'—characterized here by *ad hoc* informal arrangements enabling land-grabs (or *qabza* from below) and their inherent partisan clientelism bargains—can also be complicit in processes of dispossession (Martin, 2019, p. 241). These findings posit that access to land (via land appropriation, land grabbing, or *qabza*) is not only an area for conflict and contestation, but also for negotiation and cooperation that involves different actors and institutions operating at different scales.

Qabza—seen as modes of operating beyond established boundaries—is facilitated by the complexity of an urban governance framework in which planning visions, mandates, and jurisdictional borders are increasingly blurred. Overlaps between urban governance institutions and holdovers from the colonial era contribute to the failure of planning tools (Hameed & Nadeem, 2008). The alternation of civilian and military governments at the national level and recurrent changes in local government regulations have further hampered local governance and reinforced the role of the army. Two cantonment boards (civic administration bodies under the Ministry of Defence) as well as the army-administered DHA—with its own rules and regulations—mirror the urban governance structures of 'civilian Lahore.' They further distort the already unclear jurisdictional boundaries of the city. Planning perspectives pursuing modernization have, on the other hand, oversimplified urban realities, and facilitated the primacy of the private sector. As result of colonial legacies, frequent changes in governance structures, and emergent trends in international planning, Lahore's urban governance framework has produced the conditions for legal and spatial zones of exception and ambiguity in which different actors and institutions operate with differentiated levels of power and influence.

3. Access-Assemblages

Multiple theorists have developed assemblage-thinking approaches for a variety of analytical purposes (DeLanda, 2006, 2016; Deleuze & Guattari, 1987). Although there is a growing disagreement over how to theorize and operationalize assemblages (see sections in *City* 2011, Vol. 15, Issues 2–6, and *sub\urban-Debatte* 2014, Vol. 2, Issue 1), in this article I read through selected concepts from Deleuze and Guattari's (1987) writings on the notion of *agencement*/assemblage (i.e., '*emergence*,' '*deterritorialization*/*reterritorialization*'). The concept of assemblage is useful in describing the multi-layer, multi-scalar, dynamic, and unstable webs that are created by actors and institutions involved in processes of land appropriation and dispossession in Lahore. In these webs, the liaisons between the constitutive elements are constantly being (re)shaped. This illustrates the importance of '*becoming*' that Deleuze and Guattari underscore when they ask what kind of assemblage would be required to produce a given situation (Buchanan, 2021). Investigating the dynamic configuration and relations of these assemblages is crucial to an understanding of how urban development practices operate. More, an assemblage-thinking perspective acknowledges the various scales in which nested assemblages function (e.g., from interpersonal relations to institutions, organizations, neighborhoods, cities, states, and so on) and offers an analytical approach to understanding the processes through which assemblages 'emerge' (what Deleuze & Guattari [1987] term *de*/*reterritorialization*). Assemblages perspectives have been faulted, however, for insufficiently describing underlying power relations. Although they increasingly give attention to the notion of power (Allen & Cochrane, 2010; McFarlane, 2009; Russell, Pusey, & Chatterton, 2011), its operationalization often remains elusive. This article argues that access theory (Peluso & Ribot, 2020; Ribot & Peluso, 2003) offers here a valuable conceptual supplement.

Access theory is particularly relevant in the study of governance practices that operate in liminal spaces between the formal and the informal (Dovey, 2012). Ethnographic studies in the Global South and postcolonial contexts report situations in which formal recognition of claims and resulting property rights do not preclude the outcomes they are designed to protect against, such as conditions of landlessness, displacement, marginalization, and poverty (Gilbert, 2002). This implies that property rights alone are no guarantee of secure access to resources, as there are 'gray zones' in which people do have *rights* but cannot *benefit* from resources and vice-versa, when *access* is not necessarily linked to *property* or sanctioned by legal regimes of *rights* (Sikor & Lund, 2009). The concepts of 'gray zones' or 'zones of exception' (Roy, 2011) emphasize this liminal space in urban governance. It is in this liminal space that the notion of *qabza* operates—where "power and networks prevail over property rights and the rule of law" (Ewing, 2012, p. 535).

By expanding the classical notion of rights, access theory provides an analytical framework for exploring practices and mechanisms that enable or constrain "the ability [of actors] to derive benefits from things" (Ribot & Peluso, 2003, p. 153). 'Access mechanisms' assembled in 'webs of access' determine the capacity of actors to *gain* (process by which access is established), *control* (to mediate other's access to resources), or *maintain* access (by expending resources or powers). Access mechanisms encompass a wide range of possibilities, including 'rights-based' (legal and illegal access) or 'structural and relational' mechanisms (i.e., access to technology, capital, markets, labor opportunities, authority, social identity, and relationships). The underlying power relations, referred to as 'bundles of powers,' are

key to understanding how the distribution of benefits operate—in our case, access to peri-urban land, housing, and services. While access theory has been widely used in the scholarship on (natural) resource management, it has less currency within the field of urban planning. This article argues that an access approach is a powerful theoretical tool and a compelling guide for empirical analysis. 'Access-mapping' can facilitate a systematic exploration of processes of change, claims-making, and urban contestations by tracking: 1) the flow of resources and distribution of benefits, i.e., the ability to gain, control, and maintain access; and 2) the underlying mechanisms and power relationships fostering or constraining such an ability.

By combining the two theoretical strands under the concept of access-assemblages, this article shows how the exploration of the power relations and access mechanisms implicated in assemblages of actors and institutions elucidates the in- and exclusionary role of planning. This assumes that power relations largely determine the ability of developers and villagers to benefit from urbanization processes. In turn, selected concepts from assemblage theory sharpen the concept of webs of access by investigating the conditions under which these webs come into being. The article draws particularly on the concepts of emergence and deterritorialization/reterritorialization. *Territorialization* refers to the sharpening of the spatial boundaries of a given social or spatial assemblage, e.g., a community of people, an organization, or a neighborhood (DeLanda, 2006). In this way, territorialization leads to the (temporary) stabilization of a given assemblage into a particular form—for instance, through jurisdictions, or socio-spatial segregation. On the other hand, processes which either destabilize spatial boundaries or increase internal heterogeneity are described as '*deterritorializing*' (DeLanda, 2006, p. 13). From Buchanan's (2021, p. 102) perspective, deterritorialization entails functioning without a territory, a sort of "freefalling into chaos without a safety net or harness". For this reason, opportunities to reterritorialize are immediately sought. Hence, assemblages move between *deterritorialization* (unmaking) and *reterritorialization* (making) as they constantly *become*. For Deleuze and Guattari, it is in this state of chaos and disorder that '*desire*'—a key notion in their writings but often neglected in works that draw upon them—takes place and becomes productive (Buchanan, 2021). This functions along '*lines of flight*'—paths of '*rhizomatic*' deterritorialization (Deleuze & Guattari, 1987, p. 508). These can open new possibilities, e.g., liminal spaces of opportunity, deregulation, and zones of exception; create alternative paths; or lead to a whole new assemblage (Dalton, 2019). Access-assemblages can therefore be described on the basis of two main dimensions: the first is emergence, the inherent capacity of assemblages to de/re-territorialize. The second dimension represents the connections between components of the assemblage characterized by material actions or expressive signifiers. These include access mechanisms—that are rights-based, structural, and relational—and their underlying power relations.

4. Conflicts over Access to Land, Housing, and Services

4.1. Methodology

This section presents three cases, examples of both ongoing processes of urbanization in Lahore's peri-urban areas as well as the ways these processes are contested. The vignettes show the main actors and institutions involved, i.e., Bahria Town, the DHA, the LDA, and the residents of villages affected by the land transformation (see Figure 1). To explore how access to urban resources i.e., land, housing, and services, is shaped, disputed, and negotiated, the article draws on the notion of access-assemblage by asking: What sort of assemblage would be required to create these particular access dynamics? Inspired by Baker and McGuirk (2017), access-assemblages are operationalized in two steps, guided by the questions 'Where to look?' and 'What to look at?': First, tracing sites and situations, and second, revealing emergence and access mechanisms. The first step is concerned with identifying relevant *sites*, such as administrative territories, organizations, regulations, communities, or consultancy firms, and *situations* such as conflict, cooperation, discourses, or dominant notions of development and modernity. The second step is concerned with access-mapping, which includes exploring: a) the flow of resources and distribution of benefits; and b) how this operates, that is, which access-mechanisms and underlying power relations can be identified. In step one, the focus is primarily on urban developers and on identifying the practices from above that have triggered contentious situations with residents of villages at the boundary. In step two, the focus is largely on practices from below as villagers articulate claims in relation to their disputes with urban developers.

The case studies are based on ethnographic fieldwork conducted during several research stays in Lahore between November 2014 and March 2016. Most of the empirical data for the three cases presented here was gathered from October to December 2015 and in March 2016. The same methods were applied in all three cases. Qualitative research included informal and in-depth interviews (In total 33: 11 in Bahria, 17 in DHA, and 5 in LDA/RRUDP) with residents of rural villages and housing schemes, real-estate agents, and local representatives. Of the urban development agencies, it was only possible to interview LDA officers. Some informal interviews were combined with participant observation as 'go-alongs' (on foot and by car; Kusenbach, 2003). Due to the sensitivity of the information, interviews were not recorded; instead, extensive fieldnotes were produced. The analysis also draws on documentary materials. These include local newspaper reports that covered the contentions over the land, real-estate maps,

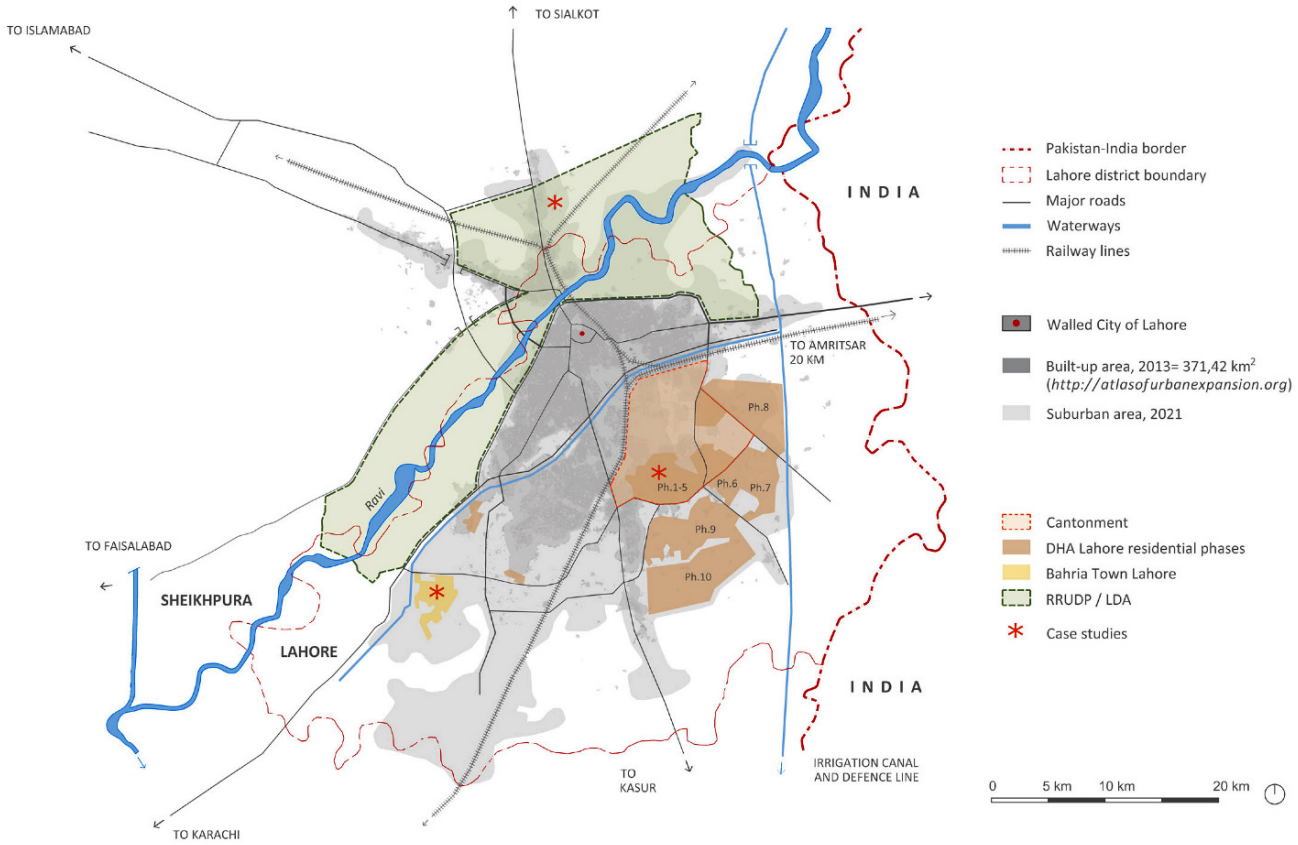

Figure 1. Map of Lahore and location of the three selected case studies.

the 2015 drafts of the RRUDP Strategic Development Plan (SDP) and Feasibility Reports, as well as the transcript and translation of the Prime Minister's speech at the RRUDP launching ceremony on September 15, 2020. These materials were treated as ethnographic artefacts, manifesting ways of thinking and acting with traceable itineraries and effects.

4.2. CASE I: Bahria Town—(In)Security of an Exclusionary Gated Community

Over the last twenty years, the housing project of Bahria Town Lahore has expanded its territory across the city's southern periphery, displacing pre-existing villages. With an area of about 16 km^2, the housing scheme is today a consolidated gated community. Its perceived security and high development standards have contributed to its growing reputation (see Figure 2). Different strategies have made the housing scheme appealing for middle and upper-class residents and investors: It offers a wide range of plot sizes, pitching exclusionary housing to the emergent middle-classes, and it employs 'world-class' marketing, which mobilizes an eclectic collection of foreign imaginaries—including a built reproduction of the Eifel Tower as seen in Figure 3 (fieldnotes, November 10, 2015). But residents from a village next to Bahria Town still recall the violence through which the housing scheme came into being. Their accounts described how the private developer coerced families who owned agricultural land into selling their properties at rates well below market prices (interviews, March 18, 2015). They also described (illegal) rights-based mechanisms deployed in collusion with local *patwaris* and *tehsildars*—low level bureaucrats in charge of land records—as well as relational mechanisms such as co-optation, intimidation, and use of force by the developers themselves or through their intermediates (*qabza* groups, police, military, and land authorities) to gain access to the land (interviews, November 1–10, 2015, and March 20, 2016). These accounts from Lahore mirrored narratives about the violent conflicts in the other developed Bahria Towns in Rawalpindi (another major city, 400 kms north of Lahore in Punjab; Khan et al., 2014) and in Karachi (Zaman & Syed, 2016). At first, press reports voicing the claims of disenfranchised villagers were repressed by the developer's networks of association with the media, and high-level military officials and bureaucrats. However, the large number of court cases progressively increased the visibility of the illicit activities involved in the development of the Bahria Town housing schemes (Syed, 2019).

The ability of villagers to maintain possession of their land was constrained by the violent processes through which Bahria Town Lahore emerged. Though villagers deployed strategies of resistance, such as social mobilization, small protest rallies and court cases, these were not sufficient to preserve their control over the

Figure 2. Security checkpoint within Bahria Town Lahore, 2015.

Figure 3. Bahria Town Lahore world-class style and foreign imaginaries. Photograph taken during a ride-along with a real-estate broker, 2015.

land (interviews, November 1–10, 2015, and March 20, 2016). Ultimately, villagers were either displaced to settlements on the borders of the gated-community or moved elsewhere. Today, while residents within the territorial boundaries of Bahria Town enjoy high standards of housing and services, the exclusion of neighboring villages manifests in low quality construction and service provision. Despite these differences, for the most part, narratives of conflict and resistance have turned into narratives of cooperation over time. This is a result of linkages between Bahria Town and the neighboring settlements characterized by flows of labor and capital, as well as mutual dependencies. Although some villagers shared concerns about losing their traditional lands in the process of urbanization, most emphasized the perceived benefits from living close to the high-income residential enclave, such as social status, economic gains, and access to employment opportunities within and around Bahria—as exemplified by strategically developed markets at the edge of the settlements. Similarly, some villagers benefited from improved access to healthcare—contingent on employment in Bahria Town. Others make speculative calculations over the potential gain from selling their remaining agricultural land, as they express aspirations to move to Bahria Town (interviews, November 2, 2015, and March 18, 2016). On the other hand, however, Bahria Town's upper- and middle-class residents tend to view the villagers through the tropes of poverty, criminality, and backwardness as they make exclusionary claims over urbanity and modernity (interviews/fieldnotes: March 19–20, 2016).

The emergence and de/reterritorialization of Bahria Town over the years evidences the unequal power relationships between the private developer and residents of pre-existing villages, who ultimately lost access to, and control over, their property. The bundles of power and access mechanisms—mostly illicit and relational based—deployed by the private developer outpowered those of the villagers, despite their (legal) rights-based, affective, and moral claims to the land. The mechanisms (to gain, control, and maintain access) that were deployed on both sides of the land contention deterritorialized spatial and social boundaries. The subsequent reterritorialization processes, facilitated by the marketing strategies of Bahria, its reputation among the affluent classes, its unaffordability to low-income populations, and its surrounding wall—a physical barrier between different lifeworlds—have sharpened the socio-spatial boundaries between the housing scheme and the surrounding settlements. Bahria Town Lahore exemplifies a highly exclusionary process of urban planning that has constrained the ability of local communities, and low-income villagers in particular, to benefit from improved housing and service provision. However, the porosity of the border between Bahria Town and neighboring villages can be understood as a potential 'line of flight,' a path for renewed deterritorialization and opening of possibilities. In addition to already perceived benefits experienced by villagers, i.e., social status and access to capital and labor, many are attracted to the lifestyle and standard of life represented by Bahria. Desire for development, or as Tania Murray Li (2007) puts it, the "will to improve," is in this case articulated from below, and could serve in Deleuzian terms as a trigger for deterritorialization and the articulation of further claims.

4.3. CASE II: DHA and the Confined (Rural) Communities

Housing schemes developed by the DHA are considered modern and exclusive. Their popularity is linked to their high quality, but also to the hegemonic position of the military in Pakistani society. The Pakistani military has accumulated economic and political power over recurrent periods of military rule (1958–1969, 1977–1988, and 1999–2008) by lobbying civilian governments in policy and budget allocations (Khan et al., 2014) and through its increasing corporatization, including a booming real-estate business (Siddiqa, 2007). The role of the military in land transformation can be traced back to

1947 Partition and the allotment of evacuee land to military officers immigrating from India (Nawaz, 2008). The involvement of the army in land acquisition, allocations, and distribution positioned officers in privileged positions to set the path for their prospective housing schemes. Army real-estate expanded in the 1980s under General Zia Ul-haq, intensified after 1999 under General Pervez Musharraf's military rule, and continues in full swing today despite the return to civilian rule. The Land Acquisition Act 1894 has been a key element in this expansion, enabling the military to acquire land for 'public purposes' with meagre compensation to private owners or other state institutions. Besides the lax interpretation of the public purpose category—which is translated to include the commodification of state land for the benefit of high-ranking officers—examples of land grabs and irregular land conversions (e.g., former military training grounds turned into exclusionary facilities) have been widely reported (Siddiqa, 2007). It was within this framework that the DHA Lahore came into being as a development authority under military federal control. This happened in 2002 when the army took over the former Lahore Cantonment Cooperative Housing Society (Babar, 2019). DHA's housing schemes have thence emerged and developed independent of, and unaccountable to the civilian government institutions. Today, its holdings cover more than 150 km^2 in eleven phases across Lahore as extensions to the original military Cantonment in the city's south-east periphery (Javed & Riaz, 2020). DHA's sprawl has acquired such dimensions that there is a widespread perception that at least one third of the city is army-controlled land (interviews, March 10, 2016). Inevitably, this expansion has displaced numerous local communities.

Local communities in the south-east boundary of Lahore have been engaged in the contention over the land for at least three decades. This is well illustrated by Charrar Pind's settlement. The village stands surrounded by DHA's residential phases 1 to 5 (see Figures 4 and 5). In the early 1990s, when the first round of negotiations over the agricultural land surrounding the village failed, the army deployed alternative mechanisms of power to have its way. Residents' accounts recalled the army's indirect use of force, instrumentalizing the police to threaten and coerce villagers into relinquishing their land, and purposively disrupting service delivery for holdouts (i.e., water provision for agriculture and electricity supply). Those villagers refusing to sell mobilized resistance on the grounds of their affective attachment to their traditional lands (interviews, March 13–14, 2016). The conflict escalated into open confrontation and violence but by the beginning of General Musharraf's military rule (1999–2008) all the agricultural land had already been acquired by the army. Unsuccessful at gaining the control of Charrar Pind's residential land however, and in order to bring a halt to the conflict with the villagers, the DHA made promises of development (e.g., to connect the settlements' sewage and drainage to the DHA's underground system). As those promises remain unfulfilled, developmental work in the left behind settlement is channelized through local governments and patron–client relations with local elites and elected Members of the Provincial or National Assemblies. The fragmentation of the urban space, as well as the vastly different quality of life between the DHA's schemes and the village remains evident (interviews/fieldnotes, March 10–16, 2016). However, Charrar Pind residents considered the increasing social networks with the beneficiaries of the DHA's schemes, as a power resource in the protracted contention over the control of the land where the village still stands (interviews, March 13, 2016).

Similar to Charrar Pind, other peri-urban villages are affected by the pace of current land transformation. As the DHA claims more land for the newest housing phases, it continues to engulf villages, further augmenting the urban land under the military's control (see Figure 6). Here, the 'gated' or 'secluded' communities are not—as one might expect—the exclusionary housing schemes, but rather the pre-existing villages. Partially fenced-off by concrete walls built by the DHA authorities, ramparts mark the limit between the territories of the original settlements and the already,

Figure 4. Picture of a real-estate map of DHAs Phases 1 to 5 surrounding Charrar Pind.

Figure 5. Wall separating DHA houses (behind) from Charrar Pind, 2015.

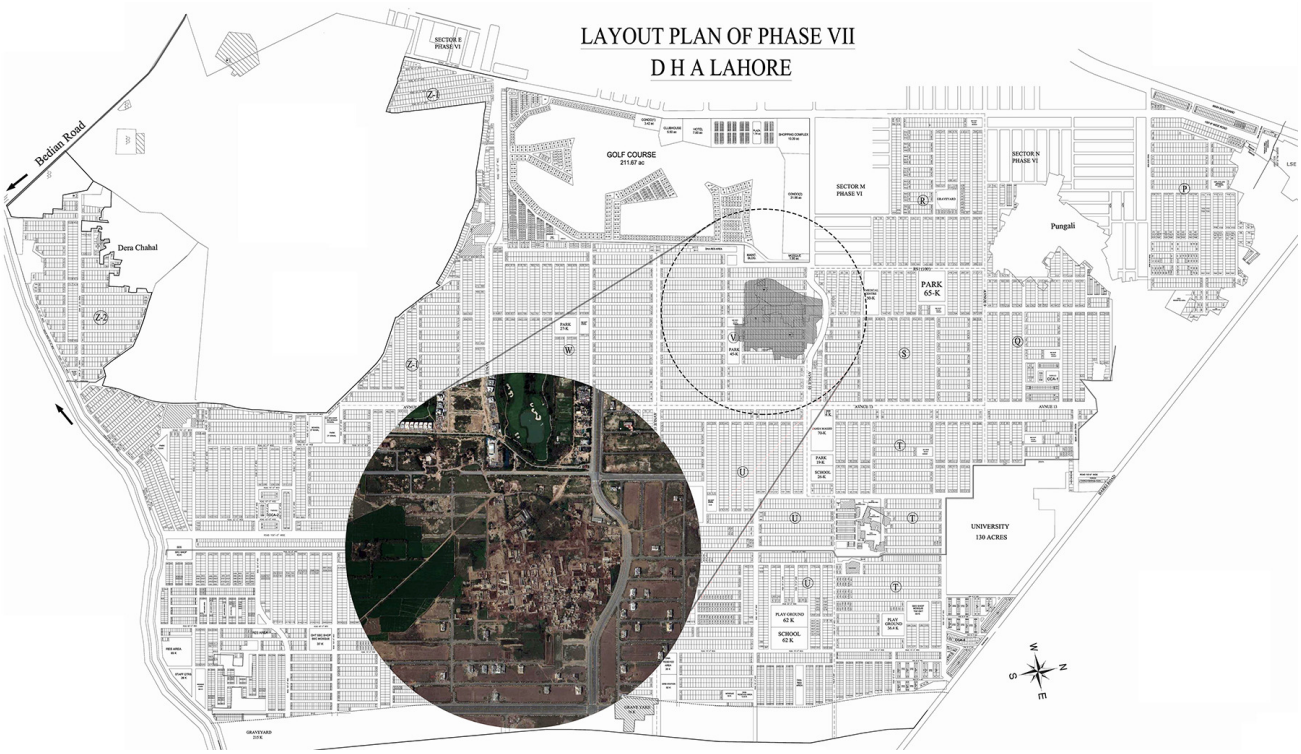

Figure 6. Peri-urban village within the planned DHA Lahore Phase 7. Source: Author based on USGS Earth-explorer satellite image and real-state layout plan from March 2013.

or soon to be, plotted housing societies (fieldnotes, October 29, 2015). Villagers' accounts described similar processes of contestation, negotiation, and resistance, and analogous mechanisms of power and pressure tactics as in Charrar Pind twenty years earlier. The same promises of development—in exchange for allowing DHA's sewage underground construction in the village communal land—remained unfulfilled. In 2015, many villagers had already sold their properties to real estate intermediaries—also referred to as "land consolidators," "gangsters," or "*qabza* groups" when the conflict escalated (interviews, October 30, 2015). Others resorted to organizing protests, reaching out to the media and filing court cases to ensure a protracted process, with the idea that delaying the sale of the land would ensure better returns in the future. However, with the progressive urbanization of agricultural hinterlands, villagers' sources of income have considerably diminished. Unlike in Charrar Pind, linkages with the emerging neighboring housing schemes are scarce. This is allegedly due to the fact that DHA management obstructs potential access to labor opportunities. The uncertain situation has led to a halt in upgrading work inside villages, leading to deterioration of living conditions (interviews, October 30, 2015, and December 1–3, 2015).

The conflict between the DHA and surrounded villages over the land exemplifies the dominance of the military in urban planning—in Lahore in particular and Pakistan in general. The sites and situations presented are the result of constant de/reterritorialization processes as DHA expansion affects villages' spatial boundaries (see Figures 7 and 8) and constrains the ability of local communities to access resources. The case illustrates therefore the exclusionary effect of army-led urban planning manifest in the life quality advancements in the DHA housing schemes on the one hand, and the displacement of previous residents on the other. Processes of territorialization in the DHA urban sprawl become evident in the various military checkpoints restricting entry into the DHA enclaves, as well as the fencing off of the vestigial villages. While this has been justified by the military in the name of security, it entrenches the military's control over a large part of the city and produces the socio-spatial segregation of the less well-to-do. The DHA's expansion beyond the original boundaries of the military cantonment deterritorializes in turn the jurisdictional border of civilian Lahore, undermining the mandate of civil urban planning. The DHA's territorializing processes are possible due to the subordinate position of local communities with respect to the bundles of powers at the disposal of the army. Resigned villagers make speculative calculations and mobilize (legal) rights-based and relational mechanisms just to temporarily maintain access to their land. In contrast, the DHA's power strands weave together various mechanisms of control and maintenance, such as authority exercised by force, relations to powerful actors, and modes of legitimacy based on the ideas of modernity, urbanity, and development that they claim to represent. The latter points to the often higher value

Figure 7. Plot sold to DHA in a peri-urban village, 2015.

Figure 8. Deconstructed house on the edge of a village under contention with DHA, 2015.

attributed to aesthetics rather than ethics in planning interventions (Ballard, 2012; Bauman, 2005), trumping legal and ethical concerns (Rizvi, 2019).

4.4. CASE III: LDA and the Vision for the Ravi Riverfront

In August 2020, the LDA launched the Ravi Riverfront Urban Development Project (RRUDP) in the northern and western peripheries of the city. The RRUDP is a Rs. 5 trillion endeavor, projected to house eight million inhabitants stretching over 46 km and covering about 414 km^2 of land—almost the size of present-day Lahore's built-up area, estimated in 2016 to be 484 km^2 (Javed & Riaz, 2020). The 2015 drafts of the RRUDP Strategic Development Plan (SDP) and Feasibility Report envisaged the displacement of at least 69 villages and five settlements of Shahdara town (in the north of Lahore district). This would affect more than 16,126 households, constituted of 96,048 people out of the about 169,000 estimated population within the project area (Meinhardt, 2015a, 2015b). For that purpose, the SDP plans to mobilize the Land Acquisition Act 1894 in combination with provisions for resettlement derived from World Bank Policy. That this level of displacement is at all possible can be best understood by observing the burgeoning powers of the LDA, permitting the development authority to bypass local government structures. That the LDA pays little attention to local bodies and provincial planning institutions is partially inherited from its predecessor, the (colonial) Lahore Improvement Trust. However, these powers have expanded even further in the post-independence period. This picture is further complicated by recent developments. Whilst the LDA (Amendment) Act 2013 gives the LDA jurisdictional powers at divisional level (including four districts of which Lahore is only one), the federal government announced to promulgate an ordinance creating a new development authority, the Ravi Riverfront Development Authority. In addition, nowhere in the LDA's successful amendments to the Lahore Master Plan 2021—in 2013, 2015, and 2016—is there reference to the RRUDP (Alam, 2020), a fact which demonstrates the disconnect between the new project and the overall planning strategy for the city. Although officials have speculated about the possible establishment of the RRUDP for over a decade (interviews, October 29, 2015, and November 19, 2015), the sudden re-emergence and top-down activation of the project manifests a lack of concern for democratic participation. This was already the case back in 2015 when interviewed villagers expected to be affected by the then drafted RRUDP had no knowledge of the plans for such a radical restructuring of their lands (interviews, November 12–13, 2015).

The disconnect with reality is also illustrated in the Prime Minister of Pakistan Imran Khan's speech at the inauguration ceremony of the RRUDP on September 15, 2020 (Ary News, 2020). In the speech, he emphasized the grand scale of the "dream" and the focus on private (international) capital, while at the same time making passing reference to the necessity of a pro-poor housing approach. Under the "Naya (new) Pakistan" slogan, the Khan government proposes the RRUDP as a "new planned city," designed to address the needs of the more disadvantaged sections of society. However, beyond these references, there is little about the RRUDP that proposes it as an intervention for people at the social and economic margins. Besides the strongly voiced environmental and governance concerns about the project (Ahmed, 2020; Hasnain, 2020), in the drafted SDP there is no evidence of actual planning strategies or mechanisms enabling access to housing and services for low-income populations. The laissez-faire, market-led approach from planning institutions has only engendered speculative trends. Increasing the number of urbanizing plots and swelling the size of housing stock has so far not led to access improvements amidst the larger economic inequalities, where the wealthy have greater access to housing as a commodity rather than the poor having access to it as a service. Thus, whatever gestures are made in the SDP's blue-print approach—producing a planned city within an existing city and expecting that its quality advancements would spread into the 'defective' and 'unplanned' surroundings—are likely doomed to failure. Besides, the SDP's 'client's vision' of a 'world-class city' pursuing foreign models and imaginaries runs counter to context-appropriate urban planning.

The emergence of the RRUDP sets several de/reterritorialization processes in motion along the River Ravi. Access mechanisms such as the (rights-based) Land Acquisition Act 1894 and the World Bank's normative Resettlement Policy (a source of international legitimacy and authority) will reshape jurisdictional boundaries and social-spatial configuration of settlements. The launch of the project alone already constrains intra-community land transfers in areas designated for acquisition. Whereas in theory deterritorialization offers opportunities for negotiation and cooperation across previous boundaries, in practice, information asymmetries and barriers to participation territorialize the RRUDP by imposing visions and planning perspectives that are incompatible with the urban realities of contemporary Lahore. The RRUDP's top-down approach is mobilized along three main dimensions: the dominant role of the private sector, reliance on foreign investments, and the prominence of international development consultants. The latter factor exemplifies a practice that has been central to a decades-long modernization rationale that endorses the imposition of outside expertise on less developed parts of the world (Daechsel, 2018). International consultancies have often taken a defining role in planning and development projects in Pakistan, with the resultant failure in their interventions to acknowledge and address the complexity of local urban realities.

5. Discussion

While the RRUDP case refers to a newly launched urban development project that portends future dislocations of populations, the Bahria Town and DHA cases trace longer term contestations over peri-urban land and their evolution over time. The first case illustrated the operations of a powerful private development actor (Bahria Town) as it gained and controlled access to land for an exclusionary housing scheme. The second illustrated the expansion strategies of an ambiguous (neither public nor private) development authority under military control (DHA). In both cases, conflict and resistance preceded a gradual shift to negotiation or even cooperation as the dislocated villagers adapted to their new neighbors. In all three cases, claims to modernity, urbanity, and specific notions of development were mobilized to legitimize the displacement of pre-existing communities. In each of them, particular spatial arrangements and socio-political structures crystallized into unique access-assemblages. These access-assemblages were informed by a contrast of developmental rationalities and mechanisms of power as villagers and developers contended over the previously marginal territory. This friction and its underlying access mechanisms and bundles of powers have in turns led to processes of de/reterritorialization that determine the distribution of benefits from these massive investments in the peri-urban space. In the RRUDP case, the working out of these processes was illustrated at the level of planning, where the access-assemblage was dominated by path dependencies in governance and by deep entanglements with international development discourses, organizations, and (anticipated) flows of capital. In the cases of Bahria Town Lahore and the DHA, the scale of access-assemblages focused on the everyday practices of villagers and urban developers as they negotiated (to gain, control, or maintain) access to the contested territory and concomitant benefits.

Across the case studies, power relations crystallized as bundles of material and expressive sources of economic, social, cultural, and symbolic power. These mechanisms are the tools with which different actors shape their claims over land, housing, and services. The analysis of these power relations and access mechanisms illustrates: 1) how processes of de/re-territorialization leading to the configuration of the different access-assemblages are triggered; 2) the effect of these processes in shaping in and exclusionary planning (i.e., how they enabled/constrained the ability of residents in villages to benefit from urban resources); and 3) the potential of these mechanisms for producing alternative possibilities ('lines of flight').

Access-mapping highlights that de/reterritorializations processes take place as a result of the interplay between different access mechanisms. Legal and non-legal rights-based mechanisms were often interconnected. An example of this is the LDA and the DHA's use, under the premise of public purpose, of the Land Acquisition Act 1894 to undermine the property rights of pre-existing residents. As expressed in the vernacular *qazba*, and illustrated in the Bahria Town and DHA case studies, illegal access mechanisms encompass a wide range of strategies including force, violence, and coercion. Employed by developers and their agents, these mechanisms triggered processes of territorialization by sharpening boundaries and identities. By delimiting the territories under contention, the planning processes led by the army's housing authority and the private developer excluded local communities from potential benefits. In the case of the RRUDP, mechanisms founded in legal statute, such as the large jurisdictional area of LDA, allowed the planning institution's claims on land beyond the district boundary of Lahore and the limits heretofore marked by the River Ravi. This will trigger territorialization processes as the RRUDP delineates a new special planning area marked by defined borders, governed by its own regulations, and designed under its specific development rationalities.

Legal and non-legal rights-based mechanisms were mobilized in connection to structural or relational mechanisms. Access to technology, or particular forms of knowledge, surfaced in the case of villages threatened by DHA's expansion. Villagers mobilized the experience gained from past encroachments on rural territory to build strategies of resistance. Both against the DHA and Bahria Town Lahore, residents with a stronger affective attachment to the land territorialized/mobilized a sense

of belonging and identity that shaped collective struggle. Experience and knowledge were also a resource shaping negotiation strategies and informing villagers' capacity to stand up to extortionate measures. It was not that peri-urban residents at risk of displacement were naive about the inevitability of their dislocation; rather these mechanisms had a speculative logic aimed at territorializing/stabilizing the conflict situation in order to secure the highest possible compensation for displacement. Negotiations were also informed by structural mechanisms such as access to capital. Villagers possessing agricultural property in the village were aware of this title as constituting not only a (legal) right-based mechanism allowing access to the contested territory during the protracted negotiation period, but also as a source of capital and bargaining power.

Although popular experience would imply similar calculations and strategies in villages falling under the territory to be subsumed by the RRUDP, villagers' land title is already prejudiced, and the ability of villagers to access markets to trade their properties constrained. In a clear process of territorialization, the launch of the RRUDP halted land transfers in anticipation of future land acquisition and the state's desire to control the payment of compensations. Access to capital will remain however a challenge for the RRUDP developers. As the project will be structured on a public-private partnership, timelines to attract the required private sector benefits may be long enough to allow landholders continued access to the territory. In contrast, unencumbered access to own capital eased Bahria Town and the DHA's access to land, particularly when compensation levels could be controlled by access and connections to institutions of authority. It was this duality that allowed urban developers to dominate the field of negotiation in spite of the villagers' putative legal protections.

Although the analysis shows prevalence of territorialization processes and exclusionary patterns of planning practices, some *lines of flight* emerged. In contrast with the DHA case where the army was alleged to constrain the access to livelihoods of holdouts, the porosity of the boundary created by Bahria Town created an avenue for alternative forms of cooperation between urban developers, upper-middle class residents, and dislocated villagers. This permeable boundary represents a line of flight allowing residents of the absorbed villages to benefit from labor, capital, and relations introduced into their territory. More indirectly, it shapes desires and aspirations to development that destabilize the old socio-economic marginality and serve as basis for claim-making.

6. Conclusion

Drawing on three ethnographic cases, this article has surveyed the in- and exclusionary role of planning within rapid land transformations at Lahore's peri-urban fringe. To this end, it developed the notion of access-assemblages, a combination of assemblage-thinking approaches and access theory. The operationalization of this concept allowed the exploration of sites and situations of conflict and claims-making that emerged amidst the rapid urbanization of Lahore's periphery, as well as the underlying dynamics, mechanisms, and power relations influencing the ability of urban actors—in particular villagers—to benefit from urban resources (i.e., access to peri-urban land, housing, and services). This revealed not only the exclusionary effects of planning and development trends but also the underlying dynamics and unequal power relations that shape these tendencies.

The analysis showed how the interplay of access mechanisms and underlying bundles of power such as property, authority, force, identity, capital, and knowledge shaped relations between actors and institutions in differentiated access-assemblages. While access mechanisms were found to be similar between the cases, they were attuned differently, producing distinct modes of legitimacy, contestation, and cooperation. Some mechanisms created possibilities for (re)territorialization (the sharpening of spatial boundaries or identities), such as the physical barriers in the private housing scheme and army developed areas, or the future new jurisdiction for the RRUDP. Other mechanisms were identified as able to trigger deterritorializing processes through which access-assemblages were destabilized and rearranged, such as the public announcement of the RRUDP or the exchanges through the relatively porous boundary of Bahria's gated community. Only the latter were considered as potentially productive lines of flight, paths for deterritorialization capable of creating alternative paths to improve access and the living conditions of local populations. All in all, the analysis clearly showed the dominance of practices of exclusion in current planning and urban development in Lahore. These, it argued, tend to territorialize and fragment the urban governance framework, and congregate and segregate populations. This calls for a critical reflection on the in- and exclusionary role of planning. There is a pressing need to reevaluate the set of values that allow planning institutions to legitimize exclusionary visions to the detriment of the larger sections of society. Instead, the article promotes a move towards supporting planning ethics that recognize the affective connections of residents with their land, as well as their desires for and claims to development (de Vries, 2007). The acknowledgement of the rhizomatic nature of access-assemblages at Lahore's urban periphery—their inherent capacity to change and deterritorialize—calls for further research to identify access-mechanisms that can productively be mobilized to shape alternative paths and spaces of opportunity. This is based on the premise that change can be productive, that 'chaos'/deterritorialization—in Deleuze and Guattari's terms—can serve as "ground zero of desire and the base for creativity" (Buchanan, 2021, p. 14). Seeking planning structures and institutions that can accommodate change and uncertainty is urgent, particularly in con-

texts such as Lahore, where path dependent governance frameworks continually reproduce unequal patterns of socio-spatial organization.

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Conflict of Interests

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Article

Enclaving the City; New Models of Containing the Urban Populations: A Case Study of Cairo

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Abstract
This article builds on theoretical foundations from enclave urbanism, authoritarian planning and neoliberal urbanisation to explore contemporary socio-spatial transformation(s) happening in Cairo, Egypt. Relying on a nationwide road development project, inner-city neighbourhoods in Cairo are turning into urban enclaves, whereby populations are being separated by a multiplicity of transport-related infrastructure projects. As these rapid planning processes are occurring, our article aims to explain why these developments are crucial and unique in the context of the post-Arab Spring cities. We argue that the new road infrastructure is creating a spatially and socially fragmented city and transforming the urban citizenry into a controllable and navigable body. We use an inductive approach to investigate the effects of the new road infrastructure and its hegemonic outcomes on the city. On a conceptual level, we propose that the enclaving of the city is a containment method that has erupted since the mass mobilisations of the Arab Spring. In doing so, we use qualitative analysis to explain empirical evidence showing how the city is being transformed into nodes of enclaves, where communities are getting separated from one another via socio-spatial fault lines.

Keywords
Cairo; containment; fragmentation; mobilisation; road infrastructure; socio-spatial transformation; urban enclaves

Issue
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1. Introduction

Since 2011, Cairo has undergone multiple changes. The global economic situation has affected Cairo, like other cities, by causing further segregation on social, economic and spatial levels. The new Egypt that emerged post-2014 was the result of a forceful and intimidating reassertion of military power evident at every level. It could be noticed through the expansion of military services to include the selling of day-to-day products and dominating the urban development scene. The most common driver for such changes, based on literature and widespread observations, is a belief among the political elite that Egypt needs to reinvent itself to absorb the 2011 political and socioeconomic shock and to re-emerge as a new state, with a readjusted self-image to fit into regional and global contexts (Roll, 2014).

Cairo has long been an exhaustively studied city of the Middle East-North African region, yet its rapid changes continue to force researchers to reinvestigate and reassess its complexity. This article attempts to comprehend the logic of a city that has—seemingly—spiralled out of control (Sims, 2012) and has experienced continuous change since 2011. Yet, it is proving again to be indeed excessively controlled.

In 2011 and afterwards, we witnessed the re-emergence of citizen engagement and, to a certain extent, a sort of urban activism, using mainly the (right to the city) as an umbrella discourse to claim most of the restricted civil rights, focusing on the immediate

urban needs as a starting point. Such a development has meant that many of the middle-class citizens became engaged in one way or another in the revolutionary claims for bread, freedom and social justice of the 2011 Egyptian uprising, and moved beyond them in reshaping the public-private spheres (Rennick, 2013). This has posed a challenge to policymakers and power circles; whereby new segments of the population became engaged and politically mobilised and thus should be contained. Especially working-class citizenry was used to utilising hide-and-seek tactics with the previous regime. Also, there was a fairly large segment of society that had no stance towards much of the uprising and preferred to 'sit and watch,' which led to considerable ambiguity in predicting their behaviour. In conclusion, the contemporary Egyptian middle-class as a social group has posed puzzling characteristics to the current ruling regime. On many occasions, this large and heterogeneous group has remained latent and in other moments displayed volatility in post-revolutionary times (Abaza, 2014; Sallam, 2013).

The Cairo 2050 plan was intended to be implemented in 2008–2010, but the active engagement of citizens and urbanists since the revolution has led to the project's delay (Reeve, 2011). By 2014, the New Administrative Capital (NAC; see Elmouelhi, 2019) project became known to the public as the new national project for moving the capital to the east—i.e., into the desert (Figure 1). The NAC is the epitome of the current regime's mindset. It represents and embodies all the aspirations—and often the insecurities—of Egypt's new ruling elite. Between the NAC and the old neighbourhoods of Cairo, the urban contrast is too powerful to ignore. Where there is a city, there is its anti-city (Lindsey, 2017). According to some statistics, it is estimated that 60% of Cairo's existing built environment is considered informal or partially illegal development, i.e., only 40% is considered formal or fully licensed development (Tadamun, 2014). This leaves most Cairenes to struggle daily simply to move around in such a complex built environment.

In the past couple of years, some research has investigated the reasons behind and the potential effects of the construction of the NAC (Elmouelhi, 2019; Kingsley, 2015) as Cairo's main urban-planning endeavour—and the role of the ruling regime as the main stakeholder. Nonetheless, this article is concerned with the urban transformation of Heliopolis, one of the upper and middle-class neighbourhoods in East Cairo (Figure 2).

The neighbourhood of Heliopolis (Masr El Gedida, which translated from the Arabic means 'new Egypt') is a neighbourhood built in the 20th century by the Belgian Baron, Édouard Empain ("How Cairo's Heliopolis heritage managed to remain uncovered," 2021). Originally a middle-class suburb, it became the seat of the Egyptian Presidency in the 1970s as well as other important state bodies (Presidency, n.d.); the military academy and other armed forces facilities are also located there (Agence France-Presse, 2020). It is well known for its unique urban heritage, characterised by French-style avenues and Islamic-style buildings ("How Cairo's Heliopolis heritage managed to remain uncovered," 2021). In this article, we refer to old neighbourhoods of Cairo as city quarters that were developed in the late 19th and 20th centuries (Abu-Lughod & AlSayyad, 2020). Heliopolis and downtown Cairo have been part of the political centre since the 1980s. The Ittihadeya ('federal') Palace (Figure 3) had previously been an abandoned hotel—the Grand Heliopolis Hotel—designed by the Belgian architect Ernest Jaspar and opened in 1910 (interview with A. M., who wrote his master's thesis thoroughly on Heliopolis). In 1972, it became the headquarters of the Federation of Arab Republics, a loose political confederation that included, at that time, Egypt, Syria and Libya. Later, the palace became the Egyptian Presidential Headquarters after Mubarak became president in the 1980s (Presidency, n.d).

In that regard, the importance of Heliopolis arises from its heavy share of the political and urban history of the city (Zaineldine, 2020), including its colonial and post-colonial roots. This article describes and analyses

Figure 1. The NAC location. Source: Frearson (2015).

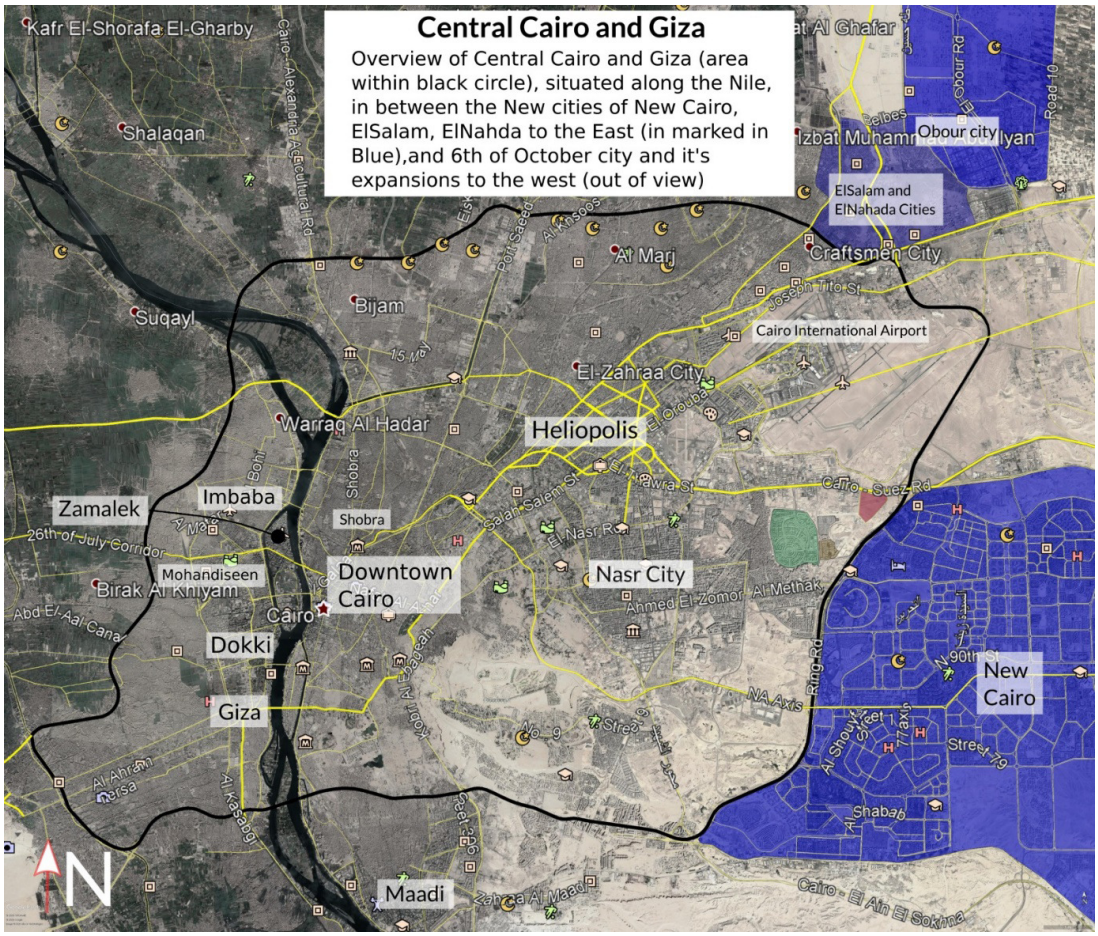

Figure 2. Central Cairo. Source: Map developed by M. W. ElKhateeb for this article based on Google Earth Pro based map.

the changes that have come about to the neighbourhood under the current regime. We focus on the processes of urban transformation especially in the formation of urban enclaves and their effects on the neighbourhood and eastern Cairo. This in turn led us to tackle the issues of socio-spatial fragmentation of the middle class(es) in that context. The rapid planning and execution of these new urban interventions have been a cause for suspicion and worry to planners and observers. Therefore, we embarked on this article in an attempt to explain and

Figure 3. The Ittihadeya Palace (Grand Heliopolis Hotel). Source: Presidency (n.d).

contextualise the regime's tools in containing urban populations post-2011 uprising.

2. Notes on Methodology

This research article was first conceptualised in the Spring of 2020; the writing started in Autumn 2020 and was completed in the Spring of 2021, in Cairo, Berlin and Freiburg. The fieldwork took place in Cairo and was very difficult and intensive, especially in terms of interrupted data collection (due to Covid-19 restrictions) as well as in keeping up with the rapid changes that consistently occurred in the case study area. That demanded finding a balance between being flexible but also consistent in approaching our case study. The choice of the case study was based on previous research phases and as part of our larger research interests, whereby we deliberately chose to look into the urban life of the (upper) middle-class neighbourhoods of Cairo. In this article, we refer to the 'middle class' as white-collar citizens with university-level education and professional jobs (Burris, 1986).

As for our positionality, we identify ourselves as middle-class researchers (male and female; see Burris, 1986), with Western education(s) and living between home and abroad (Throne, 2012, pp. 55–77). We look into issues of urban contestation as both inhabitants and researchers. Since we experience the city ourselves, we did not disconnect our observations from the empirical data sources on which we relied; instead, we combined them to produce an auto/ethnographic analysis (Qutoshi, 2015). As qualitative researchers, we used an inductive-grounded theory approach (Pulla, 2014), using primary and secondary resources to reach an answer to our hypothesis.

For the primary data, the methods used for data collection were comprised of an online survey, semi-structured interviews and ethnographic observation(s). The period of data collection was from July to November 2020, with some additions in February 2021. Earlier exploratory research such as informal interviews and observation had taken place in January 2020. The survey was administered between September and November 2020 using online tools (Google Forms) and was placed publicly on social media (Facebook), which yielded 32 respondents in total. This methodology has been repeatedly used by researchers with numerous positive and negative results (Lehdonvirta, Oksanen, Räsänen, & Blank, 2020). We chose this method due to its convenience in reaching out to respondents from the case study area, especially due to Covid-19 restrictions. We also used the data gathered as an indicative outcome about trends. We did not intend to use it as a quantitative instrument, but rather as a tool to give us direction about what the respondents were experiencing. We acknowledge that access to the internet is a limitation in the search for survey participants, which was further compounded by the Covid-19 shutdown of public life. That is why we used the virtual space as an alternative medium for gathering primary data. We followed and observed citizen interactions on social media pages discussing the changes happening to the different neighbourhoods of Cairo. This is considered an experimental method in social sciences, but has been particularly important for our case study since 'virtual urban contestation' has become one of the few alternatives for citizens' engagement in urban and political affairs in Cairo, especially after the 2014 closure of public life (Abaza, 2012; AlSayyad & Guvenc, 2015).

For the semi-structured interviews, we conducted seven key informant interviews, with a purposive sampling approach (Suri, 2011) to talk to some of the most knowledgeable persons for our chosen case study. In that regard, we spoke to three members who had previous or on-going institutional relationships (founders) with the Heliopolis Heritage Foundation, as well as two non-active members (professional urban photographers—in addition to their original professions), and two individuals who had lived in Heliopolis neighbourhood for a long time (one of them lived there for 40 years, from the 1960s to the 2010s). These interviews took place in January 2020 (with respondents T. S., K. A. and M. H.), in August 2020 (with respondent K. B.), in September 2020 (with respondent A. D.) and in January 2021 (with respondents A. M. and A. Z.) respectively.

For the secondary data, we conducted a literature review (including newspaper articles) relevant to the case study, from July 2019 to November 2020.

The data analysis relied on content analysis as we navigated through literature and complemented it with our findings from the survey, interviews, field observations and ethnographic work, to gain an in-depth understanding of the subject at hand (Baur, 2019; Qutoshi, 2015). A lot of the data was obtained from internet sources, specifically from social media outlets. Facebook pages had the largest share of content due to the predominance of pages that tackled local urban issues. The virtual nature of social media platforms allowed us to collect enormous amounts of data, which were later screened based on necessity, importance and relevance for the research. A sample of the observed pages include the Facebook pages for the "Heliopolis Heritage Initiative," the "Heliopolis Chronicles," the "Heliopolisawy Citizen," the "We Grew Up in Heliopolis Public Group," the "Heliopolis Citizens Complaints' Group," "WhatsUp in Heliopolis and Nasr City," among others. Also, there were groups based on mobile phone applications, for example, a WhatsApp group for Heliopolis residents' complaints and a similar one on Telegram.

The key limitation of this research was the spread of Covid-19 globally, especially in the EU, where both researchers are based, as well as in Egypt where the case study is situated. That added challenges and limitations to the research in terms of field data collection and ease of access to interviewees. In addition, issues of security arose during fieldwork, whereby our research team had

to be extra careful during field observation and photography due to the heightened security in the neighbourhood of Heliopolis.

In terms of research ethics and confidentiality, the online survey had a statement on the purpose of the research and was left for voluntary participation (on the condition of being a resident of the neighbourhood). For the key informant interviews, all participants gave verbal consent to mentioning their names openly in the research; however, we chose to keep them anonymised and only refer to their initials, for extra vigilance. For social media sources, all personal information was anonymised.

3. Research Framework

The research framework relied on readings on authoritarian urbanism (Luger, 2016), neoliberal urbanism (Abaza, 2020; Adham, 2005; Daher, 2013; Harvey, 2005), urban enclaves and segregation (Caldeira, 1996; Calvet, 2016; Roitman, 2010) and global urbanism (Robinson & Roy, 2016) to frame the socio-spatial transformation occurring in the chosen case study. We also explored some literature on military urbanism (Abaza, 2020; Flahive, 2018), urban politics (Saunders, 1986), and Southern urbanism (Bhan, 2019). Through the literature review, we formulated the key hypothesis for this article, asking how the process of creating inner-city urban enclaves could be considered as an approach to contain post-revolutionary cities and to diffuse any potential public mobilisation (Abaza, 2014). This led us to review more literature on 'urban diffusion' as proposed by Adham (2014), to understand from where the urban visions of Cairo have emerged in the past decade, as well as to explore the literature on urban enclaves and road infrastructure as forms of political control. The process of forming enclaves within the inner city (through the construction of roads, fences, bridges, other types of physical barriers, etc.) and at the outer city (as gated communities and high-end exclusive compounds in suburbia) suggest that these developments are models of containing the Cairene population, especially the upper and middle class(es). Hence, it is evident that there is a deliberate effort to segregate, fragment and control the city and its urban population(s).

The discourse of Egypt's post-revolution ruling elite strongly emphasises transforming Cairo into a Global City (Adham, 2005; Robinson & Roy, 2016). Global Cities are the primary neoliberal centres of economic transactions, and competitiveness lies at their core, and thus expanding urban services and logistics is one of their dominant characteristics. However, the notion of Global Cities has been criticised for homogenising cultures, commercialising the urban, and overlooking the human as a scale for development (Lefebvre, Elden, & Brenner, 2009). Egypt's ruling elite, nonetheless, have adopted a belief after the revolution (or even shortly before) that the country has fallen behind in terms of global competitiveness and should therefore come back and place itself at the forefront of the Arab and African nations as a regional key player. In policy circles, those beliefs were translated into the infamous plan of Cairo 2050 (or Cairo 2052, as it was delayed by two years in 2010, due to the uprising; see Flahive, 2018), as shown in Figure 4. The 2050 plan proposed a radical makeover for the city and stressed the widening of the roads and creating Champs-Elyseés-inspired boulevards as part of a vision that aims to spatially reorganise the ailing capital to become more appealing to a global clientele (Reeve, 2011). As Adham explains, such a vision has erupted from a long process of exporting a Gulf urban model to Egypt, both culturally and politically.

This comes, of course, at the expense of the citizenry, as became evident in several forced evictions in several cases in downtown Cairo, intending to recapture land value by instrumentalising the rhetoric of informality as well as by dislocating the poor from the central parts of the city (Adham, 2014). Therefore, the

Figure 4. Cairo as a Global City. Source: General Organisation of Physical Planning and Ministry of Housing (2010).

widening of streets is not a new endeavour for Egyptian policymakers—it is part of a larger vision of "transforming the old city into one big flyover heading towards the new administrative capital" (as stated by A. Z. in an interview). This comes in parallel to transportation policies that favour motorised-private vehicle ownership versus shared and greener options for transport (El-Dorghamy, Allam, Al-Abyad, & Gasnier, 2015; Reeve, 2011).

4. Producing Urban Enclaves

Enclaves are more than fences. As an urban construct, enclaves are designed to control yet also give a sense of privilege to their direct subjects. This separation is complemented by emphasising the spatial and aesthetic features of each area concerning other adjacent areas. Gated communities thrive on social homogeneity, high-end amenities, a common aesthetic reference, and a strong legal code to protect all of these (Atkinson & Ho, 2019). This mode of production of socio-political space (Elden, 2007; Löw & Goodwin, 2016) is uniquely designed to ensure that (upper) middle-class populations are spatially disconnected and made suspicious about the 'unfamiliar city,' and so remain controlled in some way. As this disconnection happens, their positionality within the city changes and the new spatial order dictates which parts of the city are to be included in their navigation; only those deemed as both safe and socially appealing. From the works of Caldeira (1996), we notice that there is an emphasis on the notion of (a self-contained world) in the formation of the enclaves, which refers to the ability of the enclave residents to isolate themselves from the public life outside the fences of their condominium (Perry, 2000).

In other words, urban enclaves (and gated communities) have a clear distinction between the exclusive (safe) space and the shared (unsafe) space. Also, they are mostly occupied by the more affluent segments of the population. They cater to the exclusivist needs of the elite (Hashemi, 2019; Nielsen, Sumich, & Bertelsen, 2020; Sumich, 2016). Needless to say, this resonates well with the economic interests of the ever-growing real estate industry. Such a phenomenon is not new to the world; these enclaves have been shaped and reshaped to offer new neoliberal urban spaces (Adham, 2005; Daher, 2013; Harvey, 2005) as the grasp of capital tightens. This is described by Calvet (2016, p. 5) as:

> Urban enclaves—private and gated developments for elitist groups—are a worldwide-spread mode of colonisation of the peri-urban and countryside of metropolitan areas, in a context of cities under capitalist globalisation and urban neo-liberalisation.

These notions brought us to sub-questions that built on our initial reading to the production of urban enclaves in the Egyptian context. Firstly, how do we understand the relation between enclaving, security and aesthetics? Secondly, how does segregation ensure the overall containment of a city?

Against this theoretical backdrop, the next part presents the analysis from our fieldwork, where we tackled the execution of the new urban interventions in the neighbourhoods of East Cairo, particularly in Heliopolis. We investigated the process and the consequences of the development of new (wider) roads, the construction of a series of flyovers (bridges) and the sizable reduction of sidewalks and green spaces. We also looked into the new vacant spaces and how inner-city enclaves have been produced.

4.1. Material Constructions/Obstructions and Spatial Grievances

We conceive of the inner-city neighbourhoods as *enclaves*, only after they are transformed as a product of the new road and transport infrastructure intervention. In this regard, we define them as areas of the old city neighbourhoods that have long existed yet became transformed into segments of spaces that have sharp edges further dissected by roads and traffic corridors to separate their boundaries. Their boundaries appear to be ambiguous, producing a space that is uncontentious. By uncontentious, we mean a space that has no clear ownership (No-Man's Land). For example, ambiguous spaces are found underneath a bridge, or along a concrete wall, or on a highway (Figure 5). Enclaves, then, are constructed by a deliberate effort to draw fault lines between suburbs and neighbourhoods, with clear buffer zones of roads, bridges, vacant spaces and fences (Hashemi, 2019; Nielsen et al., 2020; Wang & He, 2019).

As we gathered evidence from our empirical work, we observed an astonishing decline in the aesthetic quality in the Heliopolis neighbourhood. From the interviews, survey and social media observations, one strong recurrent statement was that the neighbourhood was in a state of decay despite the new street upgrades. Namely, the quantity and quality of green spaces had shrunk, the quality of sidewalks had become very poor, the pedestrian space (and safety) had been sharply reduced, in addition to the disturbing visual experience of all the bridges that cut through the neighbourhood; in our interviews with A. M., T. S., A. D. and K. B they all pointed out the declining quality of life in the neighbourhood due to the new street interventions). Based on that, we concluded that enclaves in the form of gated communities have displayed better aesthetics and safety due to the presence of designated security and seclusion (self-contained worlds). However, enclaves as a by-product of road infrastructure did not display the same characteristics. On the contrary, they suffered from a worsened aesthetic value and decreased security due to the creation of ambiguous spaces (under bridges, non-lightened segments of streets, poor sidewalks and decreased community presence/ownership).

Figure 5. Tahya Masr ("Long Live Egypt"), a national slogan under a newly constructed bridge. Source: Safa Ashoub.

When we drove through the eastern neighbourhoods of Cairo, we noticed that the widening of roads and the construction of several flyovers in the neighbourhood taking place rapidly and without any prior announcements. Later, the survey respondents and interviews confirmed these observations. The reason was that in August 2018, several national transport-related projects were put in place and implemented rapidly (Al-Youm, 2018). Almost all of these projects were introduced suddenly, without any prior public information or engagement with the inhabitants. Afterwards, President El-Sisi declared that Heliopolis had to undergo important changes to become a transit corridor from and to the NAC ("Sisi inspects road, bridge constructions in Heliopolis," 2019), as shown in Figure 6.

As these projects ran, during the construction works, the neighbourhood had already begun to experience the enclaving. For example, in the sub-district of Almaza, the residents had had no easy entry to or exit from their neighbourhood during the construction of a bridge

Figure 6. "Roads, axes and bridges…what is happening in Masr Al Gedida? Al-Masry Al-Youm newspaper covering the new roads, interchanges and bridges' construction in Heliopolis." Source: AlMasry AlYoum (2019).

(Sidhom, 2019a). At that stage, many urbanists, journalists, and community activists voiced their concerns. We followed the social media pages of the neighbourhood and we recorded the following grievances. First was the issue of neglecting to inform the public, let alone opening a channel for participation; second, failing to plan alternative routes for traffic during the interventions; third, tree felling and the corresponding loss of distinctive greenery of Heliopolis (Agence France-Presse, 2020; Mounir, 2019) as well as elsewhere around the city as we observed later; fourth, the unconcealed disregard for community harmony and the destruction of the historic urban fabric, including irreplaceable villas and houses (Sidhom, 2019b); fifth, and most critically, the adverse effects that such interventions have produced in terms of road safety and reduced pedestrianism (Almoghazy, 2020; Shawkat, 2020). All these issues contributed to the loss of the quality of life in Heliopolis (nearly all respondents of the survey emphasised how the newly built roads were blatantly non-pedestrian-friendly and how that negatively impacted the quality of life of the neighbourhood as a result of such interventions). Consequently, we concluded that such infrastructure development was not meant to improve the lives of the citizens of the neighbourhood but rather to facilitate the movement to the new cities in the first place.

4.2. New Roads and the Enclosure of the City

As the current regime is planning to relocate the seat of government to the NAC (Figure 7), Heliopolis has become the centre and a symbol of the on-going policy of violent transformation.

While there might not be a publicly available document stating these intentions, the actions taken by the Egyptian government demonstrate that there is an on-going policy to readjust public transport projects that were originally destined to serve the residents of Cairo, especially the residents of, and commuters heading to, Heliopolis. Two stark examples of such a policy are the decimation of Heliopolis' trams and the cancellation of the Masaken Sheraton/Cairo Airport metro link.

4.2.1. 'De-tramming' Heliopolis

Trams were introduced to Cairo in the late 19th century as the city expanded beyond its walkable limits (Chalcraft, 2004; Gouda, 2015). They revolutionised travel all across Cairo and brought life and economic benefits to all the neighbourhoods that were within the trams' service area or nearby (Chalcraft, 2004).

Heliopolis, however, stood to benefit the most from the tram network (M. Farid & Abdelhady, 2018; Gouda,

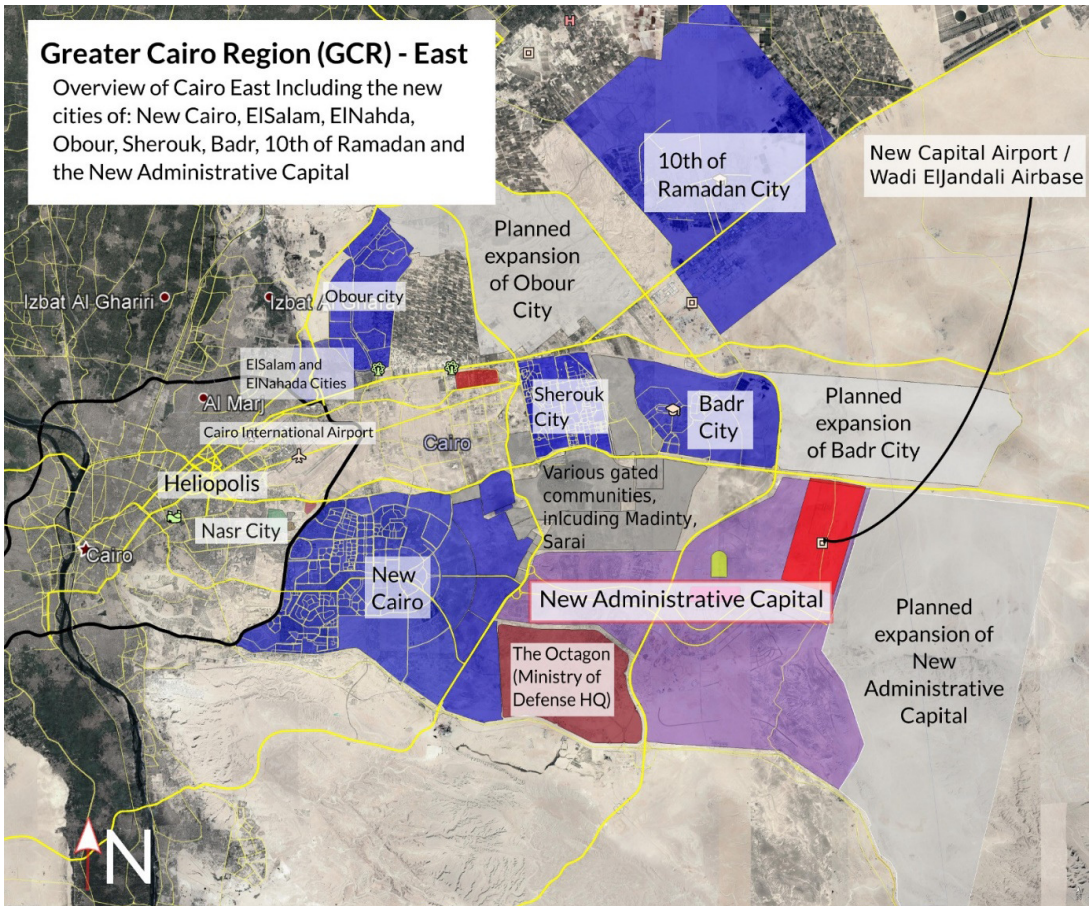

Figure 7. The eastern outskirts of the Greater Cairo metropolitan area with new desert cities. Map developed by M. W. ElKhateeb for this article based on Google Earth Pro based map.

2015), since it used to be—when the first trams were inaugurated—the most remote part of town. Trams eventually became synonymous with Heliopolis and became an icon of local heritage and part of the neighbourhood (Gouda, 2015). Indeed, almost every other area in Cairo had the tramlines and trolleybuses removed by the Cairo Governorate starting in the 1980s (Bahgat et al., 1999), in favour of expanding roadways and giving priority to private cars (Mitric, 1994) and sometimes in favour of the underground metro (Bahgat et al., 1999). This era also witnessed the construction of major inner-urban highways such as the 6th of October Bridge and other road expansions (Mitric, 1994). Nevertheless, the Heliopolis trams were spared in the first wave of tram removals in Cairo, and despite the service's reduced reach and deteriorating service, trams remained a popular mode of transport and a cultural icon of Heliopolis (Gouda, 2015; Huzayyin & Salem, 2013).

The most recent attempts to dismantle the remaining trams in Heliopolis surfaced during Galal El-Said's reign as the Governor of Cairo in mid-2014 (Cairo Governorate, 2020). However, when the Cairo Governorate announced that they intended to remove some of the tram tracks and to expand roadways in Heliopolis, the backlash was immediate and strong (Gouda, 2015; Salamah, 2014). Unlike the rest of Cairo, the residents of Heliopolis organised and formed local neighbourhood committees to try to prevent the trams from being dismantled (Heliopolis Heritage Initiative, 2017; Keshk, 2012). This was confirmed in an interview with A. M., who mentioned that saving the tram was one of the cornerstones of the Heliopolis Heritage Initiative's work as a grassroots entity. One of the few prominent local associations in the neighbourhood, the Heliopolis Heritage Initiative team, organised tours and other cultural activities to keep the trams alive and to raise awareness regarding the attempts to dismantle the remaining trams in Heliopolis (Ezzat, 2020; Gouda, 2015; Keshk, 2012).

By then, the Ministry of Transport had managed to secure funding from European Institutions to invest in and upgrade the existing tram network in Heliopolis (Barrow, 2016; Heliopolis Heritage Initiative, 2017). However, a few months later, the Governor of Cairo, El-Said, ordered the removal of an important intersection of tram tracks at Mahkama Square (Atef, 2015; ElTarawy, 2015; Felfel, 2016; Hamid, 2015) and the lone tramline connecting Heliopolis to Central Cairo (ElSharkawy, 2016; Gamal, 2016), effectively kneecapping the remaining tram network in Heliopolis and rendering it unusable (Hamid, 2015). El-Said was later selected to become the Minister of Transport, whereupon he almost immediately shelved the tram upgrade and renewal projects based on their 'high cost' (Ramzy, 2015), even though funding had been secured already and that Memorandum of Understanding had already been signed with European funding institutions (Barrow, 2016). Despite the new grim situation and the screeching halt of the tram upgrade project, some hope had remained that a future governor or minister of transport might restore the project and save the remaining trams of Heliopolis. However, all hopes were dashed when the remaining tram tracks were removed by the national and local governments (Figure 8) in a joint project to expand almost all of the major Heliopolis boulevards into urban highways (Almawkef AlMasry, 2020; M. Farid & Abdelhady, 2018).

Figure 8. The complete removal of trams. Source: EJOLT (2019).

When the residents of Heliopolis forcefully objected to the new project and the tram removal, the government scrambled to organise a community-stakeholder discussion after the fact and tried to convince the residents of the project and its benefit (M. Farid & Abdelhady, 2018). In addition, the Ministry of Environment engaged in the *Et-Hadar Lel-Akhdar* project ("Get Civilised/Ready for the Greenery"; see ElMiraghy, 2020), calling on people to plant trees and save the environment, ironically at the same time that the government was actively removing all of the green boulevards and trees from the heart of Heliopolis (F. Farid & Harabech, 2020), as shown in Figure 9.

4.2.2. The Heliopolis Metro Station Demoted

The cancellation of the Cairo Airport Metro link, and how it was (gradually) cancelled, signalled the dwindling importance of Heliopolis, with the capital being physically relocated outside the reach of the masses. Previously, Heliopolis Square metro station was meant to serve as a 'central' metro station in East Cairo. Based on this plan, the National Authority for Tunnels built extra facilities and invested in extensive infrastructure to accommodate the expected passenger volumes

descending on the Heliopolis Square metro station (Ragheb, 2020). However, in 2019, shortly after Kamel El-Wazir became the transport minister, the government announced that the Heliopolis-Cairo Airport metro link plan would be revisited and that it would possibly revert to the original plan, drafted by the Japan International Cooperation Agency (2002), diverting the airport metro link to go along the (southern) Adly Mansour branch and cancelling construction of the North Heliopolis/Masaken Sheraton route (Habashi, 2019). Then, a few months later and with minimal press coverage, El-Wazir announced that the extension of Line 3 to the airport would not take place and instead a Bus Rapid Transit route—including a 'shuttle bus' tunnel (Hussein, 2020) connecting to the airport—would be 'built' instead (Hassanen, 2020).

The cancellation of the Cairo Airport/Masaken Sheraton metro link has adversely impacted the residents of the northeast of Heliopolis and Masaken Sheraton, who no longer have any tram service (since the last remaining routes were removed) and the only remaining reliable, frequent and popular mode of public transport has been cancelled. That, in effect, has walled off the residents of Heliopolis and Masaken Sheraton into isolated enclaves surrounded by impassable urban highways, allowing only the better-off residents who own private vehicles to safely navigate out of their neighbourhood—a provocative situation, especially since only 11% of households in Greater Cairo own a private vehicle (El-Dorghamy et al., 2015).

Meanwhile, the Ministry of Transport has embarked on two new monorail projects: (1) the east route, starting from Cairo Stadium metro station in Nasr City, passing through New Cairo, and terminating at the NAC, and (2) the other route starting at Giza/Cairo University (on Line 3) and continuing west to 6th of October City (Figure 10). Transport officials ("Egypt to import coaches for Cairo Monorail project," 2020) were blunt about the monorail plans serving as a transit route connecting 6th of October City with the NAC via Line 3, meaning that the metro will now not only serve the residents of Cairo but also carry the mass of commuters travelling from 6th of October City to the NAC, adding burden to the already crowded metro system.

One just needs to look closely at a map of the newly built bridges and enormously widened (and rerouted) roads to notice that the former leafy boulevards that were a landmark of Heliopolis have been transformed into inner urban highways cutting through Heliopolis to allow increased vehicular traffic driving through the neighbourhood. Heliopolis' streets have been transformed into a massive highway interchange, connecting the Rod El-Farag Axis (a partly elevated highway connecting to 6th of October City, towards the west), Suez road (which directly leads to the NAC), and Ismailia road (which leads to the new cities and suburbs adjacent to the NAC, in the east).

Yet, paving the way to the New Capital is not the only explanation for such urban aggression. We also

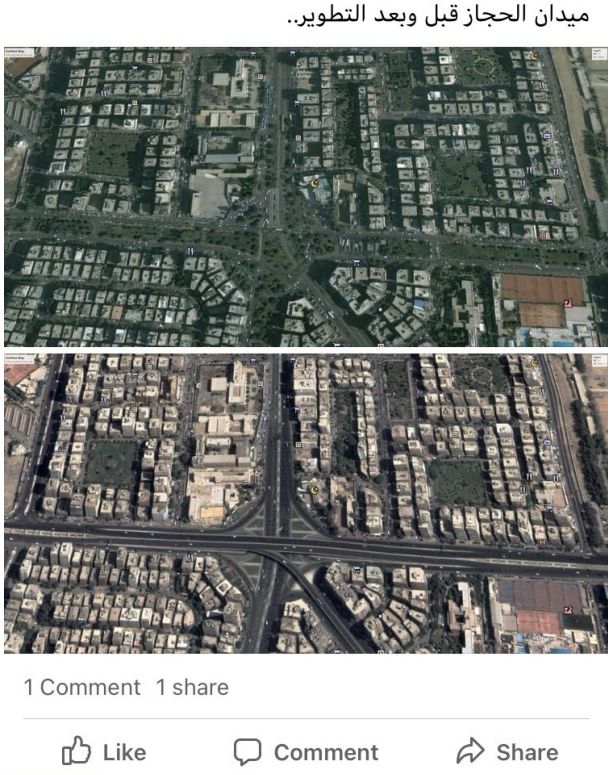

Figure 9. Al Hegaz Square before and after upgrading. Source: Hanna (2021).

Figure 10. Monorail construction in New Cairo district. Note: Date: January 2021. Source: Safa Ashoub.

observed deeper discussions over social media regarding an assumption that these unfavourable changes to the neighbourhood are meant to push residents away into potential new housing developments in the desert cities around the New Capital, as numerous Facebook posts of citizens pages stated. Even though we are careful about generating conclusions based on these statements, it seems that there is some truth to this one. Based on other interviews with the Heliopolis Heritage Initiative members, they all affirmed such juxtaposition. As such, we perceived the process of enclaving as dual in nature: one enclaving that occurs within the inner city and another in the gated communities of the desert cities. Both contribute to the overall reorganisation of the urban middle classes away from the centre and towards the periphery—and if they must remain, they should be strictly controlled within solid infrastructural barriers.

When one considers all the different examples discussed in this section, a link emerges between the political desire to create seamless urban highways that mainly aim to keep the flow of vehicular traffic unhindered, and the desire to quash any form of density or movement of the masses within the city. By decimating current public transport and limiting the prospects of such networks within neighbourhoods such as Heliopolis, and at the same time encouraging more individualised modes of transport (that only a well-off minority of Egyptians can afford), it becomes clear that these new highways become a 'wall of roads' that restrain and enclave the dense neighbourhoods of the city, making it even harder for pedestrians and public transit users to navigate the city; in turn, exacerbating the social fragmentation of the masses.

5. Shifting Urban Centres; Disempowering Populations

When we talk about Cairo, we know that social and spatial segregation are nothing new to the city (Adham, 2005; Caldeira, 1996), but perhaps they are currently assuming new forms. This is especially true when we observe the impacts of moving power to the periphery, as the NAC becomes the centre of official political activity in Cairo (Elmouelhi, 2019). This cannot happen without the purposeful action of fragmenting the socio-spatial cohesion and creating rifts along the social, economic, and physical lines. The constraining of political freedoms and civil society becomes rooted in an urban order that reinforces a state of dissociation among its citizens, this observation was reiterated several times in the interviews (with K. B., A. M., M. H. and T. S.). In addition to the creation of a state of ambiguity, where no one knows or sees what is happening outside of policy circles. Eventually, this leads to the decline of the public sphere available for civil society's activities (Hasso, 2015; Zayani, 2012). It also leads to undermining the presence of an effective opposition, as collective action becomes grounds for suspicion, and the potential for conflict among different social segments is exacerbated due to the dissociative nature of the newly forged urban fabric (Hashemi, 2019).

This process of enclaving, we believe, is a new model for containing the city of Cairo and its (upper) middle-class residents, whereby the outcome is a city that is systematically dissected to create dissociation amongst the urban populations. Why the (upper) middle classes? Because they simply cannot be predicted or trusted, they can also mobilise resources, and they are well-educated with several accessibility privileges (Burris, 1986). During the 2011 uprising, a lot of the protests and sit-ins were staged by middle-class activists, even though they did not suffer political oppression like other groups (leftists or the Muslim Brotherhood, for example), nor did they struggle with their daily living (such as working-class citizens living in informal settlements or the old deteriorated core) (Sallam, 2013). However, another segment of the same class(es) stayed at home and watched the revolution from their living rooms. That brings us to the belief that targeting upper and middle classes is a post-Arab-Spring tactic for control and containment. Each segment is dealt with using appropriate measures—a multiplicity of carrot-and-stick tricks to contain this wide and heterogeneous body of citizenry.

After the failure of the previous generations of New Cities (such as Sadat City, 10th of Ramadan) to achieve their target population goals (and to diffuse the urban agglomeration as well), it seems that the plan now is to disperse the rich among newly built, exclusive, gated communities within the new desert cities (Bufano, 2017; Sims, 2018). This urban diffusion (Adham, 2014) is designed to make such changes permanent, reducing the chances that the newly formed urban trends could be slowed down or reversed in the future, ultimately making the interconnectedness and permeability of city neighbourhoods significantly less attainable. In that sense, we are faced with two bulky urban forms, one that is enclaved within the boundaries of the old city, and another that is fenced across the desert cities within predetermined parameters. The seizure of the old city is completed via the development of wider and faster roads, flyovers, banners, billboards and concrete walls around certain potentially contentious spaces, sometimes even arbitrarily. All types of physical barriers are employed to reduce interconnectedness, permeability, and mobility. Segregation is complete when there is no longer a strong sense of community as what we gathered from the Heliopolis case.

In short, there are three particular intertwined aspects of the enclaving process that we would like to explicitly mention here: (1) the process of enclaving as a political tool for control, (2) the explicit targeting of (upper) middle-class citizens—either through diffusion into new desert cities or through by walling them off and surrounding them with barricaded spaces—and finally (3) the issue of expanding streets to appear as a form of infrastructure upgrading when in reality it is a measure to ensure the state's domination over territory.

6. Conclusion

This article is an attempt to conceptualise urban enclaving as a process that is systematically woven to produce a new spatial reality. In our view, enclaving is not only the creation of gated communities and the like; it is rather a process of controlling the current built environment through the establishment of roads, highways, bridges and other types of physical infrastructure that obstruct access and mobility, or otherwise limit and control the free movement or assembly of citizens. These inner-city enclaves also perpetuate the belief that living in a securitised environment is better and safer, especially as private real estate developers promote distant gated communities out in the desert for the wealthy.

This spatial and socio-economic contextual analysis is the result of investigating the nature and the processes that have produced the current city, with the orchestration of urban and the political agendas of the post Arab Spring, ruling regime. In answering our hypothesis, we have concluded that the new road infrastructure is part of a larger scheme that seeks to dissolve the old city using socio-spatial segregation tools, with the ultimate objective of controlling and developing the inner and outer city zones as politically uncontentious spaces. This happens as rapid planning processes that justify its actions with the need to upgrade and achieve an improved urban environment.

Since Cairo was the capital of the Arab Spring and has been the locus for collective mobilisations, we stipulate that the magnitude of the city and its intricacies have posed a major challenge to urban planners and politicians. One bi-product of the revolution was a counter-revolution that instrumentalised the discourse of development to deploy state-monopolised violence in the urban space. As a result, this unprecedented urban aggression means that populations will have to succumb to a new socio-spatial-political order—an order that sees itself beyond questioning or legitimisation.

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Conflict of Interests

The authors declare no conflict of interests.

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Commentary

Lessons Learned from 55 (or More) Years of Professional Experience in Urban Planning and Development

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Abstract
Reflecting on the many debates over the years on changing urbanization processes, on the towns and cities of yesterday, today, and tomorrow, the main challenge will be listening to lessons of wisdom from the past and adapting these to our future professional work. When Chief Seattle said that the Earth does not belong to us, we belong to the Earth, he called for more humility and respect so as to plan for the needs of today and tomorrow, and not for the greed of a few. The doomsday scenarios of overpopulation only make sense if we continue to exploit our planet the way we do today, as if we have an infinite reservoir of resources. Already back in the 1960s, Barbara Ward, John F. C. Turner, and particularly Kenneth Boulding taught me to rethink our whole perception of Spaceship Earth. I have seen many towns and cities grow as if resources were limitless; I myself have seen and worked on efforts to focus on spatial quality, respecting nature whenever possible for a growing number of people, recognizing resources as being precious and scarce, and yet guaranteeing equitable access to a good quality of urban life. Such objectives are not evident, when models in education, schools of thought, professional planners, and greedy developers are often geared towards the contrary: the higher the skyscrapers, the better; the more egotripping by architects, the more the rich like it; the more people are stimulated to consume, the better the world will be. Such narrow visions will no longer help. At several global urban planning and developments events (1976, 1992, 1996, 2016, etc.), new ideas and agendas have been put forward. Whether the present Covid-19 crisis may induce a more rapid change in vision and practice is still too early to confirm, but luckily, several towns and cities, and a few visionary planners and decision makers are showing some promising examples.

Keywords
human settlements; international cooperation; lessons learned; planning and design; sustainability; transdisciplinarity

Issue
This commentary is part of the issue “Planning for Rapid Change in Cities” edited by Karina Landman (University of Pretoria, South Africa).

Considering the changing nature of international cooperation, reflecting on the lessons learned over 55 years of professional engagement in architecture, design, and spatial planning of the built environment (often named ‘human settlements’), might be a good point of departure for further discussions on the topic of urban change. We will summarize the lessons learned in ten brief ‘what to do’ statements, each one illustrated with practical examples.

1. Our Background Is Our Wealth and Our Limitation

Knowing your own context is an essential precondition to be able to meaningfully and professionally communicate with others. Such background is formed over the span of several years, from childhood to adulthood, through family, friends, school, education, higher learning, travel, volunteer work, practical experience in design, construction, and built and un-built environmental planning work. Knowing your own context not only strengthens your perception of how we do things in our own context, but also how we can start to exchange experience with others in other contexts.

I was very fortunate to have had parents who let me explore, from a very early age, the city of Brussels where I was born as well as its outlying areas. I remember cycling perfectly safely at the age of six, on the broad tree-lined boulevards with designated cycling

paths (destroyed in the 1960s, now re-planned). I visited the Brussels World Exhibit EXPO 58 frequently when I was only 15 years old and already by then having been inspired by the architectural innovations of the time. Subsequently I studied architecture and further specialized in urban design in Norway, in urban planning in Seattle, WA, and Berkeley, CA, and in environmental planning and policies in Boulder, CO. I did stints of practice and apprenticeship on construction sites and was involved in master planning in Belgium, Norway, and the US. Later, I worked on urban design and planning projects in the Middle East and internationally before joining the University of Leuven. And even while there, I continued to work in practice and to undertake a lot of fieldwork. Without this practice, both here and internationally, I would not have been able to keep one foot rooted in the practice of planning programs and projects, and one foot rooted in research, capacity building, and international cooperation.

It is important is to immerse oneself either locally or internationally in contexts where other values, religions, languages, and traditions are practiced. One should force oneself to go beyond one's own comfort zone, leave the cocoon of your own people/social class, and reach out to others, to the unknown.

2. Learn from the Best Mentors

Furthermore, it is clear that having inspiring mentors is vital. I have had the privilege to have internationally renowned inspirational mentors, all of whom—except the first one—I worked with or talked to personally (Chief Seattle, Christopher Alexander [see Alexander, 1979], Kennett Boulding [see Boulding, 1966], John F. C. Turner [see Turner, 1976], Paolo Soleri, Sumeth Jumsai [see Jumsai, 1988], Ivan Illich, Sulak Sivaraksa [see Sivaraksa, 2010], Balkrishna Doshi, Hassan Fathy [see Fathy, 1976], Amos Rapoport [see Rapoport, 1969], Arif Hasan [see Hasan, 2017], Elijah Agevi, Alvar Alto, John Friedmann, Ian McHarg, Bernardo Secchi, and Paola Vigano, to name just a few). Several of them came from a variety of disciplines: They were architects, planners, activists, philosophers, anthropologists, landscape urbanists, etc.

Mentors are essential to open up new ways of thinking and doing, to give you the freedom to experiment, and above all to share their unconditional wisdom, both as a person and a professional. Mentors are not there to be imitated; in fact, good mentors would always say: "Do not just do what I say or do, but explore new paths." This is important because particularly architecture and urban design is far too often an imitation of what so called 'star' architects and designers are doing. Copying from fashionable architectural magazines is the least creative process. In a rapidly globalizing world this is far too often done and only weakens the possibility to learn from other different local contexts and practices. Many schools of architecture and planning in the South unfortunately often had copy paste programs from the North and thereby taught very little their own context and culture to their people. Although this is now gradually changing, evidently this has been a difficult basis to further understanding of local contexts. The 'Rem Koolhaases' of this world, for example, should be critically assessed. We do not want to hail ego-trippers in architecture and urban design who pretend their architecture is 'universal.'

In addition, we have to learn over time. Awareness of sustainability requirements is now greater, and also much more urgent. Many Modernist and Post-Modernist architects have yet to come to that awareness and should more humbly learn from tradition, more modestly work on a sustainable future rather than always want to be the unique stars. The slogan 'the higher the better' is a poor motivator for sustainable spatial qualities. Long-term perspectives are always necessary.

Will the 'Dubais' of this world survive or are they the ruins of tomorrow? In Dar Es Salaam, a few years ago, I was shown around a recently built high-rise building, totally inappropriately located within the urban fabric, not enhancing existing street patterns, no public space or green area around it, obscuring the harbor view for the passersby, with just a few gimmicks of colors and architectural details to make it look original—a futile and costly exercise.

The field of spatial planning is wider than architecture, but it is also often more theoretical and more recently developed. Patrick Geddes laid some of the foundation of modern planning theories and practices. Of course, throughout history there have always been urban planners. The cities of Ur, Babylon, Rome, Paris, Beijing, Great-Zimbabwe, and Cairo, for instance, had all been planned, even though with differing planning concepts.

In the more recent post-war period, Doxiadis and the Ekistics School were quite innovative for their times. They incorporated several disciplines in their 'Science of Ekistics,' dealt with a wide range of scale levels, and applied this all into many Master Plans in a number of countries.

Countries like the Netherlands had already had their first "Spatial Planning Note" from the early 1960s and have continued with revised notes regularly. Many countries in the world have continued with spatial planning efforts, although National Spatial plans are fewer than the manifold local spatial development plans.

Unfortunately, most spatial plans prepared by professionals only confirmed their subjugation to the neo-liberal systems dominating many parts of the world. They became the servants of the status quo, and were no longer the critical evaluators and innovative searchers towards a more sustainable world. Luckily, exceptions are there to prove that other paths are possible. In a recent publication edited by Louis Albrechts (2019), several decision-makers and professionals speak out on how they can make a positive difference in a changing world.

3. One World and Many People and Places

Already during your young life and during your studies you have increasing opportunities to open up to the world. Youngsters nowadays travel abroad with their parents, much more than previous generations. But in doing so, they should also strengthen their observation of other cultures, not just be tourists, but young observant professionals. During studies of higher learning the opportunities for exchange have become manifold. The European Erasmus programs, for example, have proven to be very successful, not only in terms of numbers of students exchanged, but also very cost-efficient as they have opened up the world to so many young professionals at relatively little cost.

In my many years as Program Director of the Master's in Human Settlements, I have had over 450 undergraduate students who did their thesis work, most of them with several months of fieldwork, within the framework of one of our international cooperation projects in over 21 different countries. Many of these students became highly motivated and they even experienced these periods as being unique in their lives and for some, it was the start of an international professional career. These undergraduate students also learned from the many postgraduate students who came to study in Leuven, over 700 from 39 different countries over the last 25 years.

Of course, keep in mind that the world keeps changing: what one may have learned today is not necessarily valid ten years from now. As mentioned, perspectives over time are important. During intensive fieldwork in Tunisia 30 years ago, we observed, in a Muslim rural setting, that men and women live according to different rules and traditions more separated from each other, and also public space is organized accordingly. It was not up to us to change this cultural tradition. However, in contemporary urban settings in Tunisia, few elements of such traditional practice remain, and even those that do for a time period, are gradually changing under the influence of changing openness between genders. So, we do not just learn solutions for a specific moment in time, but through analysis and discussions on potential change patterns we learn to develop solutions valid for a longer time frame.

4. Anyone, Anywhere Is A Potential Teacher or Co-Learner

Going 'international' means having an open mind and a willingness to learn. Learning, as I have experienced over the years, one can do from anyone anywhere. Having done quite a lot of fieldwork with our team, we learned as much, or more, in the so called 'slums'—which we prefer to call popular or informal housing areas—as in some of the more highbrow formal architectural projects.

A few simple masons taught me about building with sundried earth blocks and with rammed earth in Morocco, where I also met Elie Mouyal, a well-known architect there, who built with earth for the rich and the poor; a master builder showed me how to construct a Nubian vault in Egypt, after I had met Hassan Fathy and visited some of his work. In the late 1970s I started to cooperate with the University of Nairobi and met a Kenyan colleague there, Elijah Agevi, who knew so much about spatial planning, local housing, formal and informal, in East Africa, that I have always considered him as a mentor and invited him several times as guest lecturer and team member to Leuven. I discovered Bamboo architecture in Indonesia in remote rural villages, in the mid-1970s, and I saw how they have mastered this ancient practice, and how it can be adapted to present and future architecture even in more urbanized areas. Now a few young professionals are finally continuing on this path, but unfortunately very little is taught at schools of civil engineering worldwide.

In the 1980s, while working in the north-eastern region of Esarn, in Thailand, in collaboration with several Thai institutes, we looked into adapting traditional wood skeletons for house construction for loadbearing walls made with interlocking sundried stabilized soil blocks. Wood had disappeared because of rampant deforestation and poor people could no longer afford it. The local lateritic soil in the region was quite suitable for stabilized earth construction. Now, this method of construction is widespread and is applied widely in the region in the construction of schools, temples, water storage tanks, etc. Together with these innovations and working with the Department of Agriculture, we initiated reforestation programs to make the region less prone to drought and crop failure.

As far as construction goes, we still rely heavily on reinforced concrete construction, even though it is proven that cement production is not sustainable. In several countries, both in the Global North and Global South, it is proven that wood skeletons, for example, even for buildings as high as ten floors can be quite adequate and appropriate if the wood used is generated from reforestation programs.

Bamboo and earth are also among the several age old materials which have been rediscovered in recent decades. Similarly for public infrastructure, examples from so-called developing countries are very relevant for the North. Developed in the late 1970s, the public bus transport systems of, for instance, Curitiba in Brazil, have been far more effective than in Belgium and have inspired several cities in Latin America to prioritize the public transport needs of the wider population. Several cities in China are now developing innovative ecological parks that one can learn from. Efforts to re-plan the Mekong Delta, particularly in Vietnam—a region to become more resilient in the face of rising sea levels—are gaining recognition.

It is vital to break the limited and narrow scope of vision we often have in our own cultural worldview, and the perception of essential resources such as land, air,

water, mineral resources, etc. In many contexts, land is a common good, so are many natural resources, not to be appropriated as fully private by individuals and exploited for private gain. We are now also increasingly seeing the limits of appropriated rights to 'private' ownership. Many resources are only borrowed from the Earth and from past generations, and we have to take good care of these for future generations. We have to re-establish the value of the 'commons,' managing land and natural resources as a community, taking care of public goods (land, forests, clean air, clean water, and seas) in a respectful and sustainable way. The list of examples is endless, and we can only be thankful to have had the opportunity to learn from so many different people.

5. Those of Us in the Global North Are Not Superior

I was brought up in an era when the world of the North called itself 'developed' and the South 'under-developed' (later renamed 'developing'). How erroneous this view of the world was! We in the North might have developed some technological tools that others did not have, but as far as human relations are concerned, we are no better than any other people in the world. Now, even our technological systems often malfunction due to our bureaucracy, to our lack of entrepreneurship, to our over-regulated institutions. Certainly, basic rules about fair labor, fair trade, environmental protection, human rights, etc., must be practiced, and we should propagate these, but in a globalized world we are now seeing the limits of the neo-liberal capitalist system, which often exploits natural resources to the benefit of only the rich and increases the gap between them and those who are weak, poor, and voiceless.

In terms of working towards a more sustainable world, none of us are superior; in fact, our ecological footprint in the North is far bigger than that of many other people in the South, making it far more difficult for us to change our patterns of production and consumption. It must be said that it is no longer possible to talk about the rich North and the poor South. Pockets of wealth or poverty exist in all cities, towns, and villages everywhere in the world. We cannot fight poverty without fighting excessive wealth.

6. The Real World Is Much More Exciting than the Small Academic World

The academic world is but a very small part of day-to-day reality. Most people do not live in this small world, often seen as an ivory tower. Indeed, that realization should make academics aware—particularly those working in international cooperation projects—of three important 'musts': First, they should explore and learn from this vast day-to-day reality, do fieldwork, and learn from practice. Secondly, they should translate their findings into understandable, user-friendly language, and communicate well with the research they do on subjects, i.e., people and communities. Researchers must never forget that the people they study give their personality and information 'on loan' to academics for study. Thirdly, the entire present system of 'publish or perish,' particularly as it is only oriented to peers, is a rather perverse system for evaluating academics. Many just publish without having anything new or meaningful to say, let alone directly involving their research subjects. In our work, we have always tried to promote the local partners we have worked with. Thesis students have been encouraged, often required, to make a presentation for the people who had been their research subjects. We have even encouraged the practice of 'revisiting projects.' One of our alumni, after having done her thesis work in a project 'Building Together' in Bangkok, returned a few years later, re-evaluated the project, stayed in contact with the dwellers and now, after many years, is still a good friend with several of them.

In terms of academic disciplines, it should be clear that ordinary people, in their day-to-day lives do not care about 'different disciplines.' They care about work that is well done and with care and attention. Separating disciplines is an academic invention. Cooperating with and transcending several disciplines is essential to work in the real world. Useful as a discipline may be in carrying out in-depth research, it more often becomes a big obstacle to the complex task of planning and building towns and villages.

Near Mwanza in Tanzania, for example, over several years, we worked in close cooperation with an anthropologist and local sociologists, to better understand the Sukuma's use of space, privacy requirements, and rituals while building their neighborhoods and villages. In Ho Chi Minch City, in Vietnam, in a major urban upgrading project lasting ten years, one of the strongest team members of the local team was an experienced sociologist.

Finally, and very importantly, we also have to work on different scales at the same time: landscapes, infrastructure patterns, nature zones, water bodies, streams and rivers, open, built and enclosed spaces, buildings, building sites and technical support, are all part of a combined human settlements approach. Separating these while planning is not contributing to a holistic qualitative outcome. An architect just designing a building on an assigned site, without questioning the assignment itself, without questioning or responding to the building's suitability in terms of its wider spatial impact, without questioning the use of materials and techniques is foregoing the essential task of a professional. Of course, questioning something has to go together with the willingness to propose alternatives. We have to be more willing to think 'outside the box' and not be afraid to work with other disciplines, to cross borders, and to dare to experiment even if there is no institutional or regulatory framework to do so. This also requires the development of a language to communicate with other disciplines and to integrate and confront different perspectives of the same reality.

7. Every Context Is Unique, and Cooperation and Exchange Enhance this Uniqueness

Every context is unique; every community one works with is unique. Yet uniqueness is not a barrier to learning, communicating or exchanging. On the contrary, uniqueness offers the best opportunity not to fall into routine practice, not to rely on copycats, not to rely on fashion trends, but to explore each context and each new assignment as a unique opportunity for cooperation and exchange.

There are so many types of cooperation and partnership possible, each one with its own strengths and weaknesses. Over the years, we have undertaken many different modalities of cooperation. Cooperation with international formal institutions (e.g., UN-Habitat, UN Environment Program, UNICEF, ICLEI–Local Governments for Sustainability), with international NGOs (ACHR, Habitat Coalition, SELAVIP, Protos), with universities or university networks (Asian Institute of Technology, King Mungkot University, UNPAR, ITB, HCMU, SEPT, NED, UNairobi, Ardhi/UDAR, WITS, UCT, MedCampus, ALFA, UCuenca), with local governments (Nakuru, Vinh City, Essaouira, Bayamo, Missungwi, Tarime), with local NGOs and community-based organizations in different countries, with mixed associations (government, Flemish Interuniversity Council, universities, NGOs, UN partners), and in a few cases, with commercial establishments.

It is essential to keep one's own identity clearly spelled out from the very beginning and to know one's limitations and strengths vis-à-vis the partners. Diplomacy is required but one does not have to become like the other! If cooperation among various stakeholders and partners is to be lasting and successful, then the role and the mandate of each partner should be spelled out very clearly from the outset.

Often the most rewarding types of cooperation are the relatively small scale initiatives with based on personalized working relationships. When a group of young professionals designed and built the Women's house in Ouled Merzoug, in the province of Ouerzazate, Morocco, during their Building Beyond Borders program at the University of Hasselt, of course guided by and in cooperation with local communities and artisans, they wrought long lasting relationships, and three of these young professionals are now continuing to upgrade schools in the region (Block, 2020; see also Studio Nous Nous, n.d., for another school project all with local crafts and materials, in the same region in Morocco).

Increasingly local to local cooperation is gaining strength, particularly since local authorities and local partners are the closest to their own context. In such a way, the top-down planning is slowly being reduced to its proper proportions to find a better equilibrium with more bottom-up planning. In a major program—"Localizing Agenda 21"—our Post Graduate Centre for Human Settlements at KU Leuven, together with UN-Habitat and support from the Belgian Development Cooperation, launched a localized cooperation mechanism for strategic spatial planning for better, more sustainable urban development in several medium-sized cities. Cooperation with UN-Habitat, local authorities, local communities, and experts and academic centers was challenging but successful. A major publication, "Urban Trialogues" (Loeckx, Shannon, Tuts, & Verschure, 2004), elaborates both the theoretical foundations and the practical applications of this approach.

8. Clarity and Honesty Will Strengthen Long-Term Engagement

Building on the previous point, it is important to engage oneself and one's institution fully for the long term, not only in the short term like many travelling consultancy firms do. In my experience, the minimum duration for a period of cooperation was five years, sometimes even lasting more than ten years. This is definitely so for spatial planning programs that often take time to implement and come to fruition. Even architectural projects need time. One should start with the landscape planning long before a building is built. Trees take a longer time to grow but are just as essential as a building.

Only in longer term cooperation can one learn from one another and establish solid and meaningful relationships. In Nakuru (Kenya), Vinh (Vietnam), Essaouira (Morocco), and Bayamo (Cuba), we had a commitment of a minimum of five years; with UNPAR in Indonesia and with COOPIBO in Tanzania, a commitment of more than ten years; and with ACHR and SELAVIP, we have had over 30 years of ongoing cooperation.

Bringing cooperation to an end must also be carefully planned. Three of the main reasons for ending cooperation are the following. First, because of a gradual misuse of scarce resources: as an academic institution (or any organization for that matter), you have to stress that money is not the key factor of your cooperation and whatever money there is should be openly accounted for. In Indonesia, after having worked together for more than 15 years, we had to end all cooperation because of widespread misuse of resources. Secondly and very importantly, as self-reliance is a key element, one can end an ongoing cooperation because goals and objectives have been met and the local partners continue the work set out jointly in an excellent (but possibly different) manner on their own. This was the case in Cuba, South Africa, Vietnam, and Thailand. Thirdly, one can conclude that, in spite of many years of effort, results are not sufficient and do not warrant continuation, or somehow there is a divergence in objectives between the different partners. This was partially the case with Ardhi University Tanzania, and happened often when commercial interests or firms/consultants were involved in the cooperation. To conclude, the wise words from 1983 of our Pakistani colleague Arif Hasan can guide us:

I will not do projects that will irreparably damage the ecology and environment of the area in which they are located; I will not do projects that increase poverty, dislocate people and destroy the tangible and intangible cultural heritage of communities that live in the city; I will not do projects that destroy multi-class public space and violate environment friendly bylaws and zoning regulations; and I will always object to insensitive projects that do all this, provided I can offer viable alternatives.

9. Work towards Sustainable Development without Too Much Compromise

The ultimate goal of all our work should be to come to a better, more qualitative sustainable built environment. This is a never-ending process and hence some will be disappointed, but in reality it is always a continuous process, a search for the better in which we can define short, to medium, to long-term objectives with well-defined steps, actions, programs, and projects. We call it a strategic process, because each project, however small or short-termed, should only be undertaken if it contributes towards this search and the defined intermediate steps towards sustainability.

For more than 50 years now, we have considered sustainability as essential, using the recommendations of the 1972 Stockholm Conference, the various UN-Habitat Conferences (e.g., in 1976, 1996, and 2016), and the Millennium Development Goals. These days, the Sustainable Development Goals provide us with even clearer goals, objectives, and action plans. The beauty of working toward sustainability is that no one can claim the ultimate solution or say: "I am there, that's it." No, our search will involve anyone, everywhere in the world, on a continuous basis. And it will definitely not be a search for the 'more' (money or material wealth) but for the 'better' (health, quality of life, freedom of expression, etc.).

Planning for sustainability is also planning for resilience, local adaptations, and transitions. Will the present pandemic teach us a lesson to focus more on essentials and less on triviality ? Personally, I find it too early to answer this question in depth. The often heard slogan "This changes everything" is too simplistic at the moment. So far, it is more likely that many decision-makers and the better-off people worldwide consider "returning to business as usual" as their main mantra. Is that wise? No, it is not, as it indicates a reluctance to learn and adapt, but psychologically it could be understandable. In the immediate aftermath of war, it has been observed that reconstructing reality as it was is one way of overcoming destruction traumas. However, learning from changing realities seems to be one of the most difficult things for planners, as for our societies worldwide today.

The first oil crisis of 1973 was a warning; car-free Sundays were organized; people were encouraged to take public transport. Has this generated new spatial planning and architecture more focused on essential spatial qualities for the great majority of ordinary people? No, on the contrary, greed and megalomania has taken over in many cities. Freeways and car-oriented spatial planning dominate the landscape. Old bicycle paths, trees, and green spaces have been taken away to give motorized transport full priority. Many urban neighborhoods became 'dormitories to house the productive workforces.' Skyscrapers became the new model, the higher the better even with 20-storey high photos of their greedy owner embedded in the facades such as in Dubai. Pudong, China, is probably a good example. My first memory of the river site opposite Shanghai is of rice fields and a few giant billboards. Now the skyscrapers dominate, some of the older structures are dwarfed and I would add, ridiculed by these giants. Were these older villages bad? No, not at all, they were made obsolete. Later on, new villages and gated communities were planned on the Pudong side, mostly pastiche copies of Danish, British, or Spanish neighborhoods, luckily offering residential quality far better than the megalomaniac high-rise areas. The limitations of Spaceship Earth are as yet to be changing the behavior of many, particularly in the many rich pockets of our world, the large greedy enterprises and the wealthy.

10. Never Forget the Past in Planning for the Future

Let me conclude with a last, short lesson learned. We are but a short moment on Earth, so we have to remain modest and know that many, many generations before us have planned and built human settlements and used planning and construction techniques and practices that evolved over many generations and were adapted to local cultures and local resources. Recent globalization did away with some of these modes of planning and building and many new typologies of built environments emerged. In addition—and this remains one of the biggest problems today—the Modernist movement in Architecture and Urbanism wanted to start from a clear slate, as if the past was not there. Le Corbusier presented a new plan for Paris (luckily this has never been implemented), after Haussmann had already destroyed old neighborhoods. Housing became a 'machine to live in,' superblocks emerged as prototypes, putting people into industrialized prefab boxes (like 'sardines'). The new modes of Modernist motorized transport, for example, altered the city and landscape infrastructure and layout. We now see the limits of such a car-oriented approach. Walking and cycling have become more important modes of transport, so we have to rethink and re-plan our streets, public buildings, green and open spaces, housing and service facilities. Adapting to local culture, climate, and resources was often an afterthought among urbanists, and it unfortunately still is, among most of the very greedy project developers, disregarding fundamental concepts of sustainable development. Such developers now by far dominate over

powerless (or disinterested/corrupted) public authorities, backed by unscrupulous professionals. This must and will change. So let us conclude with an optimistic look towards the future. The younger generation will have to be called upon. If they have the courage and the vision, the younger generations (can) have the power, (can) have the spirit, and (can) have the awareness. And several of us of older generations are there to back this new generation:

> Finally, as a junior urban scholar, it strikes me that the role of geographers and planners has been primarily that of audiences during this outbreak. Various Chinese urban scholars expressed disappointment about their limited ability to make contributions to this war against the coronavirus, while witnessing how other professionals are more actively involved. To me, the epidemic also raises questions about how urban scholars could position ourselves in an epidemic. Urban planners, who have long been positioned to deal with uncertainty and to mediate between authorities and publics, might be well positioned to work with other stakeholders on an epidemic-response system that builds a collaborative framework among different sectors, smoothens the information flow between experts and people, and helps city governments to deal with uncertain developments of the outbreak. (Hang, 2020)

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Conflict of Interests

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Commentary

Challenging Times and Planning: Origins, Endings and New Beginnings?

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Abstract
Planning was born in and of crisis. Given the multiple challenges facing the world, it may rightly be asked whether Planning would not be willing and able to assist in taking these on. In this short commentary, it is argued that the chances of this happening are slim, but not impossible, should a number of changes be made that put hope, belief, reason, and dream to collective task again.

Keywords
change; origins; planning; systems

Issue
This commentary is part of the issue "Planning for Rapid Change in Cities" edited by Karina Landman (University of Pretoria, South Africa).

1. Change Brings Planning (and Vice Versa)

One of the most compelling stories of the origins of Planning locates it in a time and space made and marred by rapid technological, economic, and social change. According to this well-known tale, Planning—a burgeoning social movement at the time—was a force for public good, seeking to bring benevolent change to the highly productive, yet hugely exploitative, unequal, polluted, and polluting cities of the Industrial Age. This, so the story goes, it sought to do by tapping into and drawing on the same singular coming together of reason, hope, and belief in progress that gave rise to the first Industrial Revolution. While deeply concerned about the negative outcomes of the system created and sustained by the highly unequal access to, and ownership of new technologies, patents, and land, Planning was as such not focused on overthrowing it, but rather on taking it on, transforming it, and making it 'deliver better outcomes for all.'

Change, in this case, was accomplished by ceaseless lobbying and agitation for the introduction of legal measures requiring the introduction of building setbacks to bring in more natural light, and the provision of better housing, potable water, and sewerage systems for those that the factory owners viewed as key 'components' of the system, i.e., 'the workers.' These measures would not only benefit 'the workers,' but also lead to higher productivity and profits and fewer strikes, and alleviate the endemic fear amongst the powerful of the masses and their power to topple 'the system.' While the system was not overthrown, and the gains far smaller than many had hoped and worked for, they do stand as an example of Planning managing to exact benefit for the many by studying, getting to know, and tapping into the system, and using this knowledge to play on the fears and selfish motives of the few.

2. Planning Changes

In the years and decades that followed, Planning increasingly moved away from being a progressive force situated both in and outside the system, and playing it through knowing and understanding it, to a formal institution, more and more absorbed by the system, given professional status by it, and put in service of it. While still referencing the message of progressive change, and notably more so in university programmes than elsewhere, this change increasingly so became framed and limited by the needs of the system and what 'stretch' it could tolerate.

Even in the case of South Africa, a country that underwent fundamental change in the 1990s, initial talk of a progressive and leading role for Planning quickly dissipated, with it now occupying a very modest place in the system.

It maybe is due to this 'absorption of Planning into the system,' the silencing and droning out of voices for progressive change, and the perpetual delay of change to the system and the way in which it is fuelled, held together, and reproduced, that we have come to our current quagmire: A place and point where the world, caught in a juncture of multiple converging global calamities, including ecosystem destruction, climate change, inequality and poverty, large movements of people across and within national borders and Covid-19, could again do with the kind of Planning that managed to make a real and lasting difference in the cities of the Industrial Age. The question is though, firstly would Planning *want to*, and secondly, would it *be able to* assist in shaking up, disrupting, and changing the prevailing system in the pursuit of 'creating something better'?

With regards to the first question, i.e., *the wish of Planning to be part of the change*, judging from the progressive principles and the general tone of Planning, it is very likely that those teaching it, studying it, and practising it, would most probably and very readily answer in the affirmative. Yet, professing to stand for and believing in something unfortunately does not necessarily warrant a willingness to do what it takes, especially not if the institutions in which it is studied, taught, and practised have other objectives, outcomes, and impacts in mind.

In academia, it would seem that it is not the real and tangible impact of research and publications on the ground/in the world that matters most, but rather the number of outputs coupled with an intertextual publication-related impact factor of how highly rated the journal is in which the research was published, and how many times the paper was referenced in other journals, each with their own respective impact factors. Research as a potentially powerful way of better understanding the system within which change must take place, or that needs to be fundamentally changed, is driven not by this possibility of providing the necessary information to make an impact in the world, but by the sources of research funding available. Students, in turn, pursue areas that are the ever-shifting flavours of the season, that offer bursaries or financial support packages, and in which they believe there still is enough of a publication-niche to be filled and tenure to be secured in the not too distant future. Planning academics get measured and promoted not by their contribution in the real world, but by their research outputs and numbers of postgraduate graduates, themselves driven and guided by the aforementioned incentives and the associated methods of measurement. New university entrants get at best an introductory exposure to the history and rationale for Planning, and thereafter increasingly are schooled in 'useful, hard sellable skills in the world of work,' and the use of information technologies—most of which are skills for use in the system as is, and not for making changes to the system, or designing and creating a new one. Those heading the faculties in which Planning is located—most often non-Planners and often from more natural science and engineering backgrounds—struggle to make sense of Planning and what it is about, and often push for Planning students to become more tech-savvy and less focused on changing the world.

Likewise, in the world of work, there is as little incentive and appetite to step outside the lanes carved out in the formal institutions in which Planning is located, asking the hard questions and offering to assist in answering them, or engaging in and seeking to bring about the kind of fundamental change that is required in the world. Young Planners entering these places of work are quickly taught not to challenge or take on the powers that be, and to avoid making statements and suggesting action that could be seen as competing with 'that which is regarded as the sole preserve of progressive politicians.' Often, it would seem that a key concern for those in the world of Planning practice is delineation and reservation of work for Planners within the prevailing system, which often may entail incredibly tedious and administrative tasks far removed from changing the system.

With regards to the second question, i.e., that of *the ability of Planning* to contribute to making the necessary changes, it is unfortunately also questionable whether this is possible, given the way in which Planning evolved, and what it became, i.e., a legally mandated, regulated and/or sanctioned, standardised public sector function. In addition to this, and especially so over the course of the last three decades, Planning increasingly became focused on serving the rich and powerful, on property development and property portfolios, and on small-scale, limited, and localised change. Given these areas of focus, the question arises as to whether this departure has assisted in the creation and development of the abilities and skills required for the kind of planning that the world needs now.

Planning is a multi-layered activity, including (1) sensing and seeing that which is wrong, or unjust in the world, (2) studying it to get to know it better, and (3) designing an action, intervention or remedy, or set of these, to counter that which is wrong/unjust. As such, it requires an awareness and openness to sense and see that which is wrong, together with the hard, technical skills to study it, make sense of and understand it—individually and collectively, with others. Coupled with this, an ability to communicate this understanding and designing ways of intervention, while in the course of all of this not becoming despondent due to the many deep challenges and injustices encountered and studied.

In this endeavour, geospatial tools have not just enabled us to understand and present data better, but also brought a greater awareness of connectedness, of the systems and sub-systems, and of the multiple systems we live in. Yet, it could be asked: Have they made

us wish to change more? Have we used these tools to become better at bringing about change? Has it not increasingly become a case of description for its own sake, and not description with a view to driving and ensuring change and transformation? It could be argued that our constantly improving ability to document and map the world, in the absence of progressive action in the world, may fuel a grinding and ever-deeper knowledge and awareness of the wrongs and injustices in the world, and an increasing sense of despair at not making a difference and seeing the wrongs persist.

3. Changing Planning

Would the conclusion to be drawn from this commentary hence be that Planning *would not want to*, and *would not be able to assist* in engaging the challenges the world faces and bringing about the necessary and desired change? Definitely not. Planning could play a crucial part, but to do so it would need to be conceived of differently, set its focus on other objectives, and be undertaken differently. Taking cues from its originating days, the following could assist in Planning doing so.

Firstly, Planning would need to spend more time on describing, making sense of, and understanding 'the system' and what the triggers and incentives are for those who have an interest in keeping it as is, so as to bring those with the power to do so, to make the necessary changes. This must include the gathering of information on systemic connectedness, and ceaselessly making the point that even the smallest injustice, anywhere in the system, has the potential to bring the whole system down. Equally so, that the failure to introduce programmes to ensure transitions away from ways of acting/doing that threaten life and ecosystems anywhere on the planet, threaten life everywhere. It was this kind of 'threatening awareness' that was used to great effect by the early Planning movement to instil fear of loss of power, possessions, and life amongst the powerful few, and drive them to introduce changes that benefitted the many.

Secondly, Planning legislation would need to set tangible objectives that are far closer aligned to the challenges the world faces, instead of esoteric statements of principle and outcome that are hard to define and pursue, and that make measurement of 'success' difficult. At the same time, Planning would need to be undertaken in continuous interaction with those responsible for budgets, to ensure that plans have real/better prospects for implementation, and in doing so, gaining and sustaining public support.

Thirdly, Planning was born in and of crisis. Ever since then, interest in Planning has flourished in times of crises and after wars, pandemics and economic and natural disasters, and floundered in times of relative stability and order, or at least the semblance or belief of such. During such 'more stable' times, it also did not push for systemic or structural change. The current crisis-moment of huge tension and enormous challenge not only provides an opportunity for Planning to step up to the plate, but urgently cries out for it to do so.

Fourthly, Planning would need to assist in conceptualising and bringing about a new system, and in this pursuit learn from the global suite of present and past ways in which communities and countries have met and manage to meet individual and shared, collective objectives in sustainable ways.

Finally, all of the above would require of those who believe in, teach, and practice Planning, to never stop *dreaming* of a better world, lose their *desire* to act in the world, engage in creative and credible ways of gathering *data* about the world, and *doing* what has to be done in the world.

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Conflict of Interests

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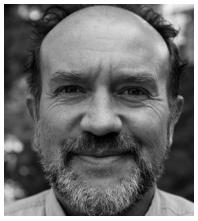
About the Author



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