

SPECIAL ISSUE: Exploring spatial justice in times of disruptions

## Promoting urban health and spatial resilience as contributions towards spatial justice

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### Abstract

Spatial justice has different dimensions and is to a large extent determined by its specific political-administrative context, which guides its development on the local level. In view of the varying living conditions in urban environments I would like to draw attention to the relevance of urban health as a crucial component of spatial justice. The resilience of the population, the spaces they inhabit and the urban infrastructure are closely interlinked as regards sustainability in the face of the current multiple crises. This paper aims to reflect upon the links between urban health and resilience and their contribution to spatial justice, particularly with regard to challenges in the built urban environment as visualised in the Health Map of Barton and Grant (2006). Referring to the City Resilience Profiling Tool developed by UN-Habitat (2021), my argument addresses the interfaces between urban health and resilience. Particularly essential to me is the collection and evaluation of data for monitoring spatial development which also forms the basis for public participation in planning procedures to achieve better urban health and spatial resilience. In this endeavour, special attention should be paid to neglected urban neighbourhoods and their populations. This is even more important as the current crisis requires flexible and adaptive goals and processes linked to a learning culture approach. By striving for urban health and spatial resilience in urban structures and processes spatial justice can be achieved via innovative and transformative development paths towards sustainability.

### Keywords

Urban health,  
spatial resilience,  
spatial justice,  
urban development

## **Introduction**

Prior to and since the COVID-19 pandemic, the living environments of the urban population in different socio-spatial settings have been widely discussed politically as urban segregation became increasingly evident. Likewise, resilient spatial and infrastructural resources at the level of regions down to urban neighbourhoods have become a political issue. In the face of multiple crises, resilient social and spatial structures are prerequisites for crisis management and mitigation, affordable housing, the accessibility of public/private infrastructure as well as resilient forms of mobility (promoting non-motorised transport and active mobility). This article considers how the respective socio-spatial preconditions in relation to the population's burdens and resources as components of urban health contribute to spatial justice. It addresses the relevant dimensions of spatial justice against the background of perspectives arising from European democratic governance structures. The focus is on the interface between public health and spatial resilience as an objective of urban development which contributes to spatial justice. From my perspective, targeted strategies to enhance urban health and in particular resilience with the requisite robustness and adaptability are needed on the path to spatial justice. My arguments are related to spatial risk prevention and the provision of public services with the aim of integrating urban health and resilience into appropriate strategies to achieve spatial justice. Beyond reducing risks and vulnerabilities, immediate crisis management must keep pace with learning and adaptation processes in pursuit of innovative approaches to spatial development.

## **Urban health and spatial resilience – two sides of the same coin**

Urban health and its determinants are well summarised in the Health Map (Figure 1), which was elaborated further by Barton and Grant (2006) on the basis of Dahlgren and Whitehead (1991). It shows that people's individual predispositions play an important role, including their genetic features, age and gender. At the same time, determinants, i.e. environmental conditions such as air or drinking water quality, also have an impact on their health status. The different factors – whether burdens or resources – of the natural and built living conditions as well as the community activities around the individual from the neighbourhood to the global level are mapped.

Environmental burdens are primarily noise (e.g. traffic noise), air pollution, waste, shading, heat stress and heavy rainfall events. A distinction is made between quantitative (i.e. measurable) and subjective (i.e. individually perceived) pressures (e.g. individual noise sensitivity or sensitivity to air pollution). Environmental resources include forests, green and recreational areas, cycle paths and footpaths, public spaces and also potential measures for shading against heat as well as ventilation through open-air corridors for a comfortable microclimate, as well as ensuring mobility and the disposal of waste and wastewater. The profit-oriented land and housing market as well as international financial capital significantly

limit the location options of economically precarious households requiring affordable housing. “Those who are poor are more likely to live in an environment that makes them sick.” (Troge, 2008, p. 3).

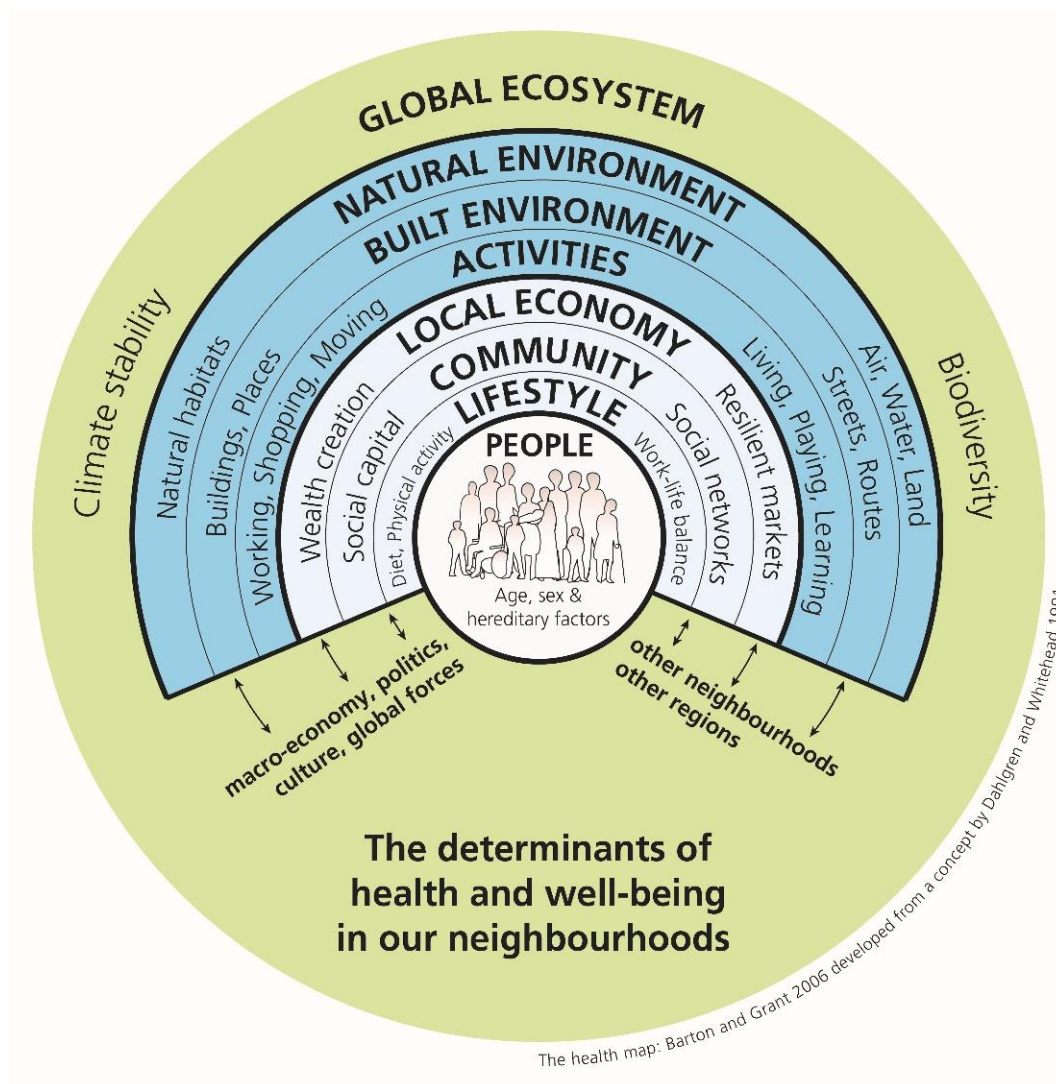


Figure 1: The Health Map (with permission of Barton & Grant, 2006)

It becomes obvious that the restricted resources of the population in terms of affordable and appropriate housing, access to social infrastructure, education and cultural facilities, open space for recreation and leisure as well as adequate mobility options including active mobility (paths for walking/cycling) are crucial. The objective of environmental justice is to avoid or reduce a concentration of those health-relevant environmental burdens such as noise or pollutants in the air in socially disadvantaged neighbourhoods and residential areas and to enable their residents to have access to health-related resources. Beyond the burden of living conditions, the resources become increasingly important, particularly after the experiences of the COVID-19 crisis.

Public health, the (built) environment and socioeconomic status are therefore three essential dimensions not only of spatial justice but also of resilience, with the focus on robustness and adaptability. Robustness refers to how well a city can cope with a crisis or disaster through the redundancies, diversity and multifunctionality of urban structures and organisations, and to its recovery capacity, such that the damaging fallout of a crisis is minimised. Adaptive capacity describes how well a neighbourhood can respond to the changed conditions with resources and measures (German Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR), 2018). That the available health-related resources here are key factors appears convincing.

Thus, urban health is a core objective with regard to climate change and disaster risk reduction and is a focus of the City Resilience Profiling Tool (CRPT) developed by UN-Habitat. “The main goal of UN-Habitat’s resilience work is to support local governments and relevant stakeholders to transform urban areas into safer and better places to live in, and improve their capacity to absorb and rebound quickly from all potential shocks or stresses, leading them towards sustainability. UN-Habitat’s understanding of a resilient city is one that is able to absorb, adapt, and recover from the shocks and stresses that are likely to happen, transforming itself in a positive way toward sustainability. [...] UN-Habitat understands urban resilience as the measurable ability of any urban system, with its inhabitants, to maintain continuity through all shocks and stresses, while positively adapting and transforming toward sustainability.” (UN-Habitat, 2021, p. 12-13)

Resilience should be understood as a continuous process. It is a matter of preparing for crises and developing the appropriate proactive measures to prevent them and mitigate their damage. If a crisis occurs, resources and reactive measures are deployed immediately to protect the population. Further measures are subsequently taken to maintain public services and ensure the health of the population. When the crisis is over, an evaluation of the experience supports improved preparations for the future (Fraunhofer-Gesellschaft e.V., 2020).

It is clear that the spatial and institutional context in different countries and their systems of spatial development, authorities and actors play a significant role in the elaboration of strategies for urban health as well as for resilience. The challenge is how to integrate these components of urban health and resilience into urban development strategies on the local level to strengthen spatial justice in the face of crises. As these are shaped differently in different countries and political-institutional frameworks, the German background shall serve as an illustration here. As in Germany the concept of spatial justice is linked to questions of equivalent living conditions in heterogeneous spatial structures and thus to aspects of public services, creating equal opportunities for social participation is a question of political priorities. In recent decades, government policies have changed in such a way that welfare and care services have come under greater scrutiny in favour of competitive product and service

provision. This means that socially-oriented welfare services are being restricted in favour of market-oriented principles. This has direct spatial consequences on areas such as land policies or the real estate market (Miosga, 2020). As the goal of spatial justice, which is committed to social and spatial cohesion and social participation, continues to be pursued, questions of the orientation of resources such as air, water, land to the common good are again being increasingly raised in socio-political discourses across Europe. Thus spatial justice is of fundamental importance for social integration and participation in my opinion, as it is also linked to the acceptance of the democratic system of governance with multidimensional goals.

The spatial planning systems in democratic European countries must weigh up different objectives in principle, without bias, in pursuing urban development on the local level. Authorities, stakeholders and the general public participate in spatial planning processes at various levels. Public health and spatial resilience, as well as spatial justice, are issues that span all local government departments (see below). This is also reflected in the UN's Sustainable Development Goals (SDGs) with SDG 3 on "Good health and well-being" focusing on health care as public service provision together with the emphasis of SDG 11 on "Sustainable cities and communities". As principles and goals which planning must pursue by law, these must be widely communicated to the general public (Figure 2). Thus, urban health and spatial resilience are core components of sustainable cities and communities.



*Figure 2: Public communication of the UN's SDGs in Denmark (© S. Baumgart)*

### **Spatial justice as a multidimensional goal in the context of sustainability**

Urban health and spatial resilience within the context of sustainability are closely interlinked with the various dimensions of spatial justice. Determined to a large extent by its specific socio-spatial context, justice is the guiding principle of sustainable development, which has gained importance in recent years. For spatial development and planning, this means that in addition to the physical environment (the natural environment and ecological systems) and



the built environment (buildings, places, open spaces and infrastructure), the social environment (individuals, groups, organisations and cultures as well as social networks of relationships and interactions) must also be taken into account. This relates not only to spatial goals and strategies, but also to their relevance in the distribution of burdens and resources (distributive justice) across cities and neighbourhoods as well as in procedural arrangements (procedural justice).

Procedural justice relates to decision-making processes, such as those involved in spatial planning. This in turn is linked not only to those who are de facto disadvantaged, but also to the failure to recognise and include all ethnic groups. Some groups might be denied an opportunity to shape their environment if they do not actively contribute their perspectives in the context of regular planning procedures (Köckler, 2014). By feeding their interests into the planning process, they can potentially contribute not only to more procedural justice but also support distributive justice in the meaning of access to social and economic opportunities. It is important to keep in mind that distributive justice depends on the perspective with which stakeholders assess the effects of political decision-making processes within planning. For example, the development of an open space might mean losing it as a local playground, but can provide for accessible local shopping facilities, which may be appreciated by elderly people in the immediate area.

Spatial justice entails strategies to avoid and reduce environmental pollution in order to reduce health inequalities (Köckler, 2017). As a guiding principle it defines the requirements for analysing the framework conditions in which people live, the interactions between individual factors, the consequences for the human health of population groups and the goals and strategies to be pursued. Considering interrelated issues such as social conditions, the environment and public health brings into focus the spatial distribution of environmental benefits and deficits in relation to aspects of justice (Baumgart, 2019).

### **Towards a spatial justice-oriented urban model – strategic contributions of urban health and spatial resilience**

The concern for environmental and spatial justice touches fundamentally on the issue of equity, in addition to the consideration of environmental pressures and opportunities for all population groups and their different options for social participation. John Rawls (Rawls, 1975) and his theory of justice are currently experiencing a renaissance in planning theory. Several facets of justice play a role here: not only environmental justice, but also intergenerational, climate or gender justice. All of these aspects of justice are reflected in the spatial dimension, especially in land policies, the structure of use of urban space, the accessibility of public spaces and infrastructures, and the political-administrative decisions which shape them.

In relation to urban health and spatial justice, adaptive urban health equity means healthy urban planning as a process carried out by multiple actors, including an activating/mobilising approach for “silent” target groups. On the basis of analytical data (statistics, maps), it is becoming clear that participation, deliberation and decision-making processes are core components of urban development planning to strengthen spatial justice. This merges with the five core components for planning a healthy city defined by Jason Corburn (Corburn, 2013, p. 27):

- democratic participation processes
- integrated decision-making policy
- provision of multidimensional monitoring data
- social and collective learning
- regulation and control as well as innovation with regard to principles, goals and strategies.

These encompass the most important focal points of spatial planning: the living environment and public space, the supply of goods and services, mobility, housing and in particular the inclusion of vulnerable population groups. Collecting, mapping, evaluating and comparing these data are crucial for analysing the status quo and the need for action. This is at present recognised in many European countries and cities, but is not yet established in administrative processes. For example, it has been observed that Germany lacks an urban monitoring system to integrate local data on the environmental situation, social situation and public health of the population and to record environmental changes relevant to health (Baumgart & Rüdiger, 2022).

Implementing such a system would require not only the inclusion of socio-demographic and socio-economic indicators, but also urban development indicators for the different areas in a city – such as population/building density; the provision of social, educational and technical infrastructure; mobility options; publicly accessible open spaces and the environmental conditions (see above). While concepts and instruments for Urban Health Indicators have been developed internationally (e.g. Pineo et al., 2018), they need to be adapted as they are not directly applicable to the municipal level due to the context of their institutional setting.

In order to strengthen urban health and spatial resilience in a city and its neighbourhoods, the vulnerability of the population as well as the robustness of structures and services must be analysed and evaluated within their specific context. In this context, adaptive capacity is determined by the feasibility of preventive, proactive measures through urban planning instruments, public health services and other municipal departments. Furthermore, there is a need to actively approach and involve disadvantaged population groups in a tailored, sensitive way (language, cultural background, motives and interests) at an early stage (procedural fairness).

Social inequalities should be spatially visualised to foster public debate around spatial justice. For example, Figure 3 (conceptualised on the basis of Open Data) shows the average life expectancy (2009–2013) within a 200 m radius of certain stations on various underground lines in London. The map visualises how life expectancy decreases by more than five years along the Jubilee line from west to east between Westminster and Canning Town (an area known as the London Docklands). It strikingly illustrates the different living situations within a city. The grey background represents the ‘child poverty’ indicator (the more socially disadvantaged, the darker) and corresponds to the life expectancy in the respective area.

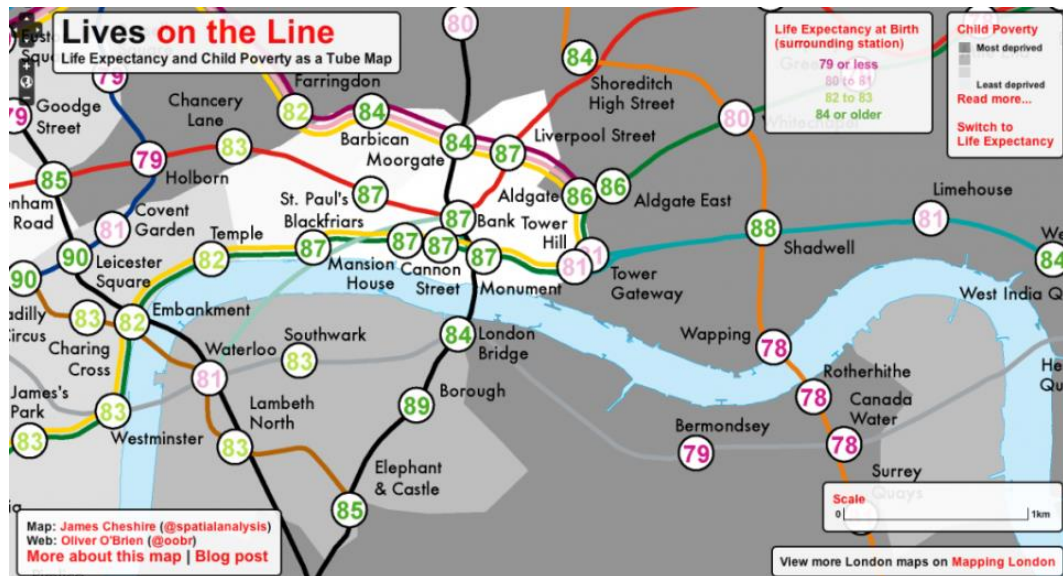


Figure 3: Life expectancy along underground lines in London (<https://spatial.ly/2012/07/lives-on-the-line/> reproduced with the kind permission of the author)

For planning measures to be successful, I argue that it is important that the primary task of urban development and planning is more closely aligned with environmental and health-related concerns in the future in order to achieve as many synergies as possible. In addition to synergies, different strategies can have conflicting or mutually incompatible goals, which must be resolved within the framework of urban planning processes. Potential conflicts between the objectives of spatial/environmental justice and other objectives and measures of urban planning and development can be:

- Providing for and improving inner-city, high-density living vs. noise and air quality standards
- Quiet, green living vs. the principle of short distances, city-compatible mobility, air pollution control and noise reduction
- Energy-efficient construction vs. affordable housing



- Infrastructure in the vicinity of housing suitable for families vs. optimised noise protection (playgrounds for children and recreational areas for youth, sports fields, retail shops/delivery services and the associated traffic, trams, etc.)
- Providing areas for tradespeople and small and medium-sized businesses (residential services, jobs) vs. noise protection of adjacent residential areas.

I emphasise that with regard to spatial justice, the individual components of the city as a complex system and thus also the manifold effects on human health must be more comprehensively addressed. In this context, not only should the health-damaging and hazardous effects of exposure to the risk factors in the urban living environment be considered (pathogenetic perspective), but also the resources in the environment that can have a health-promoting and health-maintaining effect (salutogenetic perspective). German spatial planning concepts and regulatory instruments for example have hitherto been based on a predominantly pathogenetic understanding, which aims to prevent diseases, although there has been a perceptible shift in recent years towards a health-promoting salutogenetic perspective (Baumgart & Rüdiger, 2022). Medical and scientific research has contributed to disease prevention by highlighting risk factors for specific illnesses that should be avoided, for example through noise action planning. Health promotion, on the other hand, is informed by different approaches. These aim to support and strengthen public awareness of maintaining a healthy lifestyle, paired with spatial strategies and measures focused on structural living conditions.

Urban health and spatial resilience are also to be discussed in the context of different strategic approaches for coping with urban risks and uncertainty. Here, it is important to consider “no-regret strategies”, i.e. strategies that generate added value due to their multiple functional qualities even in the absence of crisis events. Furthermore, it is important to think about reversible strategies in order to keep options open for future decisions. This may initially contradict spatial planning regulations based on legal certainty. As it is important to open up options for the future it is consistent to think about sequential strategies in order to reduce decision-making horizons and strive for medium-term solutions. This means defining priorities for urban development, which are then implemented when the right conditions are in place (Greiving, 2018). These decisions must be made with the involvement of public health agencies and likewise with an orientation towards spatial justice.

## Conclusion

In this article, I argue that given the current challenges on the local level, urban health and spatial resilience are an important, if not a crucial priority in achieving spatial justice. “Rich and poor people live in very different epidemiological worlds, even in the same city”, as Yvonne Rydin observed in her article in *The Lancet* in 2012 (Rydin et al., 2012, p. 2079). Urban development and planning as a field of action is addressed. More than ever, health-promoting

and environmentally friendly urban development should be understood as a present and future core interdisciplinary field of intervention linked to reducing neglected neighbourhoods and social disadvantages. In this context, the guiding principle of spatial justice combines many aspects that are pivotal for spatial planning: the spatial structuring of use/patterns, planning procedures, sustainable development and public health along with spatial resilience as an issue that needs to be addressed from an interdepartmental perspective.

This requires a qualified database that can be accessed by different departments with defined and approved interfaces and standardised legal and sub-legal regulations. It increases the chances of achieving a participation-driven development of the social and spatial living environment of the local population with a view to the interests of different population groups.

Planning instruments and procedures also need to be adapted to learn from the new experiences gained during the pandemic in handling data resources, especially with regard to vital interdepartmental cooperation and collaboration. A reorientation towards sustainability goals for resilient spatial structures represents an opportunity for transformations in spatial planning. This includes the development of scenarios, for instance in the form of a resilience check (ARL, 2021).

Sustainable structures and processes must be operationalised at all planning levels, with a focus on spatial justice, and responsibilities and available resources and funding must be allocated accordingly, not least in order to improve the resilience of spatial infrastructures. Negotiation processes, whereby quality of life is a goal of urban development and planning measures, are to be understood as a form of conflict management when mutually incompatible interests are at stake. The pursuit of spatial resilience is an open-ended process which must continually be adapted in step with new learning (in the sense of a learning culture) and is oriented towards long-term goals (Ibert et al., 2022). This includes, among others, experimental action within the framework of a basic strategic orientation that allows for flexible and adaptive goals and processes as well as a readiness to self-correct which is supported by internal policies. Urban health and spatial resilience are essential contributions to achieve greater spatial justice in the context of the sustainable development of cities.

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