

UDC: 711.4: 616-036.21

doi:10.5379/urbani-izziv-en-2024-35-02-01

Received: 16 April 2024

Accepted: 13 August 2024

Maciej J. NOWAK

Paulina LEGUTKO-KOBUS

Ayyoob SHARIFI

Amir Reza KHAVARIAN-GARMSIR

Artur HOŁUJ

## Urban spatial policy after the COVID-19 pandemic: Selected aspects

The literature on urban planning and spatial planning increasingly emphasizes the need for a more thorough analysis of the impact of pandemics on urban spatial policymaking. This article identifies critical proposals for change regarding urban spatial policies that emerged after the COVID-19 pandemic and relates these to literature on spatial planning. The focus was on two issues directly relevant to this topic: urban spatial planning and environmental protection. The use of the analytical-comparative method, preceded by a literature review, allowed a preliminary characterization of the selected works. The following research questions were posed: 1) What critical spatial planning topics have been addressed in discussion

of the pandemic? and 2) Have publications on both the pandemic and urban planning made a vital contribution to the broader discussion on institutional aspects of urban planning? An important conclusion is that the COVID-19 pandemic has revealed the consequences of ignoring theoretical findings in public policymaking, which can lead to social and environmental inequalities on a global scale, and differences in pandemic restrictions across political and social systems.

**Keywords:** spatial policy, urban planning, COVID-19 pandemic, adaptation to changes

## 1 Introduction

The COVID-19 pandemic contributed to a shift in the focus of scholarly discussion on many fronts. One such change relates to urban policy issues. The shock of the pandemic and the need to adapt cities to lockdowns have contributed to diverse scholarly reflections. Some of these reflections concern the current short-term response to new events (Amdaoud et al., 2020; OECD, 2020). Moreover, observing the social, environmental, spatial, legal, or transport problems associated with the pandemic has led some authors to develop broader concepts describing change (Florida & Pedigo, 2020; Batty et al., 2022). Such reflections were also made by authorities in individual cities, who decided to make various changes.

This article was intentionally prepared with a time lag (i.e., after the initial waves of the pandemic had subsided). The authors believe that this approach offers a more comprehensive analysis of developments in scholarly discussions. A discussion on the legal and institutional conditions for spatial planning was also held before the COVID-19 pandemic. Among the key issues identified were 1) determining how to best compare the spatial planning systems of different countries, 2) integrating climate challenges into spatial planning, 3) expanding strategic spatial planning, and 4) integrating rights to the city, social justice, and spatial justice into spatial planning.

The relevant guidelines for theoretical concepts that became concrete legislation should be transferred into spatial policy. Very soon after the outbreak of the COVID-19 pandemic, opinions emerged on the need to redefine urban policies. In the first stage, these had a more preliminary dimension and were often mixed up with characterizations of the emergency response (Florida & Pedigo, 2020). As the pandemic persisted, the ad hoc response to the crisis was replaced by research-based analyses.

In the first stage, four thematic areas were identified when analysing publications describing the impact of the COVID-19 pandemic on cities: environmental quality, socioeconomic impacts, governance, and transport and urban planning (Sharifi & Khavarian-Garmsir, 2020). Even at this stage, there was no doubt that the pandemic presented a challenge and an opportunity for planners and policymakers to take transformative action toward creating more equitable, resilient, and sustainable cities (Grum & Kobal Grum, 2023). Responses to a pandemic involved seeking to safeguard against future pandemics. Second, they included proposals and demands that took advantage of the situation and aimed to achieve other goals, such as climate resilience or social sustainability (Champlin et al., 2023). Diverse approaches and concepts were thus

linked to the response to the pandemic, including environmental justice (Cole et al., 2021), the development of smart cities (Kunzmann, 2020), or the 15-minute city (Noworól et al., 2022). The thematic areas identified above were significantly expanded in the literature through subsequent publications and over time. For example, urban health policy (Śleszyński et al., 2022) may require separate coverage, and the transport and urban planning already merit separate coverage. However, it can be assumed that the redefinition of urban policies, although it will concern diverse thematic spheres, will be most extensively linked to spatial planning. This is also confirmed by the results of the preliminary analysis of the publications (presented in Methods).

The conditions for spatial policy differ by country. In particular, legal solutions, planning culture, and social conditions are differentiating factors (OECD, 2017; Nowak & Śleszyński, 2023). However, common challenges can also be found in the spatial planning of most world cities. These challenges include: climate change mitigation and adaptation (Norman, 2022; Stoeglehner & Abart-Herisz, 2022), coordinating spatial planning with other spheres of urban policies (Hołuj & Zawilińska, 2013; Rozas-Vásquez et al., 2018), and adapting spatial planning legislation to emerging challenges (Moroni et al., 2020; Ondrejčka et al., 2020; Nowak et al., 2022).

Of particular relevance is identifying how urban planning can contribute to urban resilience (Banai, 2020). To a certain extent, an optimal approach to urban environmental protection is linked to these issues (Legutko-Kobus et al., 2023). Spatial planning instruments should also guarantee this protection to the fullest extent (which is related to the response to the climate challenge, integrating development policies, and redefining the role of spatial planning instruments).

Effective urban spatial and environmental policies are based on legislation and administrative measures. These vary considerably between the countries analysed. However, the basic scope of legal and administrative procedures tends to be actions of various forms (e.g., regulations, restrictions, and prescriptions). Among other things, these regulatory instruments serve to establish a legal and organizational framework that influences the local spatial economy, in particular the variety of processes related to human functioning, which are very much embedded in the local socioeconomic structure, and the diversified perception of values identified in space (Nowak et al., 2023).

As indicated above, many publications can be found on the impact of the pandemic on cities, including various aspects of urban policies. However, a lack of reflection is directed at institutional aspects concerning spatial planning instruments (e.g., urban spatial plans). It is worth reflecting on how new

concepts (created or developed during the pandemic) translate into the possibilities and functions of spatial policy instruments. The literature primarily addresses this topic from the perspective of country-specific case studies. However, there is a lack of attempts to provide more universal recommendations that can be considered in diverse spatial planning systems. The discussion on the impact of pandemics on cities, which is now ending, provides a basis for this.

This article identifies vital institutional concepts and proposals for change regarding urban spatial policies that emerged after the pandemic, and it relates these to the literature on spatial planning (we considered March 2020 to March 2023, three full years, from the start of the COVID-19 pandemic in Europe until mainstream discussion of the impact of the pandemic faded out). After analysing the relevant articles, the following critical guidelines for urban planning were identified: making public spaces more accessible, protecting natural assets within public spaces, ensuring the safety of public spaces, shaping the technical infrastructure of public spaces, protecting all natural assets of cities, developing green areas in cities, using green technologies in building construction, and treating the concept of a 15-minute city as a basis for restrictions on developing individual sites and extending the flexibility of spatial planning.

The following research questions were formulated: 1) What critical spatial planning topics have been addressed in discussion of the pandemic? 2) Have publications on both the pandemic and urban planning made a vital contribution to the broader discussion on institutional aspects of urban planning?

This article is structured as follows. After explaining the purpose of the article and the rationale behind the topic, the methods section details how publications were analysed. Three relevant thematic groups were then identified based on the main theses of the publications. The critical contributions of the publications to the discussion are discussed in the next section. The article indicates how this theoretical contribution can be further developed. It points out that the discussion of spatial planning during a pandemic should be used to inform discussions about spatial conflicts, the role of legislation in planning, and the relationship between climate challenges and spatial planning.

## 2 Methods

Peer-reviewed publications (published from the beginning of March 2020 to the end of March 2023) were identified in the Web of Science and Scopus databases. The search took place in April 2023. Other publications (e.g., books, chapters

in books, conference proceedings, etc.) were not included. In both databases, the focus was on keyword searches for publications, using a combination of words from three groups with terms related to 1) changes and transformation (revolution, revisit, rethink, reconfiguration, shift, redefine, rethink, reinvent, change, transition, transformation), 2) the pandemic (COVID, corona, pandemic), and 3) cities (urban, city, neighbourhood, town, planning). The methods used in this article are based on those used in earlier review studies on the impact of pandemics on urban policies. The earlier studies looked at other stages of the COVID-19 pandemic and more broadly defined themes (Śleszyński et al., 2022, 2023). This type of analysis is geared toward identifying publications based on keywords. The method applied allows for a comprehensive analysis of available publications, thus preventing the marginalization of certain studies (Obeng-Odoom, 2019).

The search was in the following order. For each term in the first group, a term from the second group was adjusted, and then, in turn, terms from the third group were adjusted. For example, the words *revolution* (from the first group) and *COVID* (from the second group) were linked first, and all words from the third group were matched to them in turn. Then, the words *revolution* and *corona* (the second word from the second group) were linked, and all words from the third group were matched to this link. In this way, all combinations of the three groups' terms were verified.

The abstracts of all the publications identified were analysed. The analysis was carried out by the authors without using software. This ensured not only its accuracy but also its contextualization. Based on this analysis, all articles were classified into five thematic groups (a publication could belong to more than one group). The groups covered the following topics: urban planning, environmental protection, social policy, urban transport, and urban health policy. A publication was included in a specific group when the topic addressed in the publication (expressed in the research objective/research question or hypothesis) was directly linked to the thematic area of the group. The first stage analysed publications from all five groups. The key group is the group of publications directly (nominally) related to spatial planning. However, it was not excluded that publications relevant to the indicated thematic perspective would appear in the other groups. It is noteworthy that a publication was included in a specific thematic group only if it 1) was directly addressed the topic in question (i.e., it does not apply to cases in which the topic in the publication was taken up in the margins of other issues), and 2) concerned a longer-term perspective (rather than, e.g., an ad hoc response to the challenges of pandemic lockdown management). Even though the basis for the classification was primarily the content of the individual abstracts, in case of doubt, the authors reviewed

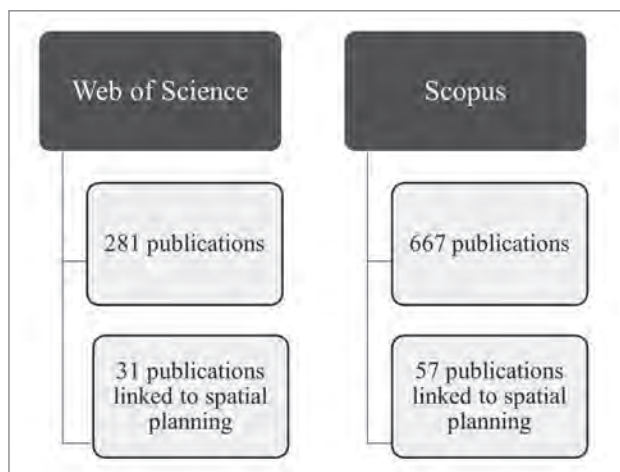


Figure 1: Database search results (illustration: authors).

the entire publication. Nevertheless, it was usually immediately clear from the article if a broader concept describing changes in urban policies was included. Therefore, a minor mention or a vague suggestion of urban policy changes in an article was insufficient to fulfil the criteria.

In the Web of Science database, 281 publications were identified. For thirty-one publications a link to spatial planning was recognized, and for thirty-six publications a link to environmental protection was recognized (Figure 1). In the other thematic groups, the number of publications identified was significantly lower (ten, twelve, and twenty-two publications, respectively). In the Scopus database using the same combination of keywords, 667 publications were identified. Some (173) of the publications were also found in the Web of Science database. The remaining publications were classified into the categories analysed, with links to spatial planning (fifty-seven publications), environmental protection (forty-six), social policy (thirty-nine), urban transport (twenty-six), and health policy (fifteen).

To conclude, two groups of publications relevant to this study were identified: publications directly related to urban planning and publications directly related to urban nature conservation. The two groups with the most publications were further analysed. The analysis showed that spatial planning and environmental protection issues appeared most frequently in the publications analysed. Other issues were also included in the literature, but to a lesser extent. This means that these topics received less research attention. However, they could be separately analysed in future publications. The analysis conducted is presented in detail in Figure 2.

Publications that directly addressed pandemics and (at the same time) discussed urban planning were reviewed first. Pub-

lications that did not cover these issues in depth and publications that did not contain any recommendations for urban policies were removed. Nonetheless, the degree of detail in the conclusions and recommendations in the publications varies.

The following three main thematic areas were identified in the publications analysed (from the group on the link between the COVID-19 pandemic and spatial planning): 1) development of public spaces (management of public spaces including shaping cities as friendly for cyclists and pedestrians, 2) nature and health protection, and 3) linking spatial planning with the concept of the 15-minute city. Each of the issues identified was distinguished, taking into account 1) the content of the publications analysed, 2) the possibility of relating each issue to the purpose of the work, in particular to the institutional dimension of urban spatial policies (Lityński & Hołuj, 2021), and 3) previous publications addressing these issues, presenting them as particularly relevant to discussing spatial planning instruments (Petrișor & Petrișor, 2013; Jopek, 2016; Lantitsou, 2017; Gustaffson et al., 2019; Nowak & Simon, 2022; Noworól et al., 2022). These issues are specifically addressed in the following section.

## 3 Results

### 3.1 Development of public spaces

As Gallitano et al. (2021) point out, the COVID-19 pandemic partly changed the relationship between urban residents and urban space. The general direction of change in urban spatial policy should be to make urban public spaces increasingly available to urban communities. Expanding the availability of green spaces (within public spaces) plays a special role. The use of public spaces has led to the establishment of certain habits, as well as a legal framework, firmly rooted in social structures. Consequently, there is considerable social and sometimes political resistance to attempts to change them, including increasing accessibility at the expense of some users. Furthermore, all dimensions of public space face different barriers. The most frequently observed constraints in the various spatial structures are social and economic, followed by natural. It is also noticeable that the form of relations between people in the context of the value of space and real estate changes with possible modification of the value system, often linked to the prosperity of the society operating in each spatial structure.

Bao and Hu (2021) also draw attention to the need for flexible use of public spaces, which implies planning them in such a way that they can be used for different purposes (depending on needs). This can happen as a result of decisions that initiate the spatial processes desired by both decisionmakers and users.

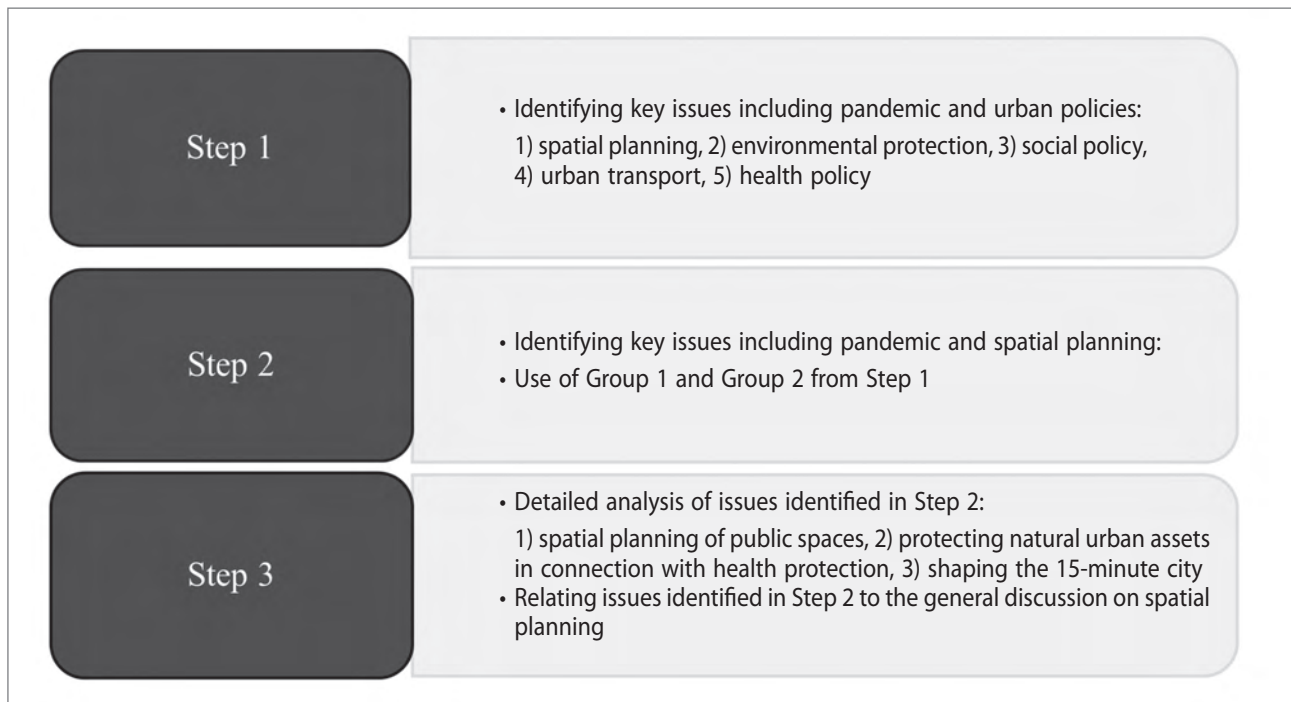


Figure 2: Sequence of analysis of publications and identification of themes (illustration: authors).

These processes are the basis for adapting existing public spaces or creating new ones. These decisions can be motivated by a variety of factors and can therefore have a variety of impacts on public space, both at the micro level and at the broader local level. The defining elements of a particular public space may also differ significantly from areas with similar characteristics, which is likely to affect the sensitivity and flexibility of public spaces. A key role in urban planning is played by the disparities resulting from the activities of different groups of actors in public spaces. A study by Buffoli et al. (2022) shows that, from the perspective of the urban communities they studied, the key features of public spaces are adequate structural features (e.g., by providing seating areas) and guaranteeing safe operating conditions (e.g., through appropriate lighting).

The dimension related to the security of public spaces is also recognized by other authors (e.g., Pinto et al., 2020; Talocci et al., 2022). It can be added that this problem is particularly recognized from the perspective of cities in the Global South. Implementing present demands requires numerous investments in public spaces. Spatial planning instruments should create the possibility (and sometimes even the obligation) to make these investments. Equally strongly emphasized in the literature is the need to care for naturally valuable areas in urban public spaces, a priority if only from the perspective of residents' wellbeing (Samuelsson et al., 2021).

This highlights the need for special protection (also from urban pressures) of naturally valuable areas in urban public

spaces. A separate issue is providing conditions for the movement of pedestrians and cyclists in public spaces (this topic also developed during the COVID-19 pandemic). The pandemic highlighted shortcomings in crisis management. In some cases, radical measures were taken in response to procedural and instrumental weaknesses in the organization of functional and spatial structures. This usually led to restrictions in the operation of public transport.

Referring to a case study of Sarajevo, Mehanović et al. (2022) indicate that, in spatial planning for public spaces, monitoring the traffic volume in particular places can play an important role. Traffic monitoring is a practice that has been widely used for many years in diverse public spaces around the world. Monitoring urbanized structures plays a key role in ensuring the safety of users and the operation of various services in cities. It is an important element for both the public administration and the operators of these spaces. However, its use can be more universal. On the one hand, it involves an optimized public transport planning process that includes the registration of vehicle and passenger movements, and, on the other hand, it is a useful tool for ensuring the quality of urban services. People have been analysing traffic in cities for a long time, adjusting timetables, and determining optimal public transport routes. Monitoring the user behaviour in public spaces can also help in improving the spatial structure, planning the development of public spaces and services, and analysing markets.

**Table 1:** Key demands on planning and managing public spaces identified in the literature analysis.

1. Use of public space	2. Natural assets in public space	3. Ensuring the safety of public space	4. Reorganizing technical infrastructure in public space
<ul style="list-style-type: none"> <li>• Increasing the accessibility of public spaces, including green spaces</li> <li>• Increasing the importance of equity in access to public spaces</li> <li>• Reducing socioeconomic and natural barriers</li> <li>• Redefining the value of space as real estate, resulting in expanding its accessibility</li> <li>• Economic and flexible use of public spaces through effective spatial and urban planning</li> </ul>	<ul style="list-style-type: none"> <li>• Protecting natural resources associated with the need to care for them</li> <li>• Using natural resources for public purposes</li> </ul>	<ul style="list-style-type: none"> <li>• Improving the safety of public spaces by equipping them with appropriate technical infrastructure (active and passive)</li> <li>• Creating safe conditions for working and living in open spaces</li> <li>• Effectiveness of crisis management and resilience to unexpected events</li> <li>• Ensuring user safety and functioning of urban services</li> <li>• Good practice in improving the quality of public spaces in congested cities</li> <li>• A need to adapt spatial planning regulations to endogenous and exogenous conditions</li> </ul>	<ul style="list-style-type: none"> <li>• Applying safe design solutions for all users</li> <li>• Urban mobility and public transport constraints</li> <li>• Modalities and rules of the road in public spaces (for pedestrians and cyclists)</li> <li>• Cycling infrastructure and urban bicycles</li> <li>• Optimizing public transport planning</li> <li>• Procedural and instrumental weaknesses in organizing functional and spatial structures</li> <li>• Monitoring traffic flows in particular locations and user behaviour in public spaces</li> </ul>

Source: authors.

Pucher and Buehler (2010) emphasize the important link between planning public spaces and ensuring good conditions for pedestrians and cyclists in cities. Unfortunately, despite existing organizational solutions for this linear and point-to-point infrastructure, the use of bicycles was restricted by administrative measures in many cities around the world during the COVID-19 pandemic. These restrictions on access to urban infrastructure for pedestrians and cyclists were mainly dictated by fear of potential danger, resulting in measurable and preventive restrictions. In addition, there was a general suspension of urban cycle hire schemes. It should be stressed that the approach to this issue differed between cities in Europe, the United States, and Asia. There is no doubt that temporary measures to facilitate the movement of pedestrians and cyclists will be a new experience in spatial planning. Moreover, creating good conditions for the functioning of transport infrastructure (pedestrian and cycling) in a city, considering the need to maintain appropriate distances between users to ensure safety, can contribute to the good practices needed (systemic solutions) to improve the quality of public spaces in congested cities. Based on a study of Calgary, Fast and Guo (2021) highlight the need to make pavements wider. Wang (2021), on the other hand, advocates the optimization of street layout.

Publications linking urban spatial planning and pandemics share the theme of managing public spaces. The key demands are summarized in Table 1.

The issues identified are not new to urban planning. However, since the COVID-19 pandemic, the role of public spaces in cities has been much more widely and intensively discussed.

### 3.2 Nature conservation and health protection

In the publications analysed, the authors recognize diverse links between nature conservation (and health conservation) and spatial planning. In general, the basis for spatial planning decisions should be a desire to protect natural resources (Castro et al., 2021). This involves 1) specific building design, considering green technologies (Kakderi et al., 2021); 2) specific protection of urban greenery (Rossi et al., 2022); urban greenery must contribute to the provision of functions that are relevant from a social and spatial justice perspective (Reinwald et al., 2021); and 3) adapting the design of new residential neighbourhoods to the natural environment (Chen et al., 2023; Legutko-Kobus et al., 2023) and linking housing and urban development policies to the ability to reduce emissions and create conditions for better quality of life in cities (Wakely, 2022). Spennemann (2021) highlights the need to avoid overly detailed designed spaces in favour of more natural (nature-based) solutions. However, these must take into account the need for social distance and incorporate it into planning green spaces that can function as spaces for mental and physical recreation during health crises. Landman (2021), on the other hand, suggests viewing the city as a socio-ecological system.

**Table 2:** Key areas of interest and links between spatial planning, health, and environmental protection, identified in the literature analysis.

1. Protecting the natural environment	2. Modern urban planning	3. Natural resource protection and public health	4. Post-pandemic requirements for spatial planning
<ul style="list-style-type: none"> <li>Increasing the role of and relationship between conservation measures and spatial policy implementation (planning and strategic studies)</li> <li>Protecting urban greenery from excessive development and exploitation</li> <li>Fair use of green public spaces</li> <li>Pro-ecological thinking in spatial planning</li> </ul>	<ul style="list-style-type: none"> <li>Using green technologies in housing design (reducing of material and energy consumption)</li> <li>Implementing green infrastructure in urban planning as a means of improving human health and social wellbeing</li> <li>Modern design of housing estates and public spaces taking crises into account (pandemics, climate change)</li> <li>Increasing the role of social participation, bottom-up activities in spatial planning taking into account protection of the natural environment</li> </ul>	<ul style="list-style-type: none"> <li>The importance of human habitat quality (improving resilience to crises)</li> <li>Integrating health security requirements into urban landscape design</li> <li>The city as a social-ecological system, taking into account the need for change to facilitate the coexistence of people and nature</li> <li>The link between housing and urban planning policy, reducing emissions, and improving the quality of life in cities</li> </ul>	<ul style="list-style-type: none"> <li>Protecting the natural resources of cities to prevent intensive development</li> <li>Developing green urban areas required for creating public open spaces</li> <li>Recognizing the relationship between nature conservation and living, health, and safety standards in areas of intensive urbanization</li> <li>Internalizing nature conservation (biologically active areas) in local legislation for urban areas</li> <li>Optimizing the management and use of space for accessibility and universality of healthcare</li> </ul>

Source: authors.

In this approach, urban planners must plan for change and uncertainty to facilitate the coexistence and co-evolution of people and nature.

Another dimension also needs to be highlighted: the direct relationship between the spatial protection of urban natural assets and the level of public health (Syal, 2021). The level of public health significantly depends on the extent to which natural assets are present and protected in a city. Based on the example of Italian cities, Pinto et al. (2020) recognize the need to integrate health security requirements into discussions on urban landscape design. Talocci et al. (2022) emphasize that it was the COVID-19 pandemic that showed that guidelines resulting from urban planning (e.g., distances for siting buildings, as well as those affecting the density of buildings) translate into specific health consequences, even creating differential disease risks, for different city dwellers (this regularity does not only extend to the recent pandemic). Marregi and Lazzarini (2022) also recognize the link between health and urban planning. An undercurrent of these considerations is taken up by, among others, Bar et al. (2021) and Ferrini and Gori (2021), who stress that the implementation of green infrastructure in urban planning would improve human health and social wellbeing in the long term.

Based on all the highlighted links between spatial planning, health, and environmental protection, several key areas of interest can be identified. They are summarized in Table 2.

In the case at hand, too, there was a clear paradigm shift in planning. The circumstances surrounding the COVID-19 pandemic definitely reinforced the direction of the discussion about nature conservation in cities (and also about linking this issue to healthcare needs). Today, it is not enough to focus only on identifying drawbacks, limitations, and problems in nature and health protection. To preserve and protect usable space, it is necessary to influence the entire economic system of a country. When implementing policies, it is necessary to consider not only economic and political aspects and the protection of individual natural components themselves, but also negative externalities, including those of an ecological nature.

### 3.3 Linking spatial planning with the concept of the 15-minute city

The last of the themes identified concerns the connection between spatial planning and the concept of 15-minute cities. This issue has been extensively analysed (Noworól et al., 2022; Pozoukidou & Angelidou, 2022; Sharifi et al., 2023). This review focuses on publications that directly link the concept of the 15-minute city with urban planning. Logan et al. (2022), justifying the validity of the concept, provide arguments that are relevant from the perspective of spatial planning, making it possible to introduce certain restrictions on development. These primarily concern the reduction of inequalities between individual residents. Among other things, Khavarian-Garmsir et al. (2023) see social and environmental benefits in the

**Table 3:** Key messages related to implementation of the 15-minute city concept in urban planning, identified in the literature review.

1. Benefits and barriers to implementing the 15-minute city concept	2. Urban development dynamics	3. Public space: a place of conflict	4. Impact of the pandemic on the 15-minute city
<ul style="list-style-type: none"> <li>• Strengthening the flexibility of spatial planning</li> <li>• Reducing functional costs (including maintenance of technical infrastructure and lost time)</li> <li>• Adopting overly universal approaches, which are difficult to apply in economic practice (the diversity of functional and spatial structures requires the universality of the proposed assumptions)</li> <li>• Accompanying external effects (especially costs) not always identified</li> </ul>	<ul style="list-style-type: none"> <li>• Spatial users' understanding of the importance the quality (accessibility and internal mobility) of the living environment has for them</li> <li>• City development in line with actual current needs (taking into account broadly understood security, including military)</li> <li>• Intensifying discussion of the concept of 15-minute cities in the context of a pandemic and its impact on integrated urban planning (updating the concept to new challenges)</li> <li>• Strengthening urban planning to implement the 15-minute city concept</li> </ul>	<ul style="list-style-type: none"> <li>• Spatial planning as a tool to address inequalities in access to open spaces</li> <li>• Spatial management is associated with the risk of negative effects of this process; e.g., overcrowding and pollution of spaces and traffic congestion</li> <li>• Conflicts resulting from the different needs and objectives of users of public spaces (disparities in perception of needs)</li> <li>• Influence of social, economic, environmental, and cultural processes on shaping public space</li> </ul>	<ul style="list-style-type: none"> <li>• The 15-minute city as a basis for introducing restrictions on development, redefining existing functions in cities, and increasing the flexibility of spatial planning</li> <li>• Arguments in favour of introducing restrictions on spatial development (overuse of land can increase inequalities between residents; e.g., in accessibility of public goods)</li> </ul>

Source: authors.

implementation of the concept, as well as a basis for strengthening planning flexibility. At the same time, significant barriers are noted, among which physical determinism and the adoption of an overly universal approach must be particularly emphasized (Sharifi, 2019; Barbarossa, 2020; Moreno et al., 2021; Sharifi et al., 2021).

The problems of social disparities are also recognized by Guzman et al. (2021), who see spatial planning as an instrument to redress possible inequalities. Ineffective spatial planning can have several negative effects, such as increased density, pollution, and mobility and transport bottlenecks. At the same time, space provides the basis for the existence of a dynamic functional system in an area. We therefore see a need to intensify planning efforts for 15-minute structure in the areas presented in Table 3.

Analysing the concept of the 15-minute city, Pinto et al. (2020) refer to the case of Milan and suggest a redefinition of certain existing functions of areas. Public space in the 15-minute city can also be a major source of conflict and appropriation by different user groups or communities. This is because public space is not only the result of human urban planning activities, but also a place where various externalities and external benefits and costs related to social, economic, environmental, and cultural processes are generated (Hołuj, 2021; Hołuj et al., 2022).

The concept of 15-minute cities received a great deal of scrutiny during the COVID-19 pandemic. The premises that can be translated into spatial planning concern the following: treating the concept of a 15-minute city as the basis for restrictions on developing individual sites, the need to redefine existing functions in some cities, and a basis for extending the flexibility of spatial planning.

#### 4 Discussion: How has the pandemic changed the approach to urban planning?

The discussion streams identified can be related to previously diagnosed vital issues concerning the general discussion on spatial planning. Publications comprehensively covering the COVID-19 pandemic and spatial planning issues have not created a single, strong current in the discussion (especially from a long-term perspective). However, they have complemented and reinforced some directions previously present in the literature on the subject but considered less relevant before the COVID-19 pandemic.

First, this concerns the link between spatial planning and climate change (Norman, 2022; Nowak et al., 2023). Among the topics identified, nature conservation in urban spatial planning (Bar et al., 2021; Rossi et al., 2022) stands out in particular.



Publications during the pandemic reinforced the demand for protecting green areas in cities and using green technologies (Kakderi et al., 2021). Publications addressing nature conservation in urban planning from a pandemic perspective primarily focused on health; that is, nature conservation for better health conditions (Castro et al., 2021; Chen et al., 2023; Khavarian-Garmsir et al., 2023; Legutko-Kobus et al., 2023). However, this makes it possible to treat the justification for the need to protect natural assets in cities in a multifaceted manner. Moreover, in some publications dealing with the issues identified, the authors also signalled their thematic link with the need to respond to climate challenges (Khavarian et al., 2023).

Another relevant issue from the perspective of the general discussion of spatial planning is the coordination of spatial planning (its instruments) with diverse spheres of development (Guzman et al., 2021). The COVID-19 pandemic clarified the need to maintain the link between spatial planning and health protection objectives. Health protection was a reference point for changes related to broader nature conservation in the publications analysed. However, the issue identified is wider in scope, as evidenced by publications isolating the relationship between the application of specific urban planning parameters (e.g., density) and the health of residents (Talocci et al., 2022).

However, most publications analysed contribute to the discussion on adapting specific spatial planning instruments to current challenges. The contribution indicated is specific. In the publications analysed, the authors do not so much refer to particular instruments but rather suggest (from the perspective of the topics addressed) that specific changes should be made (Pucher & Buehler, 2010; Gallitano et al., 2021; Bao & Hu, 2021). Spatial planning instruments can be classified in various ways. It is crucial to distinguish between strategic and regulatory spatial planning instruments (Oliveira et al., 2018). In most countries, the most common group of instruments indicated consists of local spatial plans (which are legally binding acts).

As a general rule (while being aware of the detailed differences from country to country), such spatial plans define zones and guidelines for land use (building height, building intensity, etc.). In particular, more stringent land-use restrictions must have specific justification (Nowak et al., 2021). Relating the above to the themes identified in the publications reviewed, two possible approaches can be identified: justifications for land-use restrictions in specific plans and bases for broadening the scope of solutions in regulatory spatial plans.

The first approach can include indicating the need for special protection of public spaces, with the related rationale for introducing wider development restrictions for the areas identified, justifying in-depth protection of natural assets in cities, and

justifying restrictions on land use due to the need to implement (in part or in full) the 15-minute city concept. The second approach distinguishes approaches by justifying non-standard solutions for the content of regulatory instruments. These include extensive guidelines for developing public spaces (much broader than simple land zoning or standard guidelines), and guidelines for using green technologies in building construction that redefine selected urban functions in connection with the formation of 15-minute cities.

Discussions about urban planning during the pandemic can be divided into those addressing 1) spatial conflicts, 2) the role of legislation in spatial planning and comparisons of national spatial planning systems, and 3) the relationship between spatial planning and climate challenges.

Strengthening the justifications for spatial planning restrictions (concerning the protection of public spaces and consideration of health guidelines in planning) is essential from the perspective of the discussion on spatial conflicts (Bromley, 2010; Bergstrom et al., 2013; Hersperger et al., 2015; Papamichail, 2019). To date, health protection (and the consequences of this protection) has relatively rarely been considered in the literature. Ideas arising from discussing the pandemic also influence the perception of spatial planning legislation (Buiteelaar & Sorel, 2010; Gielen & Tasan-Kok, 2010; Moroni et al., 2020). The example of the COVID-19 pandemic shows that it is necessary to extend flexibility in planning and adapt legal solutions to new challenges (as well as technological ones). Attention should also be paid to discussing comparisons of national spatial planning systems. Healthcare, protection of public spaces, and the design of 15-minute cities (and institutional responses to these challenges in various countries) should also be considered. The conclusions of the discussion on spatial planning during the pandemic are strongly linked to the discussion about the relationship between spatial planning and climate protection.

## 5 Conclusion

The experience of the COVID-19 pandemic has not introduced revolutionary solutions to spatial policy. Discussions have used the same concepts and demands for several years or more. The pandemic also revealed the significance of social and environmental inequalities, and differences in the pandemic restrictions across political and social systems. An analysis of the publications leads to several conclusions. To a far greater extent than before the pandemic, importance is attached to the management of public spaces in the literature. The public realm is a unique domain that provides access to many public services essential for a city's urban and economic development.

Protecting nature in cities (especially green areas) is viewed similarly. In most countries, spatial planning solutions must be adequately justified, especially those containing restrictions and limitations. Thus, after the pandemic, the justification of such limits by health considerations is much more extensive. This allows broader integration of development policies (including health and spatial policies). Considering the 15-minute city requires developing a discussion on redefining urban functions and applying flexibility in planning (Khavarian-Garmsir et al., 2023).

The critical contribution of this article is relating the discussion of the pandemic to selected aspects of urban planning. An important research limitation was that spatial planning demands related to the pandemic rarely directly addressed the institutional and legal aspects of urban spatial planning. The detailed differentiation of individual national spatial planning systems is also a barrier (Nowak et al., 2023). Nevertheless, the article identifies vital premises that should also be part of discussions on institutional aspects of urban planning. The guidelines developed should be adapted to the specifics of national systems. Referring to the first of the research questions, the key themes in the literature concern the in-depth protection of urban space. This is manifested in the detailed treatment of the three interdependent areas: protecting public spaces, protecting nature in the city, and developing the 15-minute city concept. They should be translated into values protected by legal and institutional spatial instruments and reflected in detailed regulations (e.g., urban spatial plans). Concerning the second research question, the contribution of pandemic-related publications to the discussion reinforces and complements earlier trends.

In subsequent studies, the COVID-19 pandemic will be far less relevant. However, the issues identified above remain essential. The following issues require further in-depth analysis: 1) integrating health objectives into urban spatial policy, and 2) adapting urban spatial plans to new challenges, including flexibility in planning, redefining functions, and including specific technological and environmental guidelines in the plans.

.....  
Maciej J. Nowak

Department of Real Estate, Faculty of Economics, West Pomeranian University of Technology, Szczecin, Poland  
E-mail: maciej.nowak@zut.edu.pl

Paulina Legutko-Kobus

Department of Public Policy, Warsaw School of Economics (SGH), Warsaw, Poland  
E-mail: plegut@sgh.waw.pl

Ayyoob Sharifi

The IDEC Institute & Network for Education and Research on Peace and Sustainability (NERPS), Hiroshima University, Higashi-Hiroshima,

Hiroshima, Japan

E-mail: sharifi@hiroshima-u.ac.jp

Amir Reza Khavarian-Garmsir

Department of Geography and Urban Planning, Faculty of Geographical Sciences and Planning, University of Isfahan, Isfahan, Iran  
E-mail: amir.khavarian@yahoo.com

Artur Holuj

Department of Spatial Management, Faculty of Economy and Public Administration, Krakow University of Economics, Krakow, Poland  
E-mail: holuja@uek.krakow.pl

## Acknowledgement

This article was financed from a subsidy granted to Krakow University of Economics for project no. 050/GGG/2022/POT.

## References

- Amdaoud, M., Arcuri, G., Levratto, N., Succurro, M. & Costanzo, D. (2020) *Geography of COVID-19 outbreak and first policy answers in European regions and cities*. Technical report. Brussels, ESPON.
- Banai, R. (2020) Pandemic and the planning of resilient cities and regions. *Cities*, 106, 102929. doi:10.1016/j.cities.2020.102929
- Bao, L. & Hu, D. (2021) Reflections on the design of urban community and residential buildings in China in the post-epidemic era. *Festival dell'Architettura Magazine*, 52–53, 120–126.
- Bar, S., Parida, B. R., Mandal, S. P., Pandey, A. C., Kumar, N. & Mishra, B. (2021) Impacts of partial to complete COVID-19 lockdown on NO<sub>2</sub> and PM<sub>2.5</sub> levels in major urban cities of Europe and USA. *Cities*, 117, 103308. doi:10.1016/j.cities.2021.103308
- Barbarossa, L. (2020) The post pandemic city: Challenges and opportunities for a non-motorized urban environment. An overview of Italian cases. *Sustainability*, 12(17), 7172. doi:10.3390/su1217
- Batty, M., Clifton, J., Tyler, P. & Wan, L. (2022) The post-Covid city. *Cambridge Journal of Regions, Economy and Society*, 15(3), 447–457. doi:10.1093/cjres/rsac041
- Bergstrom, J. C., Goetz, S. J. & Shortle, J. S. (2013) *Land use problems and conflicts: Causes, consequences and solutions*. New York, Routledge.
- Bromley, D. W. (2010) Property rights and land use conflicts: reconciling myth and reality. In: Johnston, R. J. & Swallow, S. K. (eds.) *Economics and contemporary land use policy*, 64–78. New York, Routledge. doi:10.4324/9781936331659-10
- Buffoli, M., Mangili, S., Capolongo, S. & Brambilla, A. (2022) Explorative study on urban public space renovation during COVID-19: Test of a visual web-based survey about the city of Saint German En Laye, France. *Sustainability*, 14(19), 12489. doi:10.3390/su141912489
- Buitelaar, E. & Sorel, N. (2010) Between the rule of law and the quest for control: Legal certainty in the Dutch planning system. *Land Use Policy*, 27(3), 983–989. doi:10.1016/j.landusepol.2010.01.002
- Castro, G. A. I. & López, R. L. J. (2021) Sustainability and resilience of emerging cities in times of COVID-19. *Sustainability*, 13(16), 9480. doi:10.3390/su13169480

- Champlin, C., Sirenko, M. & Comes, T. (2023) Measuring social resilience in cities: An exploratory spatio-temporal analysis of activity routines in urban spaces during Covid-19. *Cities*, 135, 104220. doi:10.1016/j.cities.2023.104220
- Chen, Q., Sun, Z. & Li, W. (2023) Effects of COVID-19 on residential planning and design: A scientometric analysis. *Sustainability*, 15(3), 2823. doi: 10.3390/su15032823
- Cole, H. V. S., Anguelovski, I., Baró, F., García-Lamarca, M., Kotsila, P., Pérez Del Pulgar, C., et al. (2021) The COVID-19 pandemic: Power and privilege, gentrification, and urban environmental justice in the Global North. *Cities & Health*, 5(Supplement 1), 1–5. doi:10.1080/23748834.2020.1785176
- Fast, V. & Guo, J. (2021) Putting pedestrians first: Sidewalk infrastructures, width patterns and COVID-19. *GI Forum*, 1, 242–250. doi:10.1553/giscience2021\_02\_s242
- Ferrini, F. & Gori, A. (2021) Cities after Covid-19: How trees and green infrastructures can help shaping a sustainable future. *Ri-Vista. Research for Landscape Architecture*, 19(1), 182–191. doi:10.13128/RV-8553.
- Florida, R. & Pedigo, S. (2020) *How our cities can reopen after the COVID-19 pandemic*. Available at: <https://www.brookings.edu/articles/how-our-cities-can-reopen-after-the-covid-19-pandemic/> (accessed 9 Mar. 2024).
- Gallitano, G., Leone, M. & Lotta, F. (2021) Accessibilità post-pandemia: riflessioni sullo spazio pubblico. *Ri-Vista. Ricerche Per La Progettazione Del Paesaggio*, 19(1), 242–255. doi:10.36253/rv-10294
- Gielen, D. M. & Tasan-Kok, T. (2010) Flexibility in planning and the consequences for public-value capturing in UK, Spain and the Netherlands. *European Planning Studies*, 18(7), 1097–1131. doi:10.1080/09654311003744191
- Grum, B. & Kobal Grum, D. (2023) Urban resilience and sustainability in the perspective of global consequences of COVID-19 pandemic and war in Ukraine: A systematic review. *Sustainability*, 15(2), 1459. doi:10.3390/su15021459
- Gustafsson, S., Hermelin, B. & Smas, L. (2019) Integrating environmental sustainability into strategic spatial planning: The importance of management. *Journal of Environmental Planning and Management*, 62(8), 1321–1338. doi:10.1080/09640568.2018.1495620
- Guzman, L. A., Arellana, J., Oviedo, D. & Moncada Aristizábal, C. A. (2021) COVID-19, Activity and mobility patterns in Bogotá. Are we ready for a “15-minute city”? *Travel Behaviour and Society*, 24, 245–256. doi:10.1016/j.tbs.2021.04.008
- Hersperger, A. M., Iloja, C., Steiner, F. & Tudor, C. A. (2015) Comprehensive consideration of conflicts in the land-use planning process: A conceptual contribution. *Carpathian Journal of Earth and Environmental Sciences*, 10(4), 5–13.
- Hołuj, A. (2021) Externalities in the light of selected spatial economy issues-contribution to the discussion. *European Research Studies*, 24(1), 3–21. doi: 10.35808/ersj/1947
- Hołuj, A., Alexandru, D. E. & Zotic, V. (2022) Spatial externalities – A contribution to identifying a network of relationships. Insights from Poland and Romania. *Journal of Settlements & Spatial Planning*, special issue, 2022(10), 51–64. doi:10.24193/JSSPSI.06.CSPTER
- Hołuj, A. & Zawilińska, B. (2013) Planning documents issued in Poland at the municipal level. Example of the Krakow Metropolitan Area. *Journal of Settlements and Spatial Planning*, 4(1), 122–124.
- Jopek, D. (2016) Public space as a principle of the city planning. *Przestrzeń i Forma*, 28, 181–194. doi:10.21005/pif.2016.28.C-03
- Kakderi, C., Komninos, N., Panori, A. & Oikonomaki, E. (2021) Next city: Learning from cities during COVID-19 to tackle climate change. *Sustainability*, 13(6), 3158. doi:10.3390/su13063158
- Khavarian-Garmsir, A. R., Sharifi, A., Hajian Hossein Abadi, M. & Moradi, Z. (2023) From garden city to 15-minute city: A historical perspective and critical assessment. *Land*, 12(2), 512. doi:10.3390/land12020512
- Kunzmann, K. R. (2020) Smart cities after Covid-19: Ten narratives. *disP – The Planning Review*, 56(2), 20–31. doi:10.1080/02513625.2020.1794120
- Landman, K. (2021) Rapidly changing cities: Working with socio-ecological systems to facilitate transformation. *Urban Planning*, 6(2), 139–142. doi:10.17645/up.v6i2.4472
- Lantitsou, K. (2017) Eco-development and environmental spatial planning. *Fresenius Environmental Bulletin*, 26(2), 1291–1300.
- Legutko-Kobus, P., Nowak, M., Petrisor, A.-I., Bărbulescu, D., Craciun, C. & Gârjoabă, A.-I. (2023) Protection of environmental and natural values of urban areas against investment pressure: A case study of Romania and Poland. *Land*, 12(1), 245. doi:10.3390/land12010245
- Lityński, P. & Hołuj, A. (2021) Macroeconomic perspective on urban sprawl: A multidimensional approach in Poland. *Land*, 10(2), 116. doi:10.3390/land10020116
- Logan, T. M., Hobbs, M. H., Conrow, L. C., Reid, N. L., Young, R. A. & Anderson, M. J. (2022) The X-minute city: Measuring the 10, 15, 20-minute city and an evaluation of its use for sustainable urban design. *Cities*, 131, 103924. doi:10.1016/j.cities.2022.103924
- Mareggi, M. & Lazzarini, L. (2022) Cities reacting to health outbreaks: a challenge for urban planning, from the modern age to the global pandemic. *Archivio Di Studi Urbani E Regionali*, 134, 52–73. doi:10.3280/asur2022-134003
- Mehanović, D., Zejinlović, E., Husukić, E. & Mašetić, Z. (2022) Prediction of human movement in open public spaces: Case study of Sarajevo. *Traitement du Signal*, 39(2), 399–406. doi:10.18280/ts.390201
- Moreno, C., Allam, Z., Chabaud, D., Gall, C. & Pratlong, F. (2021) Introducing the “15-minute city”, Sustainability, resilience and place identity in future post-pandemic cities. *Smart Cities*, 4(1), 93–111. doi:10.3390/smartcities4010006
- Moroni, S., Buitelaar, E., Sorel, N. & Cozzolino, S. (2020) Simple planning rules for complex urban problems: Toward legal certainty for spatial flexibility. *Journal of Planning Education and Research*, 40(3), 320–331. doi:10.1177/0739456X18774122
- Norman, B. (2022) *Urban planning for climate change*. London, Taylor & Francis. doi:10.4324/9780367486006
- Nowak, M. J., Lozynsky, R. M. & Pantyley, V. (2021) Local spatial policy in Ukraine and Poland. *Studia z Polityki Publicznej*, 8(3), 11–27. doi:10.33119/KSzPP/2021.3.1
- Nowak, M., Petrisor, A.-I., Mitrea, A., Kovács, K. F., Lukstina, G., Jürgen-son, E., et al. (2022) The role of spatial plans adopted at the local level in the spatial planning systems of central and eastern European countries. *Land*, 11(9), 1599. doi:10.3390/land11091599
- Nowak, M. & Śleszyński, P. (2023) Climate protection in spatial policy instruments, opportunities and barriers: The case study of Poland. In: Chatterjee, U., Shaw, R., Bhunia G. S., Setiawati, M. D. & Banerjee, S. (eds.) *Climate change, community response and resilience*, 419–431. Amsterdam, Elsevier. doi:10.1016/B978-0-443-18707-0.00022-9
- Nowak, M. J., Mitrea, A., Lukstina, G., Petrișor, A. I., Kovács, K. F., Sim-eonova, V., et al. (2023) *Spatial planning systems in central and eastern European countries: Review and comparison of selected issues*. Cham, Springer. doi:10.1007/978-3-031-42722-0

- Nowak, M. J. & Simon, K. (2022) Kierunki polityki przestrzennej miast w Polsce a pandemia SARS-CoV-2. Perspektywa medyczna i przestrzenna. *Studia z Polityki Publicznej*, 9(4), 29–45. doi: 10.33119/KSzPP/2022.4.2
- Noworól, A., Kopyciński, P., Hałat, P., Salamon, J. & Hołuj, A. (2022) The 15-minute city – The geographical proximity of services in Krakow. *Sustainability*, 14(12), 7103. doi:10.3390/su14127103.
- Obeng-Odoom, F. (2019) The intellectual marginalisation of Africa. *African Identities*, 17(34), 211–224. doi:10.1080/14725843.2019.1667223
- OECD (2017) *The governance of land use in OECD countries: Policy analysis and recommendations*. Paris, OECD Publishing. doi:10.1787/9789264268609-en
- OECD (2020) *Cities policy responses (= OECD policy responses to coronavirus (COVID-19))*. Paris, OECD Publishing. doi:10.1787/5b0fd8cd-en
- Oliveira, E., Tobias, S. & Hersperger, A. M. (2018) Can strategic spatial planning contribute to land degradation reduction in urban regions? State of the art and future research. *Sustainability*, 10(4), 949. doi:10.3390/su10040949
- Ondrejčka, V., Ladzińska, Z., Finka, M., Baloga, M. & Husár, M. (2020) Spatial planning tools as a key element for implementation of the strategy for an integrated governance system of historical built areas within the central Europe region. *IOP Conference Series: Materials Science and Engineering*, 960(2), 022088. doi:10.1088/1757-899X/960/2/022088
- Papamichail, T. (2019) *Spatial synergies – Synergies between formal and informal planning as a key concept towards spatial conflicts – The case of tourism-oriented railway development in the Peloponnese*. Doctoral thesis. Zurich, ETH Zurich. doi:10.3929/ethz-b-000375705
- Petrișor, A. I. & Petrișor, L. E. (2013) The shifting relationship between urban and spatial planning and the protection of the environment: Romania as a case study. *Present Environment and Sustainable Development*, 7(1), 268–276.
- Pinto, M. R., Viola, S., Fabbricatti, K. & Pacifico, M. G. (2020) Adaptive reuse process of the historic urban landscape post-Covid-19. The potential of the inner areas for a “new normal”. *Vitruvio*, 5(2), 87. doi:10.4995/vitruvio-ijats.2020.14521
- Pozoukidou, G. & Angelidou, M. (2022) Urban planning in the 15-minute city: Revisited under sustainable and smart city developments until 2030. *Smart Cities*, 5(4), 1356–1375. doi:10.3390/smartcities5040069
- Pucher, J. & Buehler, R. (2010) Walking and cycling for healthy cities. *Built Environment*, 36(4), 391–414. doi:10.2148/benv.36.4.391
- Reinwald, F., Haluza, D., Pitha, U. & Stangl, R. (2021) Urban green infrastructure and green open spaces: An issue of social fairness in times of COVID-19 crisis. *Sustainability*, 13(19), 10606. doi:10.3390/su131910606
- Rossi, L., Menconi, M. E., Grohmann, D., Brunori, A. & Nowak, D. J. (2022) Urban planning insights from tree inventories and their regulating ecosystem services assessment. *Sustainability*, 14(3), 1684. doi:10.3390/su14031684
- Rozas-Vásquez, D., Fürst, C., Geneletti, D. & Almendra, O. (2018) Integration of ecosystem services in strategic environmental assessment across spatial planning scales. *Land Use Policy*, 71, 303–310. doi:10.1016/j.landusepol.2017.12.015
- Samuelsson, K., Barthel, S., Giusti, M. & Hartig, T. (2021) Visiting nearby natural settings supported wellbeing during Sweden’s “soft-touch” pandemic restrictions. *Landscape and Urban Planning*, 214, 104176. doi:10.1016/j.landurbplan.2021.104176
- Sharifi, A. (2019) Resilient urban forms: A review of literature on streets and street networks. *Building and Environment*, 147, 171–187. doi:10.1016/j.buildenv.2018.09.040
- Sharifi, A. & Khavarian-Garmsir, A. R. (2020) The COVID-19 pandemic: Impacts on cities and major lessons for urban planning, design, and management. *Science of The Total Environment*, 749, 142391. doi:10.1016/j.scitotenv.2020.142391
- Sharifi, A., Khavarian-Garmsir, A. R., Allam, Z. & Asadzadeh, A. (2023) Progress and prospects in planning: A bibliometric review of literature in urban studies and regional and urban planning, 1956–2022. *Progress in Planning*, 173, 100740. doi:10.1016/j.progress.2023.100740
- Sharifi, A., Khavarian-Garmsir, A. R. & Kummitha, R. K. R. (2021) Contributions of smart city solutions and technologies to resilience against the COVID-19 pandemic: A literature review. *Sustainability*, 13(14), 8018. doi:10.3390/su13148018
- Śleszyński, P., Khavarian-Garmsir, A. R., Nowak, M., Legutko-Kobus, P., Abadi, M. H. H. & Nasiri, N. A. (2023) COVID-19 spatial policy: A comparative review of urban policies in the European Union and the Middle East. *Sustainability*, 15(3), 2286. doi:10.3390/su15032286
- Śleszyński, P., Legutko-Kobus, P., Rosenberg, M., Pantyley, V. & Nowak, M. J. (2022) Assessing urban policies in a COVID-19 world. *International Journal of Environmental Research and Public Health*, 19(9), 5322. doi:10.3390/ijerph19095322
- Spennemann, D. H. R. (2021) Exercising under COVID-2x: Conceptualizing future green spaces in Australia’s neighborhoods. *Urban Science*, 5(4), 93. doi:10.3390/urbansci5040093
- Stoeglehner, G. & Abart-Herisz, L. (2022) Integrated spatial and energy planning in Styria – A role model for local and regional energy transition and climate protection policies. *Renewable and Sustainable Energy Reviews*, 165, 112587. doi:10.1016/j.rser.2022.112587
- Syal, S. (2021) Learning from pandemics: Applying resilience thinking to identify priorities for planning urban settlements. *Journal of Urban Management*, 10(3), 205–217. doi:10.1016/j.jjum.2021.05.004
- Talocci, G., Brown, D. & Yacobi, H. (2022) The biogeopolitics of cities: A critical enquiry across Jerusalem, Phnom Penh, Toronto. *Planning Perspectives*, 37(1), 169–189. doi:10.1080/02665433.2021.2019608
- Wakely, P. (2022) Sustainable urban housing policies in the era of post-covid climate change mitigation. *International Journal of Urban Sustainable Development*, 14(1), 416–424. doi:10.1080/19463138.2022.2055298
- Wang, J. (2021) Vision of China’s future urban construction reform: In the perspective of comprehensive prevention and control for multi disasters. *Sustainable Cities and Society*, 64, 102511. doi:10.1016/j.scs.2020.102511