

CITIES

in the Shadow of Pandemic and Climate Crisis

New quality of space and reality

Edited by
Ewelina Biczyńska
and Mirosława Czerny



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People walking on Madero Street in Mexico City, Mexico, on 1 August 2020.
On that day, Mexico's Ministry of Health confirmed 9,556 cases of COVID-19 registered in 24 hours, a new record for the country. Fot. Guillermo Gutierrez/NurPhoto/EAST NEWS

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INTRODUCTION

The last quarter of the twentieth century was characterised by an extraordinary dynamism of urban population growth, especially in the countries of the Global South. The network of European cities consolidated, while South American, Asian, and African cities absorbed masses of immigrants from rural areas and grew at a pace that was difficult to control and hindered taking timely urban policies. Thus, spatial chaos, deficiencies in urban infrastructure, social divisions, behavioural disorders, and crime ensued. This process was not homogeneous. It was and is geographically diverse.

The last decade of the twentieth century was a seminal period for political change in the countries of Central and Eastern Europe. The transition from the system of centrally planned economy to the free market also implied changes in behaviour and processes in urban areas. From the end of World War II until 1989, cities were planned and built according to an ideology whose most important element was the provision of housing for working families. The state assumed the role of an investor in the construction sector. The nationalisation of urban land and means of production meant that the state was often the only investor in this sector of the economy, at least in major cities.

At the same time, the adopted model of the housing industry consisted in building large housing estates with apartment buildings. Land and building materials were divided among housing cooperatives established by the state. Housing estates for 10,000 or 20,000 people, sometimes even larger ones, were built on formerly agricultural land adjacent to old housing estates. Over the years, as the system of centrally planned economy began to erode, there was a lack of funds to equip these giant settlements with the appropriate infrastructure. There were not enough stores, schools, kindergartens, health centres, parks, playgrounds for children, or adequate transportation links.

Meanwhile, the extensive development of the centre also failed to provide a suitable environment for urban life.

Ineffective management of urban land was evident, among other things, in the fact that plots of land remained undeveloped for decades, old tenements from the pre-war period were not renovated, infrastructure was poor,

neighbourhoods were poorly connected, and the buildings were in a state of disrepair.

In the centres, old green areas were preserved. Some of them were further maintained and thus ensured the preservation of green infrastructure in the big cities, e.g. in Warsaw, Kraków, Łódź, Lublin; others became wastelands and for years formed a space for no one, remaining undeveloped (Czerny, 2006, 2013; Czerny, Czerny, 2016).

The change of the political system brought very profound transformations in the urban processes; a kind of “liberation” of the investments in housing, which consisted in the marketisation of land prices and the possibility of free trade with real property. The privatisation of the building materials industry, the unlimited import of construction and furnishing materials, and the explosion of demand for condominiums on the market made the construction industry the engine of economic development in the first decade of the political transition, i.e. the 1990s.

National and international developers appeared and started to carry out residential projects. Privatised building plots were immediately developed with new investments. The spatial arrangement of buildings was influenced mainly by two phenomena: the “filling up” of the areas of the old urban tissue in the centre and surrounding districts with residential, office, and commercial buildings, and the purchase of deagriculturalised land in the suburbs for large housing estates. The twenty-first century has also brought another previously unknown phenomenon: the demolition of old buildings to make place for new residential and office investments.

The urban development of the last 30 years has been characterised by high dynamism of new investments, chaotic distribution of housing estates in the urban space – especially in peripheral areas – and the lack of land use plans for many parts of the city, which means that the development is very dynamic, and the urban infrastructure cannot keep up with it. There are many examples of new housing developments whose layout shows the absence of any zoning plans and the settlement of new housing developments on narrow strips of former arable fields. Suburban areas, which until recently were a reservoir of green spaces, are being invasively developed without respecting the principles of harmonious spatial development or ensuring adequate road, sewage, and social infrastructure.

In Latin American cities, spatial development is also disharmonious. Although the spatial structure and processes of urban sprawl have been partially influenced by factors different from those in the cities of post-communist Europe, many unfavourable phenomena result from global development problems, such as ineffective urban planning (lack of local plans), speculation with vacant land for development, the dominant role of developers in urban development processes, etc.

These processes of dynamic development of cities have continued steadily since the beginning of the twentieth century, with many factors contributing

to this state of affairs in its last three decades, the most important being the accelerated industrialisation based on the import substitution strategy and the social reforms, including the agrarian reforms implemented in several Latin American countries.

The consequence of the above two phenomena was a growing rate of migration from the countryside to the cities (while at the beginning of the twentieth century it was mainly immigrants from Europe who settled in the cities, since the 1970s it has been mainly internal migrants) and the increase in the life aspirations of the rural population, whether in terms of health care, education, or culture.

Urban areas began to populate rapidly. There was a shortage of housing for the hundreds of thousands of immigrants who flocked to the region's largest cities each year. The demand for land and cheap houses triggered an intensified process of land speculation. On the outskirts of cities, haciendas were converted into building plots. The places which offered favourable natural conditions came to be occupied by rich city dwellers, while areas in more disadvantageous environments (deserts, vicinity of roads and railroads, garbage dumps, etc.) were occupied by poor people. The cities were surrounded by a ring of marginal districts marred by difficult living conditions due to the great distance from the city centre and workplaces and lack of basic infrastructure. In many of these neighbourhoods, there were no green areas at all.

The twenty-first century has brought some changes in the awareness of the inhabitants of marginal areas and in their attitude towards nature. The implementation of sustainable development strategies in some centres has increased residents' interest in the immediate environment. Through bottom-up initiatives, often supported by NGOs, sports fields, parks, squares, and nature trails have been created in marginal neighbourhoods. At the same time, the wealthy have increasingly retreated and segregated themselves from other city residents. Spatial segregation has deepened, and the number of gated communities increased and is still increasing. Latin American cities are thus a mosaic of dual spaces that are highly divided and disjointed and do not represent a continuity of socio-spatial relations. The city is a patchwork of adjacent neighbourhoods and housing developments that have little in common socially, economically, or culturally (Czerny, 2012).

Excessive pressure on the natural environment within the city limits increases the risk of suffering damage due to sudden phenomena (floods, landslides, heavy rains). The effects of the pandemic – increased isolation, compartmentalisation, fragmentation – overlay this picture. Cities face the challenge of not only ensuring adequate living environments for residents and health safety, but also arresting negative climatic, social, and spatial changes.

The modern city is affected by the climate crisis, the impact of pandemics, and the constant influx of migrants, while struggling to provide its residents with access to basic services. It is a socially, politically, and spatially complex space where most of the world's people live. Policymakers, social activists,

and scholars are trying to make accurate diagnoses and propose and evaluate solutions (e.g. Biczynska, 2019, 2020). Although local conditions are extremely important in the implementation of urban policies, observation and case studies of the problems of cities around the world represent an important contribution to the understanding of the modern city and an inspiration for innovation in urban space.

The authors of the individual chapters in this monograph invite such reflections. They focus their attention on the problems of cities and regions in the third decade of the twenty-first century. The chapters include analyses of crises and undesirable phenomena as well as discussions of solutions applied by cities and possible ways to improve the quality of life in urban centres.

Such measures are analysed in the first chapter of the monograph, “The SARS-CoV-2 coronavirus pandemic and the city’s spatial policy directions” by Dudek-Mańkowska and Grochowski. They show that a city able to resist a crisis brought about by a pandemic is one that develops sustainably and solves the current problems, including the issue of social inequalities, a topic which reappears in this monograph.

Another look at the impact of the COVID-19 pandemic on the city is offered by Kowalski’s study, “The impact of the COVID-19 epidemic on the change of Warsaw information layout illustrated by the examples of the PGE Narodowy Stadium and the tenement house at 37 Tamka Street”, in which the author shares his observations on how the pandemic crisis was reflected on the visual and symbolic plane. This level – which often changes dynamically – is a perfect, albeit fleeting, reflection of what dominates the collective imagination at a given moment.

An extremely important element of crisis resistance of cities, also in the context of the COVID-19 pandemic, is their natural system, which performs many functions, some known to us and some inconspicuous. Durydiwka, Krukowska, and Zajadacz, as part of their research in the chapter “Active recreation as leisure activity of inhabitants of large cities in Poland during the COVID-19 pandemic. An attempt at a qualitative approach”, show that lack of access to active recreation leads to a significant deterioration of well-being. The urban nature system is a source of cultural ecosystem services but also a tool in the hands of local politicians which they exploit to build their public image, as Kulczyk, Kuzak, and Grzyb point out (“‘Welcome to the park!’ – Management and promotion of urban green spaces through the lens of local government social media”). The authors, analysing local government officials’ Facebook posts about urban greening, demonstrate the rather one-sided nature of this communication. Meanwhile, in the chapter “Building social capital through climate change mitigation based on the example of Warsaw, Poland”, Mbazuigwe points to the civic dimension of the natural system and its social functions in the context of building cohesion and social capital. These go far beyond health and recreation to include social networks, engagement, and identity.

Finally, the urban greenery and urban agriculture that Góna writes about (“Urban agriculture as an element of mitigation-adaptation strategy: a response to climate and food crises”) are indispensable for the security of urban residents, including their food security. Awareness of the importance of the natural system in cities and the actions that follow will continue to determine the comfort of living in cities, but they can also be of strategic importance to their resilience.

The greening of the city also contributes to the development of tourism, as pointed out by Mantey, among others, in her text “New Urbanism in assessing sustainability of Polish and American suburbs”, but processes related to tourism, including gentrification, do not always lead to an improvement in the quality of life in cities. This is illustrated by the examples given by Uribe and Kulczyk in the chapter “Understanding ‘outstanding’: An urban-rural cultural landscape facing tourism development. Case study of Salento, Colombia” and by Villar Calvo, Contreras Juárez, and Cruz García in the chapter “Habitability and gastronomic gentrification of public space in the times of COVID-19. The case of La Condesa neighbourhood in Mexico City”.

The first example of Salento shows how, over the subsequent years of the twenty-first century, a small city located in the coffee region of Colombia experienced changes in its economic and social structure as a result of the dynamic development of tourism. The case of the La Condesa housing estate in Mexico City is a telling example of a small-scale struggle for public space between its users and the owners of catering businesses, particularly common in this area of the Mexican capital, with the clash exacerbated by the circumstances of reopening restaurants after the COVID-19 lockdown. As the cases of Salento and La Condesa show, sudden and unexpected crises are not the only threat to cities and the quality of urban life.

Contemporary processes such as the commercialisation of public space, segregation and fragmentation, informal settlements, and inequality in access to housing often go unnoticed and have fatal consequences. Czerny addresses this in her text “Development of cities, the right to the city, and governance, as exemplified by Villavicencio, Colombia” and brings us closer to the conflict related to the creation and legalisation of illegal settlements in the Colombian city of Villavicencio. A.N.J. Carrillo Arteaga, B.E. Carrillo Arteaga, and Moreno Barajas also write about housing in the chapter “Fragmentation, segregation, and governance in rural urbanisation through housing developments in Calimaya, Mexico”, which focuses on the dynamic development of gated communities in the Mexican city of Calimaya. The lack of proper governance and planning favours gated condominiums and leads to the privatisation of public spaces and the fragmentation of the city. Méndez Ramírez and Becerril Sánchez, on the other hand, deal with the transformation of public spaces: these meeting places with important social functions are more and more often converted into commercial spaces, which goes hand in hand with the changes in the social structure of the inhabitants of Metepec

(“Social representations, public space, and consumption in the city of Metepec, State of Mexico, Mexico”).

Tourism is, of course, also an important factor in the development of cities, as mentioned earlier, but it is vulnerable to various crises, such as a pandemic, but also an armed conflict, as Gonzalez Cruz, García Waldman, and Castro Garzón discuss in the chapter “Impact of internal armed conflicts on tourism in urban centres, a context analysis”, devoted to the influence exerted on tourism by armed conflict in Colombia.

Crises as serious as pandemics, climate-related natural disasters, or armed conflicts require the intervention of the state, which uses its legislative capabilities, mobilises resources, and provides funding. This need is indicated by the analyses of Dudek-Mańkowska and Grochowski mentioned above and in the research on spatial and temporal differentiation of such diverse phenomena as mortality associated with COVID-19, human development, or informal labour. The impact of the pandemic on informal labour in the Peruvian capital of Lima is discussed by Olter-Castillo and Castillo Sanchez in the chapter “Workers’ adaptation strategies in a highly informal labour market during the COVID-19 pandemic. The case of Metropolitan Lima”. They point out that the economic collapse caused by the pandemic has a particularly strong impact on the most vulnerable sectors of society, especially informal workers. Their detailed analysis shows that the workers’ situation does not automatically improve when the economy reopens.

The actors responsible for social policy should also be interested in the studies of Olín Fabela and Carreño Meléndez, who present an instrument to measure social vulnerability to floods in Mexico, in the analyses of Santana Castañeda, Serrano Barquín, Santana Juárez on the diversity of comorbidities with COVID-19, or in the studies of González Yñigo and Venancio Flores, who propose to consider human development in relation to territory. The first of the studies mentioned, titled “Mexico and social vulnerability to floods in 2020”, takes into account both socio-demographic and environmental factors to identify the regions most vulnerable to this phenomenon, which is important for the management and further spatial development of cities in Mexico. The second, “COVID-19 pandemic and geographic space in Mexico. A perspective of differences in comorbidities by sex”, discusses the spatially and demographically heterogeneous risk of death in the event of SARS-CoV-2 virus infection associated with comorbidities and points to the need for slightly different health promotion policies in each Mexican state. In turn, the chapter “Towards the construction of a territorial human development index. An approach from the metropolitan perspective” refers to development understood as the improvement of people’s quality of life and as a dynamic process that is also territorially differentiated.

Finally, crises in the city, whether caused by sudden shocks or long-term adverse processes, inspire the search for solutions and rules of conduct that, when implemented, make urban centres better places to live. Goliński and

Dziemianowicz discuss the concept of the compassionate city. Their chapter, "The concept of the compassionate city as a response to the demographic and social challenges of European cities. A comparative analysis of Berlin and Warsaw", is an attempt to use this idea coined by Kellehear as a guide for the future development of cities. The authors' study proposes and applies the 'compassionate city' indicator to examine the potential of Berlin and Warsaw.

Sitnik and Misztal focus on aspects of everyday use of urban space. The chapter "Physical barriers constraining walkability in cities. Case study of Warsaw, Poland" by Sitnik focuses on walkability and spatial barriers in different parts of Warsaw, referring to Carlos Moreno's concept of the 15-minute city. Misztal's analysis of functional mix in the city of Warsaw is based on the same concept of Moreno. In "Functional mix on a city scale. Case study of Warsaw, Poland", the author presents an original methodology for an objective and quantitative data-based study of the potential of the 15-minute city based on the specified categories related to the daily functioning of its inhabitants.

Mantey, in the aforementioned text "New Urbanism in assessing sustainability of Polish and American suburbs", refers to the well-known concept of New Urbanism and shows how it works in Poland and the United States of America. The author has created and presented a sustainable development assessment protocol and applies it to Siewierz Jeziorna in Poland and Serenbe in Atlanta, Georgia, pointing out the differences in the understanding of New Urbanism, its advantages, and possible pitfalls. In another chapter, Kałaska analyses the possibility of applying the architectural concept of Superblocks in Latin America. In the study "Possibility of implementing the Barcelona Superblocks model in the post-COVID-19 city. Reflections on Latin America", the author demonstrates the validity and potential possibility of creating Superblocks, originally from Spain, in Latin American countries; his analysis reveals numerous obstacles to the application of such a solution.

The end of the twentieth century and the first decades of the twenty-first century are rich with ideas on how to improve cities, make them more equitable, and adapt them to the needs of a growing and increasingly demanding population, as well as how to address the climate crisis. Each of these concepts is worthy of critical consideration. Dudzińska-Jarmolińska points to the risks associated with the application of ideal models in urban reality in the chapter "The city of La Plata – its development against the background of European ideas of ideal cities of the nineteenth century". The Argentine city of La Plata was conceived to meet the ideal of equality and modernity, expressed through careful planning, education, and implementing European models. The problems that it is currently facing lead us to critically examine trends and concepts that come from individual ideological inspirations.

This and other chapters of the monograph may lead to the conclusion that the city is in a way a process which combines a plethora of power relations, different attitudes, needs, and visions. Sometimes it is shaken by crises, sometimes it develops rapidly, but it is never a "finished" work.

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Warsaw, August 2023

Ewelina Biczyńska, Mirosława Czerny

I. THE PANDEMIC AND THE URBAN SPACE

THE SARS-CoV-2 CORONAVIRUS PANDEMIC AND THE CITY'S SPATIAL POLICY DIRECTIONS

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1. Introduction

The COVID-19 pandemic and its social and economic impacts have highlighted a number of previously underestimated or neglected issues connected with the functioning of contemporary cities. The scale and strength of the effect of a pandemic on urban life and development depends on a number of factors, including those linked to the size, functions, location, and the quality of development policies and the effectiveness of their implementation. Included in the category of development policies is spatial policy, which is a function of strategic choices regarding socio-economic development in spatial terms. The implementation programmes and the projects carried out within their framework directly affect the direction and forms of spatial development of cities and their functional and spatial structure.

Development policies are implemented in specific contexts:

- socio-economic (needs, resources, development potential, priorities, opportunities),
- political (short- and long-term objectives, sequence of actions, costs vs. benefits, distribution of costs and benefits among different social groups, priority thematic areas, areas requiring intervention, priority areas for development),
- spatial (existing development, location of functions, relationship between areas with specific functions, location of greenfield sites and their qualities and constraints in terms of performing specific functions, transport links).

Global fashions and trends in urban development are also an important factor shaping spatial policy. Their relevance to the specific situation of a particular city, their applicability to development programming, or their usefulness

in operationalising activities varies. Observation of urban activities and their effects on spatial development has both cognitive and practical value, providing information on the potential effects of the following types of decisions:

- programming (development strategy, implementation programmes, implementation projects),
- planning (studies of land use conditions and directions, local development plans),
- management (priority thematic areas and sites to be developed, sequence and ways of achieving objectives).

The problems experienced by cities in relation to the COVID-19 pandemic are not the first instance of infectious diseases affecting urban centres. Cities have been facing pandemics for hundreds of years. In addition, in the recent decades, new infectious diseases have been emerging at an increasing scale and in growing numbers. Examples include the Ebola virus, severe acute respiratory syndrome (SARS), avian flu, or Middle East respiratory syndrome (MERS). These diseases have had serious socio-economic consequences worldwide. They have also become one of the driving forces and, at the same time, an incentive and an opportunity to introduce new thinking about ways of developing cities that would increase their resilience to such threats. Crisis preparedness or 'readiness' is therefore becoming a key investment today, as its cost appears to be small compared to the possible consequences of further pandemics (Lee et al., 2020).

The majority of the global population resides in cities, and it is primarily urban areas which are affected by outbreaks of emerging infectious diseases (e.g. COVID-19 – Wuhan, China) or their rapid spread (e.g. the SARS outbreaks in 2003, the Zika virus disease in the Americas). According to UN data, approximately 95% of COVID-19 cases have been reported in urban areas, and the pandemic has clearly affected more than 1,500 cities worldwide (Afrin et al., 2020; Lee et al., 2020).

The future of cities in Poland can be forecast based on international experience. COVID-19 has allowed us to view the future of urban areas not only from the individual perspective of specific cities, but from the perspective of the 'urban community of the twenty-first century'. The pandemic has demonstrated that cities, despite their different histories and development models, have much in common. Similar problems afflict the inhabitants of most metropolises, even though they are at different levels of civilisational development.

The purpose of this paper is to discuss the issue of urban spatial policy in the context of the new conditions stemming from the COVID-19 pandemic. It discusses the impact of the pandemic on changes in these policies, as well as anticipated development trends resulting from the experience of urban functioning in the COVID-19 era.

As mentioned above, spatial policy is not an autonomous policy in the sense of abstracting, when formulating it, from multidimensional social, economic, and spatial conditions. Spatial policy is the result of an integrated

approach to development programming and planning, and its coherence and effectiveness depends on the applied instruments, which nowadays go beyond the traditional spatial planning tools. Therefore, this chapter devotes considerable attention not only to the spatial dimension of development, but also to the issues and problems the diagnosis of which is essential for the formulation of public policies, including spatial policy.

2. Epidemics and urban development

Infectious diseases have affected the functioning and development of cities for hundreds of years. The largest epidemics of the past were caused by the bacterium *Yersinia pestis*, which caused the bubonic plague, and *variola*, the smallpox virus, both characteristic of the pre-industrial period. In the nineteenth century, the most serious was the cholera epidemic caused by the cholera bacillus (*Vibrio cholerae*) and, after the First World War, the so-called Spanish flu, which swept across Europe, Asia, Africa, and North America and, according to official figures, claimed at least 20 million lives, although some researchers put the death toll at 50–100 million (Johnson, Mueller, 2002).

Prior to the coronavirus pandemic, cities struggled with the challenges of infectious diseases at different historical times. Going far back, we do not find many examples of holistic spatial policies, but rather examples of engineering-based interventions linked to technical infrastructure. Epidemics of infectious diseases, in addition to their tragic effects on the life and health of the population, often became important catalysts for urban change.

Examples of the impact of infectious diseases on the functioning of urbanised areas in the past are provided by Africa, among others. The low level of civilisational development of African countries has always translated into poor urban living conditions. This was mainly associated with deficiencies in technical infrastructure (especially water and sanitation facilities) and low levels of social infrastructure development. The spatial development of the cities was hardly planned or controlled. Successive outbreaks of infectious diseases, due to their scale and cost, led to changes in the approach of metropolitan countries to the situation in the colonies (Cobbinah et al., 2020).

According to P.B. Cobbinah et al. (2020), in the British Crown colonies, land use planning (or rather the ways in which land use decisions were made) was gradually institutionalised and placed in legal frames. This came in response to the emergencies associated with the cholera and bubonic plague epidemics that affected urban centres, including Nairobi and Lagos. The institutionalisation and legal regulation of urban planning allowed for the development of instruments that enabled interventions in the slums (sometimes simply their liquidation or the regulation of development rules or the introduction of basic technical infrastructure). These interventions were designed to serve urban renewal in what is now South Africa (1927) and Nigeria (1928).

In francophone Africa, spatial planning went beyond sanitation to include health security (health facilities and residential hygiene). It is important to note, however, that planning activities in both cases were largely interventionist in nature. Often, they did not translate nor were linked to the formulation of future objectives of city-wide spatial policies (if such policies were developed, which was rarely the case). Experiences from the cities of the British or French colonies were not applied to cities in other countries on the continent. Ebola, cholera, and malaria did not change planning practices there. Today, the SARS-CoV-2 coronavirus is as much, if not more, a threat to the population of African cities as it is to the population of cities on other continents. However, in the case of the former, we know much less about the scale, course, and victims of the pandemic, and the opportunities for intervention are incomparably smaller.

The introduction of spatial planning by the colonisers in selected African countries was a success in the absence of previous regulations. On this note, it is worth pointing to an important political, social, and economic aspect of spatial planning. In colonial times, the task of spatial planning was not just to improve the functionality of cities (understood today also as resilience to the emergence of epidemics). Resilience, if considered important at all, was seen in this way mainly for economic reasons. This is because urban planning was primarily an instrument for shaping the structure of cities according to the needs of the colonisers and in order to culturally and structurally isolate the natives from the newcomers from metropolitan states. Creation of urban space in line with these principles led to socio-economic segregation in the cities of Ghana, Congo, and Nigeria and contributed to the development of racial segregation under apartheid in southern Africa (Cobbinah et al., 2020).

Moving to the geographically closer area of Europe, one should begin by noting that, although European cities were not free of epidemics, the political, social, and economic context of crises linked to the emergence of infectious diseases was different from that on other continents. A pragmatic approach was evident in the response of European city authorities to infectious diseases, i.e. a realistic assessment of the risks and costs of an outbreak, the identification of options for responding to the risks and consequences of an epidemic, and the selection of solutions or countermeasures that could be applied as quickly as possible. This pragmatism consequently manifested itself in public interventions that introduced changes to the space, although these were not always related to 'pure' spatial planning. Planning procedures had always been time-consuming and complicated. Under epidemic conditions, there was no buffer time that allowed spatial plans to be calmly processed.

Some infectious disease epidemics inspired new urban solutions. The cholera epidemic of the nineteenth century led to improvements in urban sanitation systems (modernisation, expansion, construction). The outbreak of respiratory infections in the cities of industrial-era Europe led to the enactment of new housing regulations (healthy housing environments). Residents

of overcrowded nineteenth-century London struggled with epidemics of dysentery, typhoid fever, and cholera. A key government decision in the fight against these diseases was the construction of the city's sewerage system. In August 1858, the Parliament approved a project to rebuild the municipal sewerage network. Over the following 16 years, 130 km of sewers were built to carry wastewater to the eastern districts of London. Pumping stations were set up in the lower boroughs. After the completion of the first stages of the project, the incidence of disease fell significantly, and the effects of subsequent epidemics were not as severe. The later epidemics, even if they broke out, did not spread to other districts of the city (Olejniczak, 2017).

The period of the development of industrial centres was in many cases a time of deteriorating living conditions in these cities. Spot interventions carried out in selected areas did not lead to the overall improvement of living conditions. The intervention areas were components of urban structures that continued to be characterised by dysfunctionality. Many industrial cities underwent decades-long spatial transformations. Changes that were visible and perceptible to residents only began to appear in the era of post-industrial cities.

An intervention unique in its scale, duration, and effects, and combining planning elements with a whole range of objectives, was the redevelopment of Paris between 1852 and 1870 (the Great Parisian Redevelopment, Haussmann's general redevelopment of Paris). One of the problems of eighteenth-century Paris were the densely populated central districts with their medieval layout of narrow streets, lack of sewerage and running water. Poverty-stricken population groups lived there in poor sanitary conditions. The redevelopment of Paris was not, of course, motivated primarily by sanitary reasons and a will to improve the living standards of these population groups; instead, the first projects to transform the city were a response to the difficult situation caused by cholera epidemics. A major cholera outbreak occurred in 1832 in the central districts of Paris and killed an estimated 20,000–30,000 people, mostly poor residents. A second wave of the epidemic swept through the city in 1849, killing nearly 20,000 Parisians. At this time, due to the lack of sewage systems, all pollutants, including poisonous chemicals used in the burials of cholera victims, found their way into the Seine, which was the city's source of drinking water. Narrow streets with overcrowded and soggy dwellings further encouraged the spread of the disease.

Living conditions in the city were factored into discourses on how Paris was supposed to change. As part of the redevelopment, much of the medieval buildings were demolished, the city's sewerage system was rebuilt, new parks and gardens were opened, and new streets, boulevards, and public buildings were created. In order to control sanitation problems, the number of municipal fountains was increased (from 200 in 1830 to almost 2,000 in 1848), so that the amount of water available to the population increased from 30 to 100 litres per person. Another success of the measures taken was the construction of a water supply network to provide drinking water to homes and

the modernisation of sewers – 272 km of water pipes and 600 km of sewers were built (Seroka, 2012). The functional and spatial structure of the city changed, and sanitation and hygiene problems were no longer concentrated in the centre, although it should be emphasised that the new buildings in this area of the city were mainly intended for the wealthy residents of Paris. The poor population was forced to move from the centre to the suburbs, which led to the creation of working-class districts (e.g. Belleville, Ménilmontant). Some of the plans were not implemented for reasons familiar to us today, such as the question of land ownership, the impossibility of expropriating house owners with compensation (forbidden by the legislation of the time). Despite the incomplete implementation of the plans, Paris received a new face. Most of the projects designed to elevate the city to the status of the most beautiful and modern capital in the world, in line with Napoleon III's ambitions, were completed. The work also resulted in a new socio-spatial structure of the city and an increase in its resistance to epidemic threats.

Epidemics are cyclical in nature, so societies as well as authorities at various levels are learning to respond to threats by quickly implementing solutions that build systemic urban resilience. The literature often points to the example of South Korea, which coped with the COVID-19 pandemic better than other countries thanks to previous experience with the 2003 SARS and 2015 MERS outbreaks.

3. The COVID-19 pandemic and urban spatial policy

Spatial policy is formulated on the basis of diagnoses concerning the situation prevailing in specific spheres of public life (social, economic, spatial). The coronavirus pandemic affected all these spheres, and the impact was understandably diverse in its nature and timing.

An analysis of the impact of the pandemic on spatial policy orientations, other policies pursued by cities, and the instruments used in the case of spatial policies requires a framework organising the approaches to the coronavirus problem. This framework should be based on a chronology of events since the onset of the pandemic, taking into account at least two periods:

- the first period being the spread of the pandemic in the absence of a response from public authorities,
- the second period covering a time of active government policy, including the introduction of lockdown restrictions.

The period of 'total' lockdown differed from the period of relaxed lockdown, when only partial restrictions were in force. From a cognitive point of view, it would be advisable to divide the second period into sub-periods depending on the extent and severity of the lockdown-related measures, but also according to when we first saw the implementation of proactive policies by public authorities in, for example, the sphere of education (beginning of

distance learning), or new policies adopted by employers in terms of modes of work (remote working).

The diagnoses informing planning interventions made to counter the spread of the coronavirus and deal with the effects of the pandemic are the result of scientific studies and *ad hoc* analyses made to describe the current situation, its changes, and the trends of these changes. The results of the research indicate fields which may be subject to potential interventions. Undertaking these interventions depends on the policymakers recognising the identified fields as being of key importance and on the possibility of taking effective action.

Research conducted in the first year after the outbreak of the COVID-19 pandemic in Wuhan focused on four thematic areas, i.e. changes in environmental quality, especially air cleanliness, socio-economic impacts of the pandemic, urban management, transport, and urban planning with an emphasis on urban design (Sharifi, Khavarian-Garmsir, 2020).

The dominance of these four areas is indicated by the results of a co-occurrence analysis of keywords in scientific publications obtained with the use of VOSviewer, a content and bibliometric analysis tool. In addition to medical terms ('pandemic', 'virus', 'respiratory disease', 'viral disease', 'pneumonia', 'epidemiology'), terms associated with environmental issues ('air quality', 'air pollution', 'environmental monitoring', 'ozone') appeared most frequently among keywords in researchers' texts. Other popular terms included 'urbanised areas', 'China', 'Italy', 'smart cities', 'transport', or 'lockdown' (Sharifi, Khavarian-Garmsir, 2020).

The bulk of the research focused on issues related to the urban environment – air quality or water quality. The impact of the pandemic on the quality of life in cities is still poorly studied, and the studies carried out were fragmentary. However, the results of environmental research clearly indicated an improvement in the quality of the urban environment during periods of pandemic-related restrictions. This confirms the significant impact of anthropogenic activities on the environment and should stimulate the search for environmentally friendly development paths. During periods of restrictions imposed after the outbreak of the pandemic, city streets were deserted and traffic-related emissions – particularly carbon dioxide and nitrogen dioxide – decreased accordingly. In New Zealand, where extremely stringent restrictions were introduced, traffic volumes fell by around 80%. Data from the Berkeley Environmental Air-quality and CO₂ Network (BEACO₂N) show a similar trend in the San Francisco Bay Area – in the first six weeks of the restrictions, when people were advised to stay indoors, car traffic decreased by about 45%, while total CO₂ emissions fell by approximately 25% during this period compared to the previous six weeks (Turner et al., 2020).

Conclusions from this research include calls for the experience of the COVID-19 pandemic crisis to be used to undertake further transformative action aimed at creating more equitable, resilient, and sustainable cities. Studies published in the second half of 2021 alone present the experiences of

selected cities and regions in dealing with the pandemic and the impact of this crisis on socio-economic development and local and regional policy directions. However, spatial policy issues appear in these studies only sporadically. Still, Shekhar et al. (2022) note that the urban governance aspect remains at the centre of the discourse on epidemic risk prevention. In their view, world's metropolises, due to their interconnectedness, are more vulnerable to global threats, i.e. infectious disease pandemics, with uncontrolled urbanisation being one of the key threats.

Another issue relevant from the spatial planning perspective is the impact of access to technical and social infrastructure on the spread of the pandemic. The outbreak of COVID-19 has revealed policy failures in many cities and regions to date, resulting in significant disparities in the availability of social services and saturation of areas with technical infrastructure. The pandemic hit particularly hard in cities in underdeveloped regions, where there are severe housing shortages (including social housing), poor access to basic technical infrastructure, increasing social inequalities and poverty, and inefficient health and social support systems.

The principles of COVID-19 pandemic control developed by health experts address improving the availability and uninterrupted supply of water, sanitation, and hygiene services to the general public, as well as adherence to hygiene practices (WHO, UNICEF, 2020). Effective solutions to ensure water supply, adequate sanitation, opportunities for personal hygiene, waste management in homes, schools, markets, and health facilities can significantly reduce human-to-human transmission of pathogens, including SARS-CoV-2 (WHO, UNICEF, 2020). In some regions, intervention on the part of the authorities was quick, e.g. at the height of the COVID-19 outbreak, the government of Ghana decided to make water available to residents free of charge. This decision was extremely important, as many of the country's residents still use water from wells or rivers, while doctors recommend washing hands under running water as part of the fight against the pandemic (Anafo et al., 2021).

The impact of the pandemic on spatial behaviour and mobility patterns has been analysed in various cities. In the case of large centres and metropolises regardless of continent, private transport was mainly used for essential tasks (e.g. work, study), to reach locations within 5 km of the home. In the cities under analysis, more than 60% of residents started working remotely from home during the pandemic. Many of these people returned to their home cities, triggering an increase in travel as soon as the travel ban was lifted. Studies in a number of metropolitan areas show that around 50% of public transport users switched to private cars during the COVID-19 restrictions. The primary reason for this change in travel mode was the fear of contagion. Some residents, however, chose active modes of travel (walking and cycling), which again became the most resilient and least risky travel option (Thombre, Agarwal, 2021).

Public transport during the pandemic was not popular in most cities. Researchers argue that this could have negative economic and organisational

consequences for its operation in the coming years. The shift away from public transport also poses a threat to the implementation of a sustainable transport system in cities. Therefore, in the context of the introduction and implementation of spatial policies, it is recommended to transform the spatial structures of cities and organise the space of neighbourhoods in such a way that residents can meet all their daily needs within their area, which in turn significantly reduces the travelling distances and the need to use private transport.

Spatial planning should support efforts to create a living environment that ensures physical, mental, and social well-being of individuals. The COVID-19 pandemic led to major changes in the quality of life, provoking a debate on spatial planning and urban design of epidemic-resistant cities. Using survey and geospatial data from Greek cities, Cobbinah et al. (2020) analysed the changes that occurred in perceptions of health and well-being during COVID-19 (compared to the pre-pandemic period), and then assessed the impact of urban environmental characteristics on the health and well-being of residents.

It was demonstrated that overall health, satisfaction with life and personal relationships, leisure opportunities, or financial situation of city residents worsened during the COVID-19 pandemic, while anxiety and various health problems (e.g. back pain, headaches) increased. Of course, this impact varied, and its magnitude depended on many factors, including those associated with the characteristics of the residents surveyed. The researchers also showed that the impact of the organisation of the urban environment on the health and well-being of residents changed significantly during the COVID-19 pandemic compared to the pre-pandemic period. Proximity to large parks and retail and service establishments, lower population density, living farther from the city centre, and having a larger dwelling all correlated with better health and well-being scores during COVID-19. The study's findings reinforce the importance of recommending that spatial policies in the future focus on creating opportunities to meet the residents' basic needs in their neighbourhood.

According to Fransen et al. (2022), urban communities are more vulnerable to infection than rural ones. The authors emphasised the role of bottom-up community organisation. However, other researchers have shown that the organisation of urban space favours viral transmission. The impact of space organisation on the course of the COVID-19 pandemic has been studied by, among others, Fior and Mpampatsikos (2021). They took a closer look at statistical analyses of the number and structure of deaths in Italy with a focus on Lombardy, the region most affected by the pandemic during its first (March–April 2020) and second (October–November 2020) wave. The highest number of deaths was recorded in the 70–84 and 85+ age groups. These age groups live in the peripheral areas of Lombardy. At the same time, however, it was shown that in other age groups (i.e. young and middle-aged people), the pandemic took the most dramatic turn in the very densely populated and highly urbanised Milan metropolitan region. It was in this area, as in others

of its kind around the world (e.g. India, Brazil), that public space and public transport were the main “carriers” of the virus.

The experience of Italian cities shows the need to implement the concept of ‘urban health’, especially in compact and densely populated cities, where many problems are currently concentrated (e.g. lack of open space, overcrowding and housing shortages, inefficient public transport). The second issue, which is even more important, is the accessibility of health services – not only in the context of the distribution of health care facilities, but especially in the creation of spatial policies so that these services are prioritised in the planning of transport systems (e.g. the creation of fast connections between neighbourhood transfer centres and hospitals, the provision of cycle paths to patient service points).

The impact of urban linkages on the course of the pandemic has been pointed out by Cave et al. (2020). They examined associations between infection rates and characteristics of selected urban areas. The sample consisted of 27 cities with populations greater than 100,000 from three countries – the UK, Germany, Italy. The study found that vulnerability to a pandemic depends on the nature of an area’s diversity and its relationship with other urban centres. It was observed that a key characteristic were the transport links to other cities via public transport. Other important factors included population size, population density, and internal public transport. The morphology of a city also influences the course of an epidemic, with both radial and chequered cities having higher incidence rates than linear cities.

Due to its scope and course, the COVID-19 pandemic affected almost every possible aspect of urban functioning, which naturally also had an impact on creating changes in spatial policy approaches. A key conclusion is that there is a need to broaden the perspective on the determinants of spatial development and planning so that it takes into account neighbourhood and functional linkages. Urban phenomena are not limited by administrative boundaries, and their causes and effects do not stop at these limits. Companies co-operate irrespective of their location and administrative boundaries; people move between cities, and commuters pass through different parts of the city. There is, therefore, more interaction in urban spaces than in rural areas. This encourages pandemic spillovers, and so cities need to develop solutions to increase their resilience, taking into account the situation in the surrounding and functionally connected areas (Cave et al., 2020).

From the discussion of research findings, conclusions, and recommendations presented above, it is evident that there is a growing awareness among urban development professionals of the need for changes in development programming and planning approaches and practices. From the currently available literature, it transpires that the outbreak of coronavirus has resulted in the introduction of many temporary changes in urban space (Table 1). It may be predicted that a post-COVID urban development paradigm is likely to emerge soon.

Table 1. Temporary changes to the urban space – examples

Region	City	Temporary change in space	Date of implementation
European Union	Berlin	Designation of new cycle routes on the carriageway	March 2020
	Vienna	Labyrinth-shaped parks	April 2020
	Rotterdam	Organisation of local micro-markets	April 2020
	Turin	Creation of container hospitals	April 2020
	Edinburgh	Designation of zones for pedestrians and cyclists only	August 2020
North America	Oakland Philadelphia Denver Minneapolis Vancouver Calgary	Designation of new cycle routes on the carriageway	April 2020 March 2020 April 2020 April 2020 March 2020 March 2020
	Dallas	Organisation of space for “pop-up” shops and restaurant gardens	April 2020
	Seattle	Creation of small homes for the unhoused	April 2020
South America	Bogotá	Designation of new cycle routes on the carriageway	March 2020

Source: Own elaboration

4. Anticipated change in the existing trends and emergence of new trends and needs in spatial policymaking

Preparing towns and cities for pandemic crises requires tackling many problems that have remained unresolved for years and which become particularly acute when an emergency arises. These include poor sanitation, underdeveloped technical infrastructure, high housing density and poor housing conditions, difficult access to health services, crowded public transport, or migration from smaller towns and villages to larger centres that do not have adequate housing, jobs, or services for migrants. Rapid urbanisation is also associated with anthropopressure on the natural environment, closer contact with wildlife and zoonotic diseases, and proximity to animals on backyard farms and in food markets also creates opportunities for zoonotic infections. Shekhar et al. (2022) rightly emphasise that the urban management aspect remains at the centre of the discourse on epidemic risk prevention. The authors specifically

identify uncontrolled urbanisation as one of the key threats to most of the world's cities.

Global experience has shown that effective viral control in many cities, especially in less developed countries, has been hampered by factors linked to spatial chaos and the lack of spatial policies regulating the housing and transport sectors. Spatial chaos, overcrowding, and underdevelopment of health services prevent compliance with social distancing rules in and around multi-family buildings, generate spatial inequalities in access to health facilities, and are often the harbingers of social exclusion (Anaafo et al., 2021).

Preparing cities for a pandemic crisis requires an understanding of the local socio-economic and cultural environment and the active involvement of communities and local leaders in both development programming and space organisation planning and implementation. From the urban governance perspective, it is necessary, among others:

- for planners to include pandemic solutions in projects and their implementation,
- to use transport networks for rapid deliveries to epidemic epicentres,
- to use new technologies to track contacts more effectively,
- to equip local authorities with the power to respond promptly (independent of central government) in emergency situations,
- to set up checkpoints along exit routes on the outskirts of cities to eliminate the risk of rapid transmission of the threat between metropolitan areas (Lee et al., 2020).

In a global view of the pandemic problem scaled to the level of cities, the question of their reconstruction or rebuilding after a pandemic can be addressed as follows:

- urbanisation will have an increasing impact on the health of the world's population, with the spread of urban lifestyles, urban sprawl, and human encroachment on environmentally valuable land encouraging the spread of zoonoses,
- the innovations that have been forced upon us by the COVID-19 pandemic should become standard solutions and the scientific achievements should be used to plan a sustainable supply of services in the city,
- local initiatives can make a difference on a supra-local scale and, with financial support from business or government, can play a key role in responding to a crisis,
- the wave of social solidarity and mutual aid funds that accompanied the spread of the virus prompts an appreciation of the value of local interventions and highlights the potential to recreate urban life and relationships according to new, more inclusive scenarios (Acuto et al., 2020).

Social justice, the quality of public health, and environmental programmes are interrelated and interdependent spheres. Approaching them with due care provides opportunities to develop more effective responses to the local crisis caused by a pandemic. Community initiatives cannot and should not replace

the state and perform its social welfare tasks, but they appear to be more tailored to the needs of the most vulnerable. Any meaningful change must be undertaken on a micro scale, decentralising the functioning of the city.

The pandemic has highlighted many of the weaknesses of modern cities when it comes to responding to emergencies. The results of the study by Sharifi and Khavarian-Garmsir (2020) allowed the authors to identify the main problems and put forward proposals for dealing with them (Table 2). These proposals are actions to be taken to increase the resilience of cities to epidemics and improve their daily functioning and are related to urban planning.

Table 2. COVID-19 – problems and solutions

Topic	Problems highlighted by the pandemic	Main recommendations for spatial planning
Environmental quality	– In some cases, COVID-19 mortality rates are strongly correlated with high levels of air pollution. – Long-term exposure to air pollution may make people more susceptible to a pandemic.	– Greening areas associated with transport and industry may provide significant air quality benefits. – Measures to reduce traffic-related pollution are not enough to solve the air quality problem across the board. – Measures to reduce certain pollutants may increase secondary pollution, a balanced approach to pollution reduction is needed.
Socio-economic factors	– A homogeneous economic structure increases vulnerability. – Marginalised groups are disproportionately more affected by the economic impact of a pandemic. – The global supply chain makes cities vulnerable to unforeseen events.	– To cope with the economic impact of a pandemic and similar future events, a transformation to a more localised supply chain that increases self-sufficiency is needed.
Governance and management	– The lack of proactive planning and contingency plans is a major reason for the absence of an effective response in some countries. – Fragmented urban governance limits responsiveness and adaptability. – Smart solutions have contributed to the development of more effective and efficient response measures (e.g. identifying and isolating infected individuals, limiting human contact during service provision, etc.). – Technology-based approaches have successfully contained the virus but have raised concerns about privacy and transparency.	– Long-term visions and integrated urban management increase adaptive capacity. – In addition to top-down initiatives, certain local levels of leadership and community involvement are crucial for a rapid response to pandemics. – Public access to real-time and geo-referenced data enables a better response to adverse events. – Technology-based approaches should not undermine privacy issues and must not be used to reinforce power relationships. – Human action approaches are more suitable for empowering citizens.

Table 2. cont.

Topic	Problems highlighted by the pandemic	Main recommendations for spatial planning
		– Integrated approaches are better suited to containing pandemics, dealing with privacy concerns, facilitating coordination and information sharing, and controlling the spread of misinformation.
Transport and design	– Public transport may increase the risk of transmission during a pandemic. – A pandemic may increase negative attitudes towards public transport. – Population density is not a key risk factor contributing to the spread of the virus. – In some cities, there is a lack of adequate access to green space and open spaces to meet citizens' demands for outdoor exercise and recreation, while also meeting the requirements for social distance.	– Greater attention is needed to minimise potential public health risks associated with public transport. – The modal shift to cycling and walking offers a unique opportunity to further promote active travel. – Better access to public health facilities and infrastructure makes high-density areas less prone to pandemics. – Given the many other benefits of compact urban development, planners should continue to promote it. – More space should be allocated for pedestrian areas and open spaces.

Source: Sharifi, Khavarian-Garmsir, 2020

Public transport in the post-pandemic period is an important issue. During the COVID-19 pandemic, subways, buses, or trams became an unattractive form of getting around the city for many people. Knowing how important they are for a city's transport system – and therefore for spatial policy – to sustain its function, it is essential to take all possible measures to promote these forms of travel. These measures need to be taken before residents permanently start to consider switching to private vehicles. Public transport is also essential to achieve low-carbon and inclusive urban development. Using European cities as an example, several effective organisational solutions may be proposed to simultaneously develop urban transport and maintain post-pandemic safety. These are:

- reducing (through regulation) the capacity of the various modes of public transport and concomitantly increasing the frequency of transport services offered during peak hours,
- promoting online ticket sales and offering reduced fares with this form of purchase,
- reducing the number of bus stops to encourage walking and the use of other modes of active transport (e.g. bike hire) (AbouKorin et al., 2021).

Supporting the revival of public transport seems impossible without further investment in cycling and walking infrastructure.

In July 2020, the United Nations produced a report in the form of a set of good practices designed to identify areas of intervention for cities in the context of the emergence of the COVID-19 pandemic. The authors encourage preventing urban sprawl. Instead, they advise the promotion of “strategic density” to ensure that urban infrastructure and services operate efficiently while reducing resource consumption and greenhouse gas emissions. Urban planning and urban design, as well as regional spatial planning, must, according to the UN, jointly promote compact, integrated cities with mixed uses and functions that reduce the distance between where people work and where they live, while ensuring adequate public services and green open space, especially in overcrowded neighbourhoods (United Nations, 2020).

The aspect of drawing attention to the natural environment is particularly important. The relatively short but unexpected disconnection from mobility has made it clear how important contact with nature is. Greenery has become something essential to living at a satisfactory level. It is important to use this positive attitude towards greenery in urban spatial policy. Not only should residents be provided with access to large green areas, but greenery should also be within their reach – in the streets, on pavements, next to blocks of flats, in car parks. A green city is a peaceful, resilient, and happy city (Więckowski, 2020).

Based on the results of research carried out over the past two years, it can be assumed that the trends in urban spatial development that emerged in the pre-pandemic period will continue. The main idea is that cities will be shaped as systems of “urban microcosms”, interconnected but somewhat autonomous when it comes to meeting the basic needs of their inhabitants. The key, therefore, will be to prioritise locality and neighbourliness in development policies, i.e. easy access to nearby nature and close contact with greenery, pedestrian access to neighbourhood services, a variety of facilities and services, and accessible space for walking in the neighbourhood (Mouratidis, Yiannakou, 2021).

In spatial planning, the type and quality of the housing stock, the saturation and diverse range of local services, the availability of services, the extent and quality of public transport and its accessibility, the diversity of green spaces and public spaces will or should be the key issues.

5. Summary

Since the beginning of the COVID-19 outbreak, researchers have been studying not only the virus but also the social, economic, and environmental impacts of the pandemic and regulatory and adaptative solutions. A discussion is developing on the need for changes in the development paradigm of modern cities and regions. It seems extremely important and urgent to develop urban planning and management principles for cities resilient to the COVID-19 pandemic and to future outbreaks. According to virologists, the occurrence of subsequent pandemics is only a matter of time. This requires reformulating

existing unsustainable urban patterns and tackling social inequalities (Afrin et al., 2020). Increasingly focusing on the “new normal” of urban life that is being shaped by pandemics, researchers point to the need for change not only in terms of health policy but approaches to environmental sustainability and “green” economic recovery (Acuto et al., 2020).

The COVID-19 pandemic has highlighted many of the problems that cities have been facing for years. Mouratidis and Yiannakou (2022) cite among the weaknesses of cities in this context old building stock, lack of public open spaces, lack of parks, gardens, and vegetation, poor infrastructure, high noise levels, air pollution, and lack of direct access to sunlight determined by the density of buildings. Noworól (2021) notes that the COVID-19 pandemic has contributed significantly to the acceleration of already ongoing processes linked to the current phase of the industrial revolution. The transfer of work, schools, services, relationships, and many other activities into the virtual world has meant that real space has changed its functions for many. The new information society operates in a world influenced by two processes: disintermediation and despacialisation. The effect of the former is the dwindling importance of intermediaries in the context of the consumers’ use of services. Examples include the growing popularity of online shopping during the pandemic, the growth of parcel machines, or the popularity of e-scooter rentals. The latter process – more important from a spatial policy perspective – leads to a reduction in the importance of physical space for functioning in the city, doing work, or performing certain functions. Thanks to remote working, it has become apparent that we do not necessarily need office buildings to work or schools and university campuses to study.

The implications of these developments for spatial policy may prove extremely significant. A reduction in the demand for office space or the preference of pupils and students to study from home can strongly affect the functioning of cities. If we add to this the continued growth in the popularity of services in the e-commerce zone, it becomes clear that urban space in its physical dimension may lose its importance. A reduction in the need to travel between physical points will translate into decreased use of road infrastructure. Lower demand for office space and big-box stores may free up plenty of free space ready for development. These phenomena may have a positive environmental impact, but do not necessarily benefit the development of the economy and the functioning of urban communities (Nowak, 2021).

The coronavirus pandemic has exposed not only the fragility of urban systems but also the unpreparedness for new crisis phenomena and the lack of awareness of the costs that this fragility and unpreparedness entail.

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ABSTRACT

The SARS-CoV-2 coronavirus pandemic and the city's spatial policy directions

The chapter discusses various issues of spatial policy in cities in the context of the COVID-19 pandemic. It presents a historical perspective of the impact of epidemics on the functioning of cities, public interventions taken to counter them, as well as challenges they pose for modern cities. Spatial policy is not an autonomous policy in the sense of being abstract from social, economic, and spatial conditions. It is the result of an integrated approach to development planning. Its effectiveness depends on the applied instruments, which nowadays go beyond the traditional spatial planning tools. It is important to develop urban management principles for a city resilient to the COVID-19 pandemic and to future outbreaks. This requires reformulating existing unsustainable urban patterns and tackling social inequalities. Cities need new health policies and efficient approaches to environmental sustainability and “green” economic recovery.

Keywords: COVID-19, pandemics, urban planning, urban spatial policy

ACTIVE RECREATION AS LEISURE ACTIVITY OF INHABITANTS OF LARGE CITIES IN POLAND DURING THE COVID-19 PANDEMIC. AN ATTEMPT AT A QUALITATIVE APPROACH

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1. Introduction

The COVID-19 pandemic has had influence on many spheres of life, including resources and ways of spending leisure time. The latter is a very important part of the 24-hour human time budget, especially in post-industrial societies, which also include the Polish society. This importance is emphasised by the fact that on a daily scale, leisure time before the pandemic in some age groups accounted for up to 25% of the daily time budget (GUS, 2015). The pandemic affected not only the resources for spending leisure time, but also the way the time budget was used. It seems, however, that lockdown and the fear of coronavirus infection most affected people living in urbanised areas with a very high population density and high density of buildings. This applies to the entire scope of leisure time, including active recreation (AR) both indoors and outdoors as well as tourist activity. Thus, the residents of large cities experienced the limitations in recreational and tourist activities more acutely.

This article focuses on active recreation due to the role it plays in human life. Physical activity not only improves the condition of the body, but also prevents obesity, which has become a social problem in the modern world (Metelski, 2019; Parfin et al., 2019; Długosz, 2021), generally improves health in the physical dimension (Warburton et al., 2007), and has a positive effect on mental health (Metelski, 2019). Almost a linear relationship has been observed between the frequency of undertaken activities and better mood and general mental well-being (Brand et al., 2020). Active recreation has been assigned

a special role as a factor increasing resistance to stress and helping to maintain emotional balance, which are necessary in the life of both young and mature people (Mucha, Mucha, 2021). Therefore, it can be assumed that various forms of active recreation act as natural antidepressants.¹ Moreover, physical activity has a positive effect on brain function and cognition (Hillman et al., 2006).

The breakout of the pandemic resulted in the introduction of restrictions aimed at limiting interpersonal contacts and maintaining social distance.² In cities, an additional difficulty was the limited access to various types of public spaces (parks, forests, gyms, fitness clubs, swimming pools, etc.), especially during the first and second lockdowns. Bearing in mind the health-related and social importance of AR, the question arises: did these limitations affect the physical activity of residents of large cities in Poland and if so, how?

The aim of this study is to analyse the quantity and forms of leisure time devoted to active recreation among the residents of large cities in Poland. Also referred to as physical recreation, active recreation is understood in this article as sports, tourist, or hobby-related activity compensating for the motor deficit (Mokras-Grabowska, 2019), so it also includes activities such as dancing or gardening. Therefore, the article seeks to:

- identify behaviours characteristic for AR undertaken in leisure time, taking into account the place of their implementation (indoors and outdoors);
- define the frequency of engaging in these behaviours, taking into account changes in individual periods of the pandemic.

The analyses concern four time periods: the period before the pandemic, the first lockdown (March–May), the holiday period (June–August), and the period of September–December 2020, i.e. the second lockdown.

Leisure time is most closely related to the individual sphere of a human being's existence, therefore an important element of the research was identifying the respondents' opinions on the changes that had occurred in terms of leisure time resources and ways of engaging in recreational activities (positive/negative changes).

2. Literature review

According to J. Dumazedier (1974, p. 133), "leisure is activity – apart from the obligations of work, family, and society – to which the individual turns at will, for either relaxation, diversion, or broadening his knowledge and his

¹ The importance of physical activity in the treatment of depression has also been confirmed by numerous studies in the field of medicine (e.g. Babyak et al., 2000; Blake, 2012; Rhodes, Smith, 2006).

² Social distance is understood as a sphere of human space that makes it impossible to touch another person (from 120 to 360 cm).

spontaneous social participation, the free exercise of his creative capacity”. The word ‘leisure’ evokes a variety of associations, images, and concepts, from time free from work and other obligations to activities that promote greater self-understanding (Parr, Lashua, 2004; Best, 2010, p. 3).

The multidimensional importance of the sphere of leisure time in the individual life of a person and in the broad social context has resulted in the production of many studies on human resources and ways of spending leisure time, conducted regularly since the mid-twentieth century (e.g. Skórzyński, 1965; Parker, 1976; Hawes, 1987; Wnuk-Lipiński, 1972, 1981; Jung, 1989; Sołowiej, 1992; Gershuny, 1995; Krzymowska-Kostrowicka, 1997; Larson, Verma, 1999; Bittman, Wajcman, 2000; Li, Tilahun, 2000; Müller, Wyss, 2007; Harms, Gershuny, 2009; Zajadacz, 2010; Kolny, 2016; Dębski et al., 2019; Codina, Pestana, 2019). These have included aspects such as the impact of leisure time on work efficiency; physical and mental condition of the body; self-development or social integration (Dong et al., 2018). Their results have provided knowledge useful both for improving working conditions (effective management of human potential) and leisure – broadening the range of services offered in the leisure services sector (Lloyd-Smith et al., 2019; Zawadka, Pietrzak-Zawadka, 2018; Pyshkin et al., 2016).

Previous research in the field of leisure time budget and its use was conducted in conditions devoid of risks associated with a pandemic. The COVID-19 outbreak, nonetheless, did not result in a decline in interest in leisure time. The years 2020–2022 saw studies on changes in the scope of leisure time resources (Mucha, Mucha, 2021) and ways of using them (Bond et al., 2021; Sivan, 2020; Liu et al., 2022), but more frequently, the discussion revolved around the role of leisure time in human life and its various philosophical aspects; it was argued, for example, that the pandemic was a time to “rethink everything” (Monbiot, 2020), to “reimagine the world and one’s place within it” (Syed, 2020).

One of the threads discussed in studies on the forms of spending leisure time is recreation (e.g. Driver et al., 1991; Hillman et al., 2006; Rhodes, Smith, 2006; Warburton et al., 2007; Best, 2010; Godbey, Mowen, 2010; Zajadacz, 2010; Manning, 2011; Li, Wang, 2012; Mokras-Grabowska, 2019; and others). It is often defined as “activities that are socially recognised as playful – divorced from the serious business of living” (Best, 2010, p. 31). Recreation plays an important role due to the values and benefits it provides as a major element in maintaining a healthy lifestyle. It is seen as a complex social phenomenon that has an impact on many strata of society (Auger et al., 2018).

According to Li and Wang (2012, p. 407), “recreation research has evolved from three primary levels, including activities, settings and motivations to understand what, where and why people participating in recreation”. These last issues connected to recreation are undertaken as a research subject of scholars and practitioners (Manning, 2011).

Two primary forms of recreation are distinguished: passive and active. As reported by Mokras-Grabowska (2019), many authors claim that passive recreation involves refraining from any mental or physical activity (Bachvarov, Dziegieć, 2005; Toczek-Werner, 2007). Active recreation, on the other hand, involves taking such an effort. AR is usually understood as physical recreation whose basic component is physical effort. Quoting Mokras-Grabowska (2019), it is a sport, tourist, or hobbyist activity compensating for movement deficit (hypokinesia).

Generally, active recreation is analysed from the perspective of its location (outdoor and indoor recreation) as well as its time, taking into account three periods: weekdays; weekends and public holidays; summer holiday (Sołowiej, 1992). The definition of indoor activities is pretty straightforward; namely, "indoor activities or things are ones that happen or are used inside a building and not outside".³

Research on active recreation often shows its recreational benefits (e.g. Driver, Burns, 1999; Li, Wang, 2012), including: enhancement of people's satisfaction with life (e.g. Sugiyama, Ward Thompson 2007; Sugiyama et al., 2009), increase in social interactions (Mann, Leahy, 2010), personal development (Tudor, Tudor, 2013), and physical and mental health improvement (Penedo, Dahn, 2005; Godbey, 2009; Godbey, Mowen, 2010; Buchecker, Degenhardt, 2015; Lackey et al., 2019).

An additional point of discussion in the research of active outdoor recreation are issues related to the influence of various factors on taking up recreational activities, including: the social environment, especially in the case of children (Vanderloo et al., 2015; Tandon et al., 2017), health and physical independence in the case of the elderly (Sjögren, Stjernberg, 2010), weather conditions (Tandon et al., 2017), and air quality (Noonan, 2014), as well as the suitability and availability of areas for active recreation (Godbey, 2009; Kuo, 2010).

The state of pandemic and related restrictions have a significant impact on changes in recreational behaviour, including physical activity. Therefore, research has attempted to identify factors influencing active recreation under such circumstances (Mateer et al., 2021), as well as to analyse the changes observed in active recreation in COVID-19 conditions (Constandt et al., 2020; Duncan et al., 2020; Rodríguez-Rey et al., 2020; Arundell et al., 2022; Piotrowski, Krukowska, 2021). Some authors emphasised that outdoor activity participation during the COVID-19 pandemic improved people's mental health and well-being (Długosz, 2020, 2021; García-Hermoso et al., 2020; Samuelsson et al., 2020; Jackson et al., 2021). Nierenberg (2020) tried to illustrate how outdoor spaces had already been linked to various forms of resilience in the pandemic era. The role of city parks for active recreation was especially emphasised (Venter et al., 2020; Rice, Pan, 2021; Geng et al., 2021).

³ Reverso Dictionary (n.d.).

3. Research methods

The main goal of this study – which is embedded in the mainstream of behaviourism – was to determine the impact of the pandemic and the resulting restrictions on recreational activities undertaken by residents of large cities in Poland in their everyday life. The research was conducted in December 2020 among 71 inhabitants of the nine largest cities in Poland (more than 300,000 inhabitants: Bydgoszcz, Gdańsk, Lublin, Łódź, Kraków, Poznań, Szczecin, Warsaw, Wrocław) using diagnostic survey methods (structured interview, including self-reporting and narrative interviewing) to identify the active recreation activities of respondents and their opinion on changes in the scope of possibilities of undertaking these activities during the pandemic. The research is exploratory in nature. Due to the small size of the sample, it is not representative, but the study results make it possible to note repeated (or disparate) behaviours and opinions of respondents in terms of the undertaken (or not) recreational activities in their leisure time.

The research was based on convenience sampling. It is a non-random sampling method which consists in selecting participants according to their convenient accessibility and proximity. It was decided to select such a sample due to the period of research and the restrictions in force in Poland at that time, as well as the fears of Poles concerning interpersonal contacts. Despite all obstacles – referring to Patton (1990) – efforts were made to diversify the sample as much as possible in terms of socio-demographic characteristics of the respondents and their place of residence within the city. At the same time – as suggested by Glaser and Strauss (2009) – attempts were made to select research cases by means of continuous comparison during data collection in order to obtain a diversified sample. The research sample is complex, i.e. it is described by many features.

The analysis of the time budget and time resources devoted to AR (taking up physical activity: cycling, running, fitness, trips outside the city) was carried out on the basis of the results of self-reporting (time budget diaries), which provide important and reliable data on the activities undertaken (Andorka, 1987, p. 151). Moreover, thanks to narrative interviews (which lasted about 1.5 hours) – taking into account the period before and during the pandemic – information was obtained on changes in the frequency of taking up physical activity, as well as the respondents' assessment (opinion) of these changes. At the same time, for the pandemic period – due to the different scope of the introduced restrictions, and thus the changing conditions for the implementation of physical activities – a division into three sub-periods was introduced: March–May, June–August, and September–December 2020. The opinions of the respondents are evaluative, which results in the emergence of positive and negative attitudes towards changing conditions, and thus the possibility of taking up recreational activities. In the analysis of the research results, a nomothetic approach was used, i.e. efforts were made to capture common and repeatable features of recreational activities undertaken in leisure time.

4. Findings

4.1. Characteristics of the respondents

The research was carried out on a sample of 71 adult (aged 18 or older) residents of large cities in Poland. The structure of the respondent group according to the basic socio-demographic characteristics and place of residence is presented in Table 1. Women slightly predominated among the respondents (55%). The dominant age group were people aged 26–35 (25 persons). The respondents most often had higher (53 persons) and secondary (14) education, were economically active (56 persons), and lived in blocks of flats (39 persons).

Table 1. Socio-demographic characteristics of the respondents

Gender	Number	Age	Number	Education	Number
Female	39	18–25	8	Primary	3
Male	32	26–35	25	Vocational	1
		36–45	10	Secondary	14
		46–55	12	Higher	53
		56–65	9		
		65+	7		
Professional activity	Number	Place of residence	Number	Having children	Number
Yes	56	Apartment in the historic city centre	13	Yes	19
No	13	House with a garden	16	No	52
No answer	2	Flat	39		
		Other	3		

Source: Own elaboration

4.2. Leisure time in the time budget

The time budget is a list of time periods allocated for the implementation of specific activities (Kolny, 2016). In statistical data on time resources, both in the short term (daily) as well as in the medium and long term (weekly, monthly, etc.), time is usually divided into four categories: time spent on meeting physiological needs, time spent on various duties (professional work, study, household duties, etc.), leisure time, and time allocated for commuting.

The analysis of the daily structure of the respondents' lives – carried out on the basis of the results of self-reporting carried out in December 2020 – showed

that they spent on average 39% of their time (9 hours 19 minutes⁴) on physiological activities, 36% (8 hours 30 minutes) – on duties, 1% (20 minutes) – on commuting and walking, and 24% (5 hours 49 minutes) – on rest (Krukowska, Piotrowski, 2021).

Within the “rest” category, there is a noticeable predominance of time devoted to using the mass media. The respondents spent 42% of all their free time on this type of activity (2 hours 57 minutes, i.e. 12% of the entire day), while participating in sports and recreation takes up 18% of the respondents’ free time (1 hour 3 minutes, i.e. 4% of the entire day) (Fig. 1).

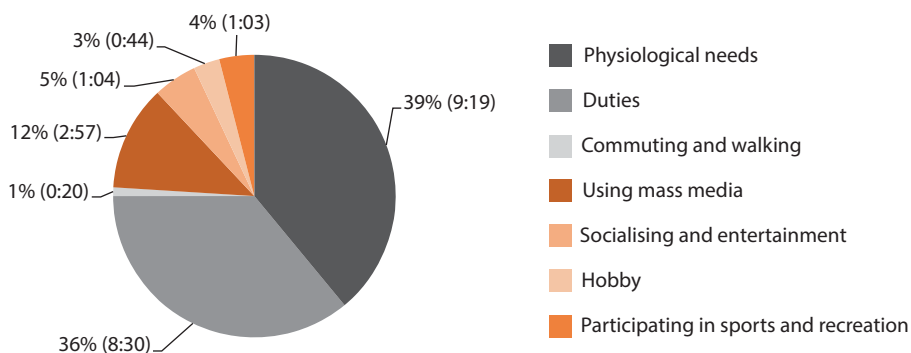


Figure 1. The structure of the respondents’ daily time with particular emphasis on activities undertaken in their leisure time

Source: Own elaboration based on results of self-reporting (n = 71)

The analysis of the respondents’ leisure time resources shows that the period of the pandemic and functioning under a varied degree of restrictions resulted in an increase in the amount of free time resources in each of the analysed periods (Fig. 2). This increase was most pronounced in the summer holiday period (June–August), when respondents had more than 1 hour of leisure time more on weekdays (change by 1.17 h), and on weekends – three quarters more (change by 0.79 h) (Fig. 2).

It is interesting to take a closer look at whether the increase in leisure time resources translated into an increase in the frequency of undertaking physical activities.

4.3. Active recreation

In this study, the category of active recreation undertaken by the respondents was divided into two subcategories: 1) activities at home and in various facilities (indoor recreation: home exercise, swimming pools, gyms, organised

⁴ Average duration of activities is given in parentheses.

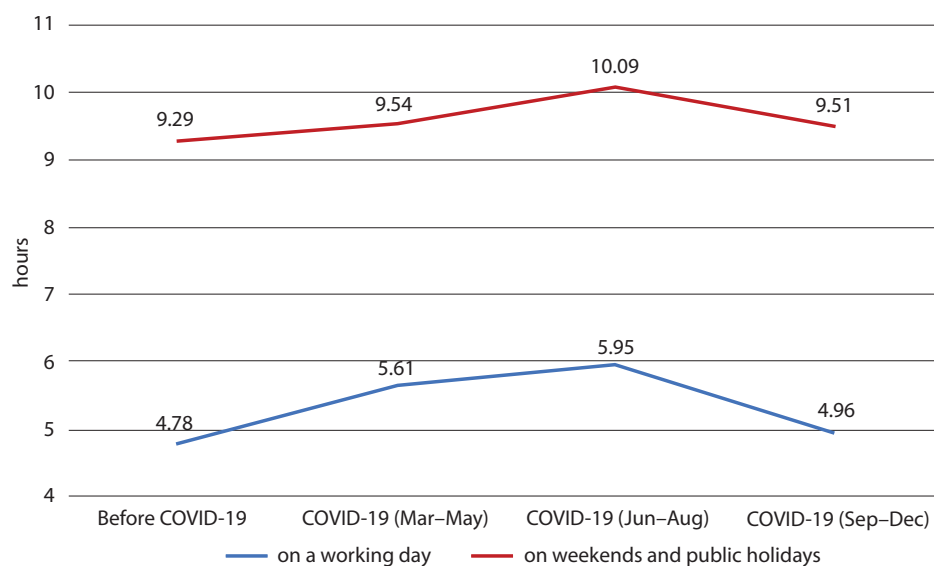


Figure 2. Average free time resources on a working day and on weekends and public holidays

Source: Own elaboration based on results of interviews (n = 71)

sports activities, individual activity) and 2) activities in the open space (outdoor recreation: walking, cycling/skating, running, other sports activities, work in the garden, trips out of the city).

The analysis of the interviews showed considerable discrepancies in the type of activities undertaken. This is especially evident in the activities engaged in at home and in various facilities. Before the pandemic, both on weekdays and on weekends, the most popular were: going to the swimming pool (18.3% of respondents declared going to the swimming pool on working days and 14.1% on weekends) and the gym (14.1% and 11.3% of the respondents, respectively) (Table 2). As the COVID-19 pandemic developed, the recreational activity of city dwellers decreased significantly, and in the period of March–May 2020, its only means was exercising at home. This was related to the introduction of lockdown measures in Poland and the closure of all facilities related to leisure activities.

During the holiday season (June–August), along with the gradual lifting of the restrictions, city residents returned to activity, although to a lesser extent than before the pandemic. On the other hand, the reintroduction of lockdown measures in September and the following months reduced the interest in using the swimming pools, gyms, or various forms of organised sports activities (Table 2). It should also be emphasised that during this period, the interest in searching for individual activities and leisure opportunities, e.g. billiards, go-karts, etc., began to grow. Pearson's chi-square test showed no correlation between the respondents' answers on undertaking physical activity indoors

Table 2. Indoor active recreation activities

Active forms of recreation	Before COVID-19		COVID-19 Mar–May 2020		COVID-19 Jun–Aug 2020		COVID-19 Sep–Dec 2020	
	Working day	Weekend	Working day	Weekend	Working day	Weekend	Working day	Weekend
	Number of respondents							
Home exercise	4	3	5	2	5	2	5	4
Swimming pool	13	10	0	0	3	6	2	5
Gym	10	8	0	0	6	2	1	2
Organised sports activities	8	4	0	0	2	2	2	1
Individual activity	5	9	0	0	0	1	3	3

Source: Own elaboration based on results of interviews (n = 71)

and their socio-demographic characteristics (age, gender, education, or place of residence).

During the pandemic, the respondents undertook recreational activities in the open air more often than indoors, while during the first lockdown (March–May), apart from working in the garden, the frequency of all outdoor activities clearly decreased, and instances of trips outside the city practically disappeared. During the summer holidays, the recreational activity of residents of large cities undertaken in the open air approached the levels from before the pandemic, especially in the case of such activities as walking, cycling, and rollerblading. In addition, the respondents undertook gardening even more often than before the pandemic. To a large extent, this was the effect of limiting holiday trips. In many cases, working in the garden or on an allotment became a substitute for summer travels.

The most popular activities were walking and cycling or rollerblading. A clear decrease in the frequency of taking walks and cycling or rollerblading was noticed only during the first lockdown (March–May) (Table 3). Pearson's chi-square test showed no correlation between the respondents' answers on undertaking physical activity in the open air and their socio-demographic characteristics (age, gender, education, or place of residence).

Interesting information was provided by the analysis of the respondents' opinions on changes in the possibilities of undertaking various activities in the field of physical recreation.

The opinions were divided into two categories: regarding changes in physical activity undertaken indoors (A) and outdoors (B), additionally taking into account the division into activities undertaken on weekdays (WDs) and on weekends and public holidays (WPHs).

Table 3. Outdoor active recreation activities

Active forms of recreation	Before COVID-19		COVID-19 Mar–May 2020		COVID-19 Jun–Aug 2020		COVID-19 Sep–Dec 2020	
	Working day	Weekend	Working day	Weekend	Working day	Weekend	Working day	Weekend
	Number of respondents							
Walking	40	36	16	19	41	34	25	32
Cycling/Rollerblading	15	10	4	7	15	12	7	6
Running	7	3	1	0	5	1	4	1
Other sports activities	9	8	1	1	4	7	7	1
Gardening	7	9	7	7	12	8	1	5
Trips out of the city	9	9	0	0	1	5	3	3

Source: Own elaboration based on results of interviews (n = 71)

A. Changes in the scope of taking up active recreation indoors in the opinion of the respondents

It is significant that all opinions expressed on the changes in the scope of possibilities of undertaking various forms of active recreation in various facilities on WDs had a negative dimension (n = 45). In the case of changes in physical activity on WPHs, negative responses prevailed (n = 48), but there were also those with a neutral overtone (n = 5). These negative opinions – regardless of whether they related to changes in terms of indoor or outdoor recreation activities – were sorted into six categories (a–f). The greatest number of negative opinions was the result of the deprivation of needs related to physical activity (a–b). In their statements, the respondents pointed to:

- a. Real difficulties in the use of facilities, which resulted from restrictions introduced by the government. 19 responses about WDs and WPHs appeared in this category. Some of the respondents' statements were:

R04 – The facilities are closed during the holidays (Szczecin, M-18) (WPHs)

R09 – Unable to use the services (Szczecin, M-18)

R10 – Unable to use the facilities (Szczecin, F-19)

R19 – Everything was closed, I had less possibility to use the services (Poznań, M-28) (WPHs)

R27 – Negative, because I use almost nothing (Poznań, F-24)

R28 – Restrictions prevent the use of the facilities (Łódź, M-22)

R31 – Closing of sports facilities made it impossible to play football (Wrocław, M-30)

- R32 – Most of the facilities have been closed (Poznań, M-27) (WPHs)
R40 – Closure of facilities prevented any form of activity (Lublin, F-45)
R43 – Less possibilities, facilities were closed at certain times (Lublin, F-27)
R50 – Before the pandemic I spent my time quite differently, I used the weekends very intensively to be able to rest, visit something new. The pandemic changed that. I don't like it, but I adhere to the restrictions (Kraków, M-33) (WPHs)
R57 – Weekends were a time I devoted to my girlfriend, we spent time together using the local and regional tourist and entertainment options – giving up all these places due to a pandemic. [...] No possibility of using spa and wellness services, which I and my girlfriend were happy to use in the previous years – short weekend trips with biological regeneration treatments and thermal baths in Białka and Bukowina (Kraków, M-28) (WPHs)
R62 – Closed fitness facilities (Łódź, F-35)
R64 – The change is negative because I cannot freely use sports facilities, go to restaurants and the cinema (Warsaw, M-26)
R68 – It didn't limit my life a lot, but it did. I missed the gym (Warsaw, F-46)
R70 – A small range of leisure activities (Warsaw, F-29).

b. Subjective feeling of the need for physical activity (11 responses about WDs and 5 about WPHs), which they articulated in the following way:

- R04 – Need for physical activity (Szczecin, M-18)
R06 – Eagerness to use the swimming pool after its reopening (Szczecin, F-19) (WDs & WPHs)
R18 – I want to visit my favourite places again (Poznań, F-31)
R24 – I can't go anywhere, I have to be closed inside, so I could always walk to the store for entertainment (Warsaw, F-43)
R34 – I miss going to the swimming pool and to the cinema (Poznań, F-50)
R46 – I don't use [them] much, but I want to be able to do so (Lublin, F-36)
R51 – I put off a lot of things to do for later, when I retire. You could always go to [the] Wawel [Castle], since I live in Kraków, and it suddenly turned out that you couldn't. There was no other way, I gave up everything. [...] I had been going to the pool earlier, I felt great, it was relaxation, rest, it was a treat. If I could, I would also go now (Kraków, F-63)
R55 – I would like to return to my habits from before the pandemic (Kraków, F-29) (WPHs)
R58 – I want my family and me to be able to use the facilities (Łódź, F-46) (WPHs)
R64 – I miss going to the swimming pool or the club (Warsaw, M-26)
R69 – I want to spend time in cultural and recreational facilities (Warsaw, F-26)
R69 – I missed going out (Warsaw, F-26) (WPHs).

It should be noted that the issue of formal obstacles in using recreational facilities was raised in similar proportions by women and men, while the subjective feeling of deprivation or willingness to take up recreational activities was more often expressed by women. Demographic and social variables were not significant in the differentiation of subsequent opinions.

In statements expressing the deprivation of social contacts (c) (5 statements in relation to WDs and 9 – in relation to WPHs), the respondents pointed to such issues as:

- R03 – I miss going out with friends (Łódź, F-44)
- R03 – I need to get out to people, there are too few meetings, contacts (Łódź, F-44) (WPHs)
- R13 – No contact with people “in the flesh” (Szczecin, F-46) (WPHs)
- R16 – Because you have to meet people, take care of your psyche (Gdańsk, F-53)
- R21 – I have no contact with social life (Wrocław, M-22)
- R25 – I assess this change negatively. The possibilities of meeting people freely are limited (Wrocław, M-29) (WPHs)
- R47 – I want to go to church because I have a spiritual need. Besides, I have something extra to do – get together and go and talk to people at the same time. I couldn’t do it because of COVID (Lublin, F-76) (WDs & WPHs)
- R65 – I spend most of my time at home, no possibility of going out to people, enjoying entertainment, going out together with other people (Warsaw, M-75) (WDs & WPHs).

In the majority of opinions on changes in the possibilities of undertaking recreational activities indoors, the respondents pointed to specific shortcomings or needs. But in some opinions, the respondents linked the introduction of restrictions with limitation of personal freedoms and development (d) (5 responses each for WDs and WPHs), e.g.:

- R18 – Because I feel limited, and I don’t see people. I have most of my social contacts with my cat, it has a negative impact on my life (Poznań, F-31) (WPHs)
- R27 – Because it limits me a lot (Poznań, F-24) (WPHs)
- R30 – My freedom has been limited, I cannot take advantage of my life as I should. I cannot do what I want (Poznań, F-26)
- R51 – Sunday for a Catholic has a specific meaning. Before COVID, going to church was also a form of spending free time for me. We went to church with my mother, then for a walk, ice cream, it was also free time. We are not doing it now, it is a very big psychological limitation, mentally it is a heavy burden (Kraków, F-63) (WPHs)
- R53 – I don’t like it, there are some limitations, I’m not for it. I could go to training, but nobody knew if suddenly everything would be cancelled and closed again. I have a negative opinion on this, I would like to plan my life somehow (Kraków, M-29)
- R66 – I miss spending my time freely in any venue (Warsaw, M-42)
- R66 – I miss being free to leave and go wherever I want (Warsaw, M-42) (WPHs)
- R02 – No visits to various facilities limits human development (Łódź, M-69) (WDs & WPHs).

The respondents also pointed to the fear of coronavirus infection and its health consequences (e). There were 4 such statements in relation to WDs and 8 in relation to WPHs, e.g.:

R13 – Fear of infection (Szczecin, F-46)

R23 – I would spend this time differently if it were not for the COVID threat and the fact that I simply cannot go to some places because they are closed (Warsaw, M-32) (WPHs)

R24 – I do not use any facilities as before, because [...] I was afraid to use them (Warsaw, F-43) (WPHs)

R31 – The use of facilities in times of restrictions causes anxiety (Wrocław, M-30) (WPHs)

R41 – I avoided clusters of people for fear of infection – responsibility for the parents who are under our care (Lublin, M-56) (WPHs)

R45 – Fear of COVID (Lublin, M-41)

R51 – I live with my mum, she is 84 years old, I do not want to infect her with something (Kraków, F-63)

R51 – I stopped going out to dance clubs. There is no airflow in these premises, I do not like this crowdedness very much (Kraków, F-63) (WPHs)

R52 – We haven't travelled anywhere this year, neither on weekends nor on vacation. That's why I don't like it, I assess it negatively. I like to spend my weekends this way and be in interesting places. These are not distant trips [...] I look for such places on the Internet, not far away, where you can go by car [...]. Now, during the summer holidays, you could also use all of this under sanitary regime. I don't believe it any more than the fact that all stores work under sanitation regime, and few have hand sanitiser. I was afraid, I preferred not to go anywhere (Kraków, M-58) (WPHs)

R61 – Pandemic, fear for health (Łódź, F-35).

Only two respondents noted the negative impact of lack of physical activity on their well-being (f):

R21 – It's always fun to go somewhere on the weekend. The less you visit such places, the worse you feel (Wrocław, M-22) (WPHs)

R59 – Not taking advantage of it contributes to the feeling of being unwell (Łódź, F-54) (WDs & WPHs).

It should be added that among the assessment of changes in the possibility of taking up physical activity indoors on weekends and holidays, there were also statements with a neutral "overtone" (5):

R20 – I can't tell (Poznań, F-22)

R49 – COVID has no influence on it [...] I don't see any changes (Kraków, M-34)

R53 – [...] I didn't want to go to the gym when it was already open so as not to get infected because the equipment is being touched by everyone. I can't believe that someone cleans up after each use, disinfects everything. There are shared bathrooms, changing rooms, equipment. It is not an urgent need, it can be dispensed with (Kraków, M-29)

R63 – I am a homebody (Łódź, M-49)

R68 – I don't have much need to go anywhere. If there is an opportunity, I will go (Warsaw, F-46).

B. Changes in active outdoor recreation in the opinion of the respondents

Opinions on changes in the scope of undertaking recreational activities in open space were slightly more diverse. First of all, the respondents' statements showed positive opinions, regardless of whether the question concerned WDs (n = 6) or WPHs (n = 7). They highlighted increased activity, e.g.:

- R03 – I walk around more, I like it (Łódź, F-44) (WPHs)
- R15 – The pandemic made me want to leave the house, not stay locked inside, and I want to keep this attitude (Gdańsk, F-30)
- R26 – Due to the fact that I bought a dog during the pandemic, I spend more time in open, green spaces (Poznań, M-26) (WPHs)
- R27 – I spend a lot more time outside, in the fresh air (Poznań, F-24)
- R27 – I did not spend my free time walking too often, and the pandemic has influenced the fact that I try to walk more (Poznań, F-24) (WPHs)
- R36 – Spending more time actively and outdoors (more walks and mountain hikes – that's the only thing you could do) (Wrocław, F-28)
- R42 – More time to spend time with family outside home (Lublin, F-47) (WPHs)
- R68 – I'm more active (Warsaw, F-46) (WDs & WPHs).

One respondent also emphasised that the increase in activity had a positive effect on her well-being (R36: Wrocław, F-28). Another, in turn, said: R46 – [T]he change is positive because I spend more time outdoors, but it was due to a negative reason – lack of work (Lublin, F-46). This statement shows that taking up activity or not doing so may stem from various factors, with the pandemic possibly being the impulse triggering a whole sequence of events. These positive responses are a manifestation of the 'sweet lemons' rationalisation, which involves the use of weak but seemingly convincing arguments to justify that 'it is not as bad as it might seem' (Długosz, 2020).

Negative opinions (31 with regard to WDs and 30 with respect to WPHs) of the respondents on the changes that took place in the field of outdoor recreational activities during the pandemic were also divided into six categories (a–f), correspondingly to the responses regarding activity in facilities. The first group concerned responses in which the respondents indicated real difficulties in taking up outdoor activities (a), but it was not as numerous as the group of opinions regarding the possibility of using various facilities, which comprised 9 statements relating to WDs and 7 relating to WPHs. They highlighted decreased activity, often the result of restrictions introduced by the government, e.g.:

- R44 – Limited ability to go out due to restrictions and fear of coronavirus infection (Lublin, F-68)
- R51 – You could go somewhere for a coffee, or rather come to Planty, mainly this. Now I only go out for shopping, single walks, from one occasion to another (Kraków, F-63)
- R57 – Giving up everything because of the pandemic (Kraków, M-28) (WPHs)
- R60 – Limited travel options (Kraków, M-33) (WPHs)
- R58 – Claustrophobia, locking ourselves at home (Łódź, F-46).

The second group consisted of statements indicating a subjective need for activity (b). There were 6 of them in relation to WDs and 10 of them in relation to WPHs, including:

R01 – We like to spend time outdoors, in the forest, in the countryside, and we want to go back to that (Bydgoszcz, F-50) (WPHs)

R17 – I would like to go out more often (Poznań, M-33)

R17 – I don't want to live like this, outdoor events should come back (Poznań, M-33) (WPHs)

R35 – I have limited options of going outside, I want to return to normal (Poznań, F-71) (WPHs)

R47 – I didn't go out very often, not every day, just from time to time. I really needed to just take a walk in a ravine (Lublin, F-76) (WPHs)

R48 – I like to travel, visit, relax like that, that's why I miss it and I don't like what the situation looks like now. We were only on our allotment in the summer, it is nearby, outside the estate, you can walk there. We have a gazebo, a swing, a barbecue area, a greenhouse, and flower beds. It was our open space. We sometimes took a detour, so that it would take longer, to be away longer. But it shouldn't replace trips, be done instead of some weekend trips (Kraków, F-60) (WPHs)

R58 – Children need open space (Łódź, F-46) (WPHs)

R64 – I would like to freely use outdoor gyms, parks, without restrictions (Warsaw, M-26)

R66 – I would like to move around and use the open space without any problems (Warsaw, M-42) (WDs & WPHs)

R69 – I would prefer to be able to get away for the weekend (Warsaw, F-26) (WPHs).

The third group of responses was related to the deprivation of social contacts (c) and was also much smaller compared to the corresponding responses related to activity in facilities. There were two responses in relation to WDs and WPHs:

R09 – Inability to spend time in a larger group (Szczecin, M-60)

R16 – You have to have contact with people, you have to 'break away' a bit, develop spiritually (Gdańsk, F-53)

R30 – Walks are a plus, but the lack of possibility to meet with other people during those walks is a minus, and a big one at that (Poznań, F-26) (WPHs)

R50 – Especially when the weather is warmer, outdoor pubs are a good place to meet someone on the weekend. There are many such interesting places in Kraków [...], but I tried to avoid them this season. I was walking – depending on restrictions, but without using food services (Kraków, M-33).

These statements show that the respondents crave social contacts, they want to share various activities with friends or acquaintances, or they treat, for example, a walk as an element of a bigger activity which also includes meeting for coffee.

As in the case of opinions regarding changes in the scope of taking up recreational activities in facilities, the theme of the restriction of personal

freedoms and development (d) also appeared in statements regarding changes in outdoor activities (5 responses each on WDs and WPHs). It should be added, however, that apart from the statements pointing to the restriction of freedom – e.g. R30 – My freedom is limited [...] I cannot do what I want (Poznań, F-26) – there were answers emphasising the inconvenience resulting from the obligation of wearing masks:

R28 – The necessity to wear a mask makes the time spent outside not so pleasant (Łódź, M-22) (WDs & WPHs)

R31 – We started going for walks, but a masked walk is not a walk. Walking with masks on is uncomfortable (Wrocław, M-30) (WDs & WPHs)

R64 – Wearing a mask interferes with sports (Warsaw, M-26) (WPHs)

R65 – I miss the opportunity to go for a walk freely, outside the house, without a mask (Warsaw, M-75).

There was also a large group of responses in which fear of COVID-19 infection was raised as the main factor limiting activity in the open air (e) (5 statements each for WDs and WPHs), including:

R23 – If it weren't for the COVID threat and the fact that I simply can't go to some places because they are closed, I wouldn't have to change my free time habits. Now I only have parks (Warsaw, M-32) (WPHs)

R24 – The change is negative, because I don't go anywhere at all for fear of COVID-19 (Warsaw, F-43)

R40 – Restrictions and fear of getting sick limited leaving home (Lublin, F-45)

R44 – Limited ability to go out due to restrictions and fear of coronavirus infection (Lublin, F-68) (WDs & WPHs)

R45 – Need to stay at home for fear of COVID-19 (Lublin, M-41).

The last highlighted category were responses in which the negative impact of lowering physical activity on well-being was emphasised (f) (4 statements related to WDs and 1 – to WPHs):

R03 – Sitting at home is bad for my health (Łódź, F-44)

R14 – My health deteriorated (Gdańsk, M-61)

R58 – It has a negative effect on health and well-being (Łódź, F-46)

R59 – The level of activity is decreasing. It has a negative effect on health (Łódź, F-54).

5. Discussion

The research results presented above, due to the small size of the sample, were mostly not confirmed by statistical tests. Nevertheless, the analysis of the results shows certain regularities corresponding to the results of research by other authors.

Poles' leisure time resources have been increasing at least since the mid-1970s (Kolny, 2016). The pandemic did not change that trend (Mucha, Mucha, 2021). It is also confirmed through the juxtaposition of the results of the surveys carried out among the inhabitants of large cities in Poland presented in this text with information from the GUS [Statistics Poland, Central Statistical Office] in Poland (Table 4). The self-reporting carried out in December 2020 showed that the daily time structure of the inhabitants of large cities in Poland differs a little from that documented by the GUS before the pandemic – a noticeable increase was observed in the amount of time spent on duties and leisure.

Table 4. Structure of daily time

Category of time	Duration (in December 2020)	Percentage of daily time resources	
		In pandemic (December 2020)	Before pandemic (in 2013)
	Based on own research		Based on GUS data*
Physiological needs	9 hrs 19 mins	39%	46%
Duties	8 hrs 30 mins	36%	29%
Commuting	20 mins	1%	5%
Leisure	5 hrs 49 mins	24%	20%

* Only data for the biggest cities

Source: Based on authors' own elaboration and GUS data

Certain shifts in the share of individual time categories in December 2020 resulted from the specific nature of life during the pandemic, especially under lockdown and in the period of remote work, which often blurred the boundary between leisure and working time. Concomitantly, the lack of the need to commute to work and take children to school or kindergarten made it possible to shift the time allocated to this category to other activities (e.g. related to leisure time or duties).

The results of many studies have shown that increased leisure time during the pandemic influenced the physical activity of Poles (Mucha, Mucha, 2021), although these results are not fully congruous. And so, according to WirtualneMedia.pl (2021), in 2020, physical activity was undertaken on average by 69% of people, while in the previous year this percentage had been 81%. Since the beginning of the 2020 pandemic, the scale of practicing sports by Poles has been decreasing month by month. These results did not improve even in the summer months (WirtualneMedia.pl, 2021).

The data presented by the MultiSport Index (2020) has also shown that before the pandemic, the physical activity of Poles throughout the country was much higher. However, the analysis of physical activity of the population

according to the place of residence indicates that the level of activity of inhabitants of large cities (population over 200,000) increased from 74% before the pandemic to 79% during its first wave and fell again to 74% during the second wave. The research presented in this paper has also demonstrated similar fluctuations in the frequency of undertaking physical activity by inhabitants of large cities in Poland. The analysis of time budget diaries (Piotrowski, Krukowska, 2021) has shown a 125% increase in the amount of time spent on sports and recreation.

Similar results concerning taking up active recreation have also been recorded in other countries. Australian COVID-19 lockdown restrictions positively impacted the proportion of adults performing moderate to vigorous physical activity (Arundell et al., 2022). In Spain, one of the most frequent leisure activities during lockdown was practising sports or physical exercise (48.7%) (Rodríguez-Rey et al., 2020). The increase in spending time on physical activities (27%) was also reported in a US study (Duncan et al., 2020).

In addition, it should be remembered that the level of involvement in active recreation may vary depending on the degree of engagement in physical activity prior to the development of the pandemic. A study covering the lockdown period in Belgium has shown that sports and outdoor recreation decreased among those who had been highly active before pandemic and increased among those who had previously been inactive (Constandt et al., 2020).

Many months of gyms or fitness clubs being closed did not cause a drastic reduction in the activity of inhabitants of large cities. It did decrease, on the one hand, due to people continuing – at the pre-pandemic level – to engage in physical activity in the open space, and on the other hand, due to the extension of the range of possibilities of taking up physical activity with online training (MultiSport Index, 2020; Mucha, Mucha, 2021). The results of the research presented in this article also show an increase in the importance of home exercise. The coronavirus pandemic and the related lockdown triggered a kind of a digital revolution in the field of physical activity. Every third physically active Pole uses online training, often treating it as a supplement to the activity undertaken in a physical facility (MultiSport Index, 2020).

The COVID-19 pandemic was the reason for the introduction of restrictions, mainly in terms of isolation and social distancing, as the main preventive measures aimed at reducing and slowing down the spread of the disease (Gambin et al., 2020). The situation forced everyone to reorganise their current lifestyle in its various aspects (Gambin et al., 2020). The results of the research presented in the cited study indicate a reorganisation in the field of active recreation, both in terms of time spent on active recreation and its forms.

The research conducted by the authors shows that the respondents have largely negative opinions regarding the changes that took place during the pandemic in terms of the possibility of undertaking physical activity. The main arguments given for such assessments were the lack of possibility to meet the needs related to physical activity and the deprivation of social contacts. To add,

Jackson et al. (2021, p. 2) state that “while the direct effects of contracting COVID-19 can result in a range of physical health complications including death, the virus also impacts the mental well-being of those not infected”.

6. Summary and conclusions

During the COVID-19 pandemic that started in March 2020, an increase in the amount of leisure time available to the inhabitants of the analysed large cities in Poland was observed. The increase in leisure time resources during working days was particularly noticeable. It was largely an effect of lockdown measures. A significant part of people switched to remote work, which, on the one hand, increased the amount of leisure time as people spent less time on commuting, and, on the other hand, somewhat blurred the difference between leisure time and time devoted to work and other duties.

The increase in the leisure time resources of the inhabitants of large cities as well as the state of pandemic also influenced changes in behaviour in the field of active recreation:

- (1) Lockdown forced people to stop using such facilities as gyms, swimming pools, fitness clubs, dance schools, or sports halls. Although the partial lifting of restrictions resulted in a return to the use of the above-mentioned sites, the frequency of their use did not reach the pre-pandemic rates, which may indicate a persistent fear of infection by the respondents.⁵
- (2) An increase in the importance of home exercises was noted, often engaged in with the use of social media (e.g. Facebook) and online resources (e.g. YouTube).
- (3) The frequency of taking up outdoor physical activity remained at a level similar to the pre-pandemic period. The exception was the period of the first lockdown, when in Poland it was recommended not to leave the house unless completely necessary. Among the activities carried out outdoors – both on working days and on weekends – the prevailing ones were walking, cycling, and working in the garden (on an allotment).

The respondents usually negatively assessed the changes that took place during the pandemic in terms of their recreational behaviour. Emphasis was put not so much on the limitations in the scope of the very possibilities of

⁵ It should be emphasised that the studies concerned the period before the introduction of vaccinations against COVID-19. CBOS and IQS studies conducted using the CAWI method in April 2020 showed that almost 70% of Poles were afraid of being infected with the SARS-CoV-2 virus (CBOS, 2020b). In turn, the results of research from December 2020 showed that the concerns of over 50% of Poles focused on health-related issues, including 13% of Poles fearing coronavirus infection (CBOS, 2020a).

undertaking these activities, but on the difficulties or discomfort during their performance, resulting, among others, from the need to keep social distance or wear masks. The sources of dissatisfaction with the situation were the fear of contracting coronavirus or infecting loved ones and the restrictions introduced by the government with regard to the functioning of recreation facilities and undertaking various types of recreational activities, which resulted in the reduction of physical activity among respondents. On the other hand, the decrease in physical activity caused deprivation in terms of the need for physical activity and social needs. The state of constant unmet need not only has an impact on the subjective sense of lower quality of life, but also becomes a stress generator that has specific health-related and social consequences. Each category of the aforementioned consequences (somatic and mental problems, feelings of instability, perpetuating social isolation) can be both an effect and a cause, creating a network of interactions in the holistic functioning of the body (Fig. 3).

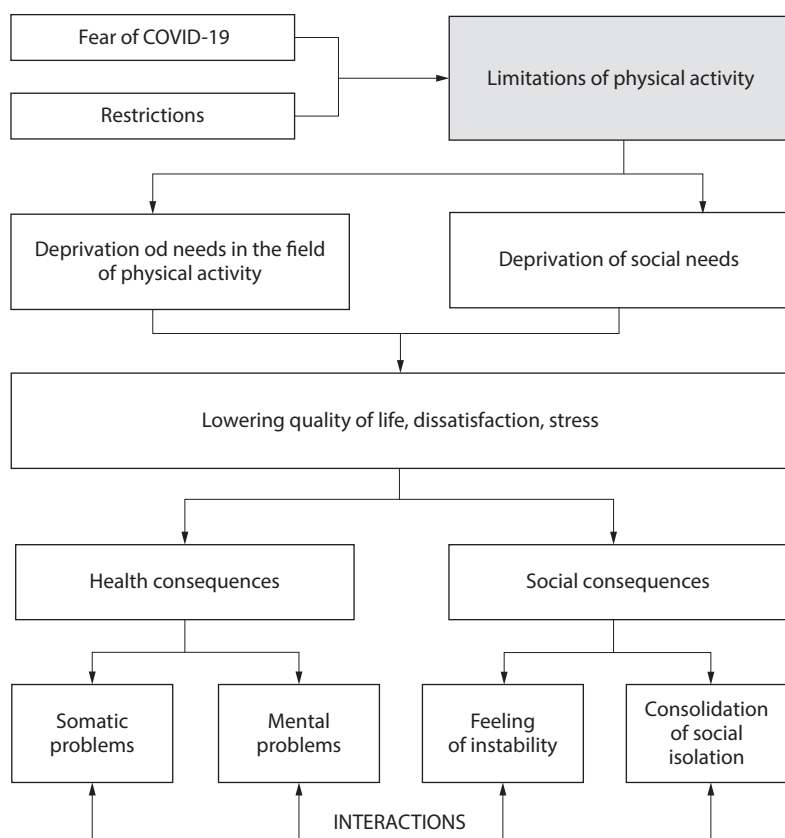


Figure 3. Diagram “Conditions and Consequences of Limiting Active Recreation”

Source: Own elaboration

Earlier research on the mental health impacts of the pandemic also found that nearly one third of youths who experienced isolation or quarantine met the criteria for a PTSD (post-traumatic stress disorder) diagnosis (Sprang, Silman, 2013). Research exploring life satisfaction also points to a link between a decrease in participation in physical activity and a decline in life satisfaction (Zullig, White, 2011). Social relationships are often treated as a key factor in choosing to participate in physical activities, and social interactions have been identified as particularly beneficial, with more time spent with family resulting in increased subjective well-being (Jackson et al., 2021).

Finally, it should be added that the results of the research on the frequency of recreational activities did not show statistically significant relationships, therefore it would be advisable to deepen the research, mainly by increasing the research sample.

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ABSTRACT**Active recreation as leisure activity of inhabitants of large cities in Poland during the COVID-19 pandemic. An attempt at a qualitative approach**

The article discusses the patterns of the use of free time during the COVID-19 pandemic which the inhabitants of large cities in Poland devoted to active recreation. The analysis of changes – taking into account indoor and outdoor activities – was carried out in four time periods: before the pandemic, under the first lockdown, during the summer holidays, and under the second lockdown. The study used results of a structured interview, including self-reporting, and a narrative interview. The research has shown an increase in interest in outdoor recreation during the pandemic and fluctuations in recreational activities at home and in facilities. The respondents expressed varied opinions on changes in the possibilities of undertaking various activities in the field of physical recreation. Changes in the scope of indoor recreation were assessed as negative, but some of the opinions on changes in the scope of outdoor recreation were positive, resulting from the adoption of the ‘sweet lemons’ rationalisation.

Keywords: active recreation, leisure activities, inhabitants of large cities, pandemic, Poland

HABITABILITY AND GASTRONOMIC GENTRIFICATION OF PUBLIC SPACE IN THE TIMES OF COVID-19. THE CASE OF LA CONDESA NEIGHBOURHOOD IN MEXICO CITY

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1. Introduction

From the time Heidegger coined the concept of ‘habitability’ in 1951 until the end of the twentieth century, the term was linked in academic literature to the study of living space. This seems to have been the case both for studies developed from the perspective of social psychology and those derived from spatial (mainly architectural) analysis. These approaches emphasised habitability as a condition of housing, stressing the objective (material) and subjective (perceived) conditions that housing must meet in order to satisfy the basic living needs of the population, assuming that public space is a place of transit where habitability does not apply (Páramo et al., 2018, p. 347).

In its further development, the concept progressively started to refer to the external environment of human dwellings as a component closely related to their habitability. Consequently, Mercado et al. (1995), as well as Landázuri and Mercado (2004, as cited in Páramo et al., 2018, p. 347), consider habitability from a double perspective. On the one hand, they relate it concomitantly to the interior of the dwelling and the surrounding outside space, referring both to the neighbourhood where the dwelling is located and to the infrastructural conditions and urban facilities available; on the other hand, they analyse the way in which the resident population makes use of them.

This interpretation leads us to consider, as Blanc (2010, p. 169) points out, that “a habitable place is one that offers individuals sufficient creative

opportunity and the possibility of adapting it sufficiently to make it their own”, to “appropriate” it. In this sense, the “appropriation” of a place is based on the fact that it offers living conditions that allow us to adapt to it; in other words, urban habitability requires material circumstances that allow for the recognition of a place and its use by the population that inhabits it and constitute a condition for adapting to it on the basis of the connections that people make to it and the activities that they carry out within it.

From this perspective, urban habitability is related to the satisfaction of the basic human needs included in Maslow’s hierarchy (Fig. 1), which are materialised, at the urban level, in objective physical elements, referring to both housing and urban space. These elements are necessary to satisfy the basic physiological needs as well as the health and safety requirements of individual people, family units, and, in general, various urban social groups.

When talking about collective needs (objective and subjective), particularly in relation to public space, we assume that they form part of the basic needs recognised by Maslow, and that their satisfaction determines the habitability of urban space. Maslow establishes five categories of human needs, organised in five large blocks that follow each other on an ascending scale. The needs go from the most objective (physiological needs that require a material component for their satisfaction), through those related to health and safety (referring to the feeling of certainty about personal and family integrity) and the social needs of recognition-integration and social esteem, to meta-needs related to feelings or sense of self-fulfilment (Fig. 1).

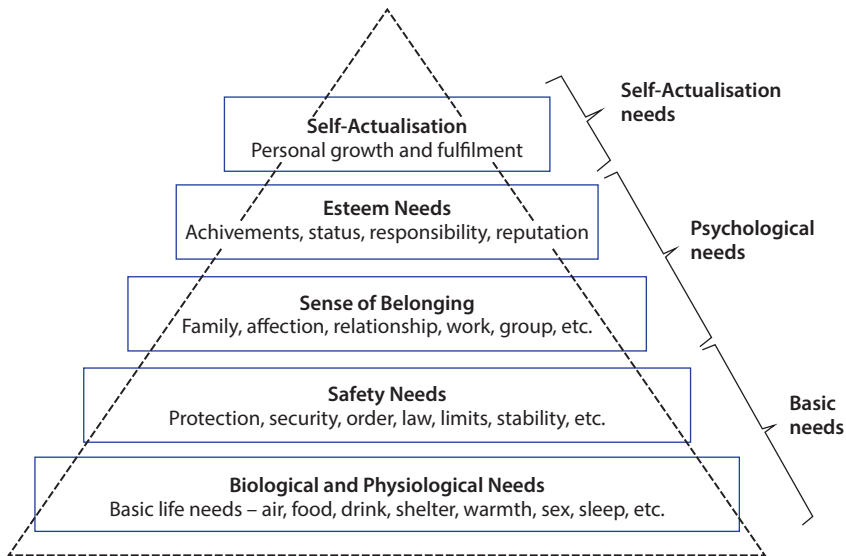


Figure 1. Maslow’s hierarchy of needs

Source: Own elaboration based on Maslow, 1975

From the perspective of Maslow's study, urban habitability would be closely related to the more objective needs of the population, linked to the material conditions of urban space which guarantee the satisfaction of vital physiological needs and provide security and means of social integration. In this sense, habitability constitutes a condition of the urban quality of life in its most general conceptualisation, understood as "the conditions that make an environment habitable in terms of comfort, which is associated with the ecological, biological, economic-productive, socio-cultural, typological, technological and aesthetic, in its spatial and psychosocial dimensions within the space where man lives and acts" (Páramo et al., 2018, p. 348).

In urban planning terms, these comfort conditions are the constituent elements of urban space that operate as an integrated system of components in the city structure itself. These are public and private facilities (schools, hospitals, parks, gardens, among others), elements of urban infrastructure (streets, water and sewage networks, power lines, etc.), as well as factors related to fitting out and furnishing public spaces (paving of roads and pavements, trees, lighting, as well as movable elements that allow for efficient use of public space); all of them are conceived to satisfy human needs (Leva, 2005; Marquina, Pasquali, 2006, as cited in Alvarado et al., 2017, p. 131).

These material conditions seem, however, insufficient to define urban habitability in general. Some authors have criticised this conceptualisation for its over-reliance on implicit physical parameters, arguing that what is acceptable as a norm and the elements that form its part may vary from one social and urban reality to another (Eno, Aniedie, 2018). According to this approach, urban habitability, seen in a broad context, should be considered linked to broadly understood quality of life in a city, which certainly includes material aspects connected to the basic needs of the individual, but also subjective, social, and cultural components.

Habitability thus appears as a condition that integrates the built and natural environments, as well as the socio-cultural and economic environments, all of which enable the physical and social development of human communities in a state of well-being. This is reflected in how land is used in public and private space according to the lifestyles of the urban population and, therefore, to the practices and demands of the different actors present in the city.

Such practices cover a broad spectrum of manifestations of social and individual life. Following Maslow's categories, this spectrum encompasses all aspects related to the satisfaction of basic, psychological, and self-fulfilment needs, all of which are expressed by mobility as an essential aspect of social life. This interpretation of habitability, which incorporates physical-functional, socio-cultural, and mobility-related aspects, implicitly assumes that the existence of these indispensable requirements for the construction of a liveable city depends on the actions taken by the authorities in terms of managing the habitat through urban planning instruments (direct and indirect), which then influence and even create new ways of living (Blanc, 2010, p. 3).

2. Methodology

This paper starts from the research question: How did the COVID-19 pandemic impact the use of public space in a gentrified neighbourhood whose economy is dominated by enterprises linked to the food service industry? The research is based on the theoretical framework of urban habitability and social psychology based on the hierarchy of social needs and was carried out through field visits, use of geostatistical information, and analysis of the legal provisions that regulate the post-COVID-19 reopening of economic activities in Mexico City.

3. Public space and its use

Beyond the ambiguity present in the academic discussion on the character and nature of public space as an interpersonal, impersonal, or private domain (Madanipour, 2003, p. 98; De Rosa, Mannarini, 2021), in this paper we define public places and spaces as material sites (natural or built) in which anyone has the right to be present physically and gather without restrictions resulting from the ownership of the site.

In this sense, a space can be considered public if it has the material infrastructure that enables community life, if it is controlled by the legitimate authorities of the city, and if it may be used by the population of the city as a whole, it is open or available to all residents and is used or shared by all members of a community. This conceptualisation of public space opposes and dialectically coexists in urban space with that of private space, understood as personal or group space restricted by private property rights, which refers both to the intimate sphere of the home and to spheres of consumption, production, and services (Madanipour, 2003, p. 98).

As Madanipour (2003, p. 119) points out, this distinction between public and private space is not the only one that exists in the configuration of a city; it is also subdivided into socio-economic and cultural units, the main manifestation of which are neighbourhoods where social, ethnic, and cultural groups and other sub-groups of society tend to find their own place to live. In this context of socio-spatial diversity, public space is structured and used at different scales (city and neighbourhood), which in turn are connected with each other through a network of public spaces (avenues, streets, parks) functioning as means of interconnection between different private places.

The public character of the space of urban interconnection is, however, a relative condition, and its habitability does not necessarily allow all members of society to have access to the activities that take place there; this is to say, it is possible to have access to a public space but not necessarily to the activities that take place within it. This happens as a result of the process of 'private appropriation' of public space, which is always variable and carried out through private space's expansion over and invasion of public space (Madanipour, 2003, p. 98).

As a consequence of this private appropriation of public space, the latter ceases to be a place of social mixing and becomes a space differentiated by social class, educational level, or income (Honey-Rosés et al., 2021, p. 3). As a result, the conditions of habitability respond in a differentiated way to the needs of each social group that makes use of it, favouring socio-spatial segregation in the use of public space.

3.1. The link between public and private spaces

In the relationship between the public and the private, public space is presented as a place with a habitable character, not only because it incorporates a set of urban components necessary for fulfilling material needs and developing socio-cultural and economic activities of a city, but also because it concomitantly provides the means to satisfy or access the satisfiers of basic, psychological, and self-fulfilment needs of the urban population.

In this relationship, public space also appears as a transitional space between what Bhabha (1990) calls the “first” and “second” spaces (the home and the workplace, respectively) and the “third spaces” (private places that people frequent every day and that structure everyday life); the latter are private commercial establishments such as bars, restaurants, gyms, shopping centres, hairdressers’, and other places frequented between work and home, where community ties are strengthened and interpersonal bonds are forged (Low, Smart, 2020, p. 1).

As Gandana and Siti (2008) point out, these places have a particular relevance in the urban habitat as they are where the identity of different social groups is solidified. This is because they allow individuals to form part of a social world and to belong to it, they are meeting sites, places where socio-cultural identities are forged in an environment connecting private commercial activities and services with a strong exclusionary practice of “different” social groups.

In contrast to third spaces, public spaces, such as parks, streets, and squares, are places that are fully accessible to the entire population, where depersonalised social encounter takes place, and where social contact occurs in an open, democratic, inclusive, but also unplanned way (Low, Smart, 2020, p. 2). Public space constitutes a sphere in which various human groups and individuals making up our social world come into contact, while third spaces are places where individuals and groups share identity traits which in the contemporary world are associated with consumption practices.

3.2. Public-private interface and its scope

In their contemporary understanding, public spaces in cities can be defined as places beyond the control of individuals or social groups with particular interests, used for a wide range of often overlapping purposes (Madanipour, 2003, p. 204); they are multi-purpose accessible spaces that are differentiated from

private places, those used by people for individual purposes. This difference between the two types of space, however, does not imply a sharp separation between them; on the contrary, there is a functional link between the two, which is established on the basis of the mediation function that public space has between different private spaces (home, business, facilities).

As Dovey and Woods (2015, pp. 4–5) acknowledge, the linkage between public and private space is based on a virtual “field” which, in urban design, has been called the public–private interface. It is constituted by an imaginary plane that separates the public from the private with different levels of permeability or transparency and includes in its conception the attributes of both. It is, therefore, both public and private – we could say that it is private on the side of the private space and public on the side of the public space.

This transitional field, which from the perspective of institutional urban planning in Mexico is considered a cadastral boundary, constitutes a key element in the relationship between two types of space, particularly between third spaces and the public space. It provides access to the private sphere from the public; the private is made visible through it, it has a virtual two-dimensional nature and a vertical location, it delimits the front, the “visible”, and therefore accessible “face” of private property.

In the relationship between private third spaces and public space, this interface is not only “transparent”, allowing intense interaction (visually and physically) between the two, but also acquires a “flexible” character that leads it to “expand”, constituting a three-dimensional realm in which the public and private attributes of the interface are presented simultaneously and dialectically, appearing as a form of hybridisation of public space in the understanding put forward by Hristova and Czepczyński (2018) (Fig. 2).

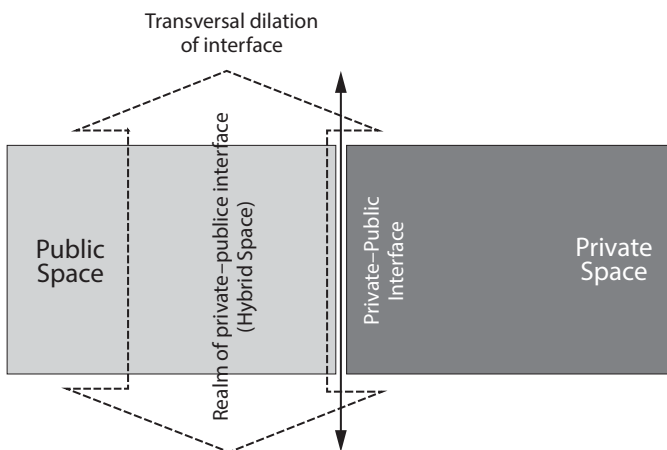


Figure 2. Hybridisation of public space (realm of the private–public interface)

Source: Own elaboration

The scope of the interface expands as the authority governing public space cedes certain rights to private owners, either deliberately or by omission. It, therefore, does not cover all public space but only that which is handed over to a private owner. In such a space, the land use mixes collective and private interests. Consequently, at the interface, the attributes of the private and the public (controlled accessibility and free accessibility) are interrelated; strictly speaking, we are not talking about private appropriation of public space, but of its hybridisation insofar as both attributes coexist simultaneously in it.

By its very nature, the interface space adds on three other qualities to these attributions of the public and the private, cast as a shade over the public space. These are: 1. Magnitude, 2. Occupation, and 3. Temporality:

- Magnitude is the three-dimensional sphere that covers the entire area of the interface within which the activities of private nature (linked to the adjoining private space) are carried out and coexist with the public use of the area.
- Occupation is understood as the forms of use of public space resulting from the functional expansion of private space over it and which coexist with the mobility of the population that moves through this area.
- Temporality refers to the period of time in which the interface is dilated, that is to say, while the interface is a virtual but permanent fact in the public-private relationship, it only exists insofar as third spaces generate private appropriation of public space and extend their activity to its scope.

In a situation where private activities expand to public space, understanding the nature of these three qualities of the interface area is, in our view, decisive for guaranteeing the habitability of the public space on which the interface area is projected. This is because they establish the material and symbolic features of public space and the way it is accessed by the population as a whole. The resulting hybridisation of a portion of public space gives it a contradictory dual nature (inclusive-exclusive) in which the dimension of social interest is randomly combined with that of private interest. In the case of third spaces, this corresponds not only to economic profit, but also to the needs of the social groups that make use of them.

In these interface zones, the symbolic load of the third spaces – which is determined by the nature of the social groups that make use of them – metaphorically “spills over”. Public space is thus both physically and symbolically occupied under conditions of social inequality. As a consequence, it does not respond equally to the needs of different social groups, nor does it represent them equally. It becomes a potentially contested space between different social groups in the city, which may eventually lead to the process of appropriation-exclusion.

3.3. Public policies and the habitability of public space

In urban reality, as we have pointed out, the concept of the habitability of public space refers to accessibility to services and places (public and private) as a form of equity and as an important requirement for social integration (Rueda et al., 2012, as cited in Alvarado et al., 2017, p. 131). To this end, it is necessary to build an environment with a level of services that allows for proper functioning of public spaces, so that they can be adequately used by the entire population. This responsibility falls on the state, considered the representative of the social interest as a whole.

The habitability of public space, understood as the objective material and subjective intangible conditions responding to the needs of the population, is dependent on the nature of public policies implemented in its construction, habitation, and conservation (Kolcunová et al., 2016). It is implicitly assumed here that public policy, and in particular the policy on public space, is the activity of the state which puts into practice the objectives, programmes, and projects formulated by the current government within the scope of shaping urban space in general and public space in particular.

Public space policy thus constitutes a governmental mechanism for decision-making and implementation of actions aimed at responding positively to the needs of the society in terms of the use of public space, as well as a way of counteracting conflicts between private and collective interests. In this sense, it is a means of regulating the behaviours of the different urban actors, the material conditions of space, and, in particular, the rules of use related to the physical-spatial and environmental components of public space (Grupo de Estudios y Análisis del Espacio Público, 2018).

In order to enforce the public space policy, the government uses a set of instruments of action, both direct (direct investment of public resources) and indirect (regulation of different public and private actors). These means allow the state to create, or induce the creation of, the material conditions of habitability that public space must meet in order to fulfil its functions, with the fundamental objective being to meet the standards of quality in terms of the objective and subjective conditions allowing the life of the urban population to develop while taking into account its diversity.

The role of the state in creating habitable conditions in public space is strongly restricted by the operational and budgetary confines within which the responsible public bodies operate. These, in turn, vary according to different factors, both structural and circumstantial, related to the socio-spatial reality (UN-Habitat, 2018). These budgetary constraints then determine the relative weight of the instruments of government action, swaying the orientation of public policies either towards greater (direct) concession of power to the public or towards greater (indirect) regulation of the different actors operating in urban space as a whole and in public space in particular.

In this way, the budgetary reality defines not only the nature of urban policies, but also their very scope and results in terms of the habitability of the urban environment. We could thus say that to the extent that public policies have a greater inclination towards indirect instruments of action, they require greater precision in the terms in which they operate. This is because they regulate a great diversity of actors and a wide range of forms of action aimed at shaping public space.

4. Habitability in the times of the COVID-19 pandemic

4.1. Habitability and use of public space in the times of the COVID-19 pandemic

Over the past three decades, academic research has opened a debate on how to boost the social and economic recovery of cities after socio-natural disasters; in particular, it has been pointed out that public space can play a crucial role in this recovery if it is understood as a key “resource” for coping with socio-natural disasters and given a new meaning as habitable space.

This resurgence of attention paid to public space and its relevance in instances of disasters seems to have begun in the 1990s in association with the reemergence of interest in the nexus between health and urbanism, a multi-disciplinary field of study that draws on research from diverse disciplines such as public health, environmental and social psychology, urban planning, and landscape architecture (Honey-Rosés et al., 2021).

As Berroeta et al. (2016) point out, these works postulate that socio-natural disasters and actions taken to remedy them modify the “traditional” perception which the inhabitants of the affected communities have of the built environment. This leads to the reconceptualisation of urban space and the consequent appearance of different appropriation practices. Changes in private space and transformations of urban public space brought about by socio-natural disasters modify the material conditions of the city, which has an impact on socio-spatial links and the social value attributed to public places.

These changes in socio-spatial connections and social valuation not only modify the material and subjective conditions of urban habitability, but also redraw the relationship between the society and the authorities in both directions; on the one hand, urban policy seeks to regulate the emerging practices of appropriation-use of public space; on the other hand, organised social actions of the different actors of urban society are enhanced or reconfigured in the face of public policy decisions aimed at rebuilding community life (Berroeta et al., 2016; Montejano, Moreno, 2020).

COVID-19 is neither the first natural disaster nor the first pandemic to have had an impact on the transformation of cities in urban history, nor is it the first time that such an event has influenced the way public spaces are used in response

to a public health crisis. In fact, the hygiene solutions prevalent in contemporary cities have their origins in the sanitary measures first introduced at the end of the nineteenth century. Their adoption led to the emergence and universalisation of urban public services in European cities and subsequently marked the advent of urbanism and urban planning as autonomous disciplines aimed at ordering and designing urban spaces in general and public spaces in particular.

In the case of the COVID-19 pandemic, the period of lockdown – which in different parts of the world varied in intensity and duration, but in most cases involved compulsory or at least induced isolation⁶ – was followed by the lifting of confinement measures, which allowed for the return of face-to-face social interactions. However, they needed to be carried out while conforming to physical distancing guidelines widely recommended by international organisations, which led to the local authorities in most countries strictly regulating the activities in commercial and service spaces (Sepe, 2021, pp. 159–160).

As Nagamine and Vitale (2020) point out, in the post-lockdown phase it has become apparent that the pandemic triggered, with its own peculiarities, a socio-economic phenomenon that seems to lead to an urban transformation. It was a shared experience that has affected, in various ways, multiple social and economic actors. It brought with itself the paralysis of the economy and social seclusion that resulted in the temporary abandonment of public and private spaces which were previously sites of circulation, meeting, and coexistence. Consequently, it showed everyone the importance of these places and made explicitly evident the consumerism and social inequality prevalent in the increasingly complex urban reality (Nagamine, Vitale, 2020).

4.2. Socio-spatial inequality and COVID-19

Even without conclusive data providing a general overview of the impacts of the COVID-19 pandemic on urban inequality conditions, initial estimations seem to show that travel restrictions during the lockdown phase affected different socio-economic groups in a clearly disparate manner. In 2020, *The New York Times* published a study on the mobility of different groups of workers in the 25 most populous metropolitan areas of the United States of America in the lockdown period between 15 February and 29 March 2020.⁷ It showed

⁶ The level of restriction of mobility and socio-economic activities varied markedly from country to country, ranging from general compulsory confinement with closed borders in countries such as France, Spain, and Italy (Deutsche Welle, 2020) to a policy based on voluntary action guided by government recommendations in the case of Sweden (Swedish Institute, 2021).

⁷ We use the timeline published by the World Health Organisation, which records the first official report on Wuhan submitted by the Chinese authorities on 31 December 2019 as the starting date of the COVID-19 pandemic worldwide (<https://www.who.int/es/news/item/29-06-2020-covidtimeline>), and the first case in Mexico was registered by local public health agencies on 27 February 2020 (<https://www.capital21.cdmx.gob.mx/noticias/?p=12574>).

a clear difference between the mobility of various socio-economic groups. Higher-income social groups which had the luxury of working remotely from home stayed in confinement longer and started it earlier than lower-income social groups (Valentino-DeVries, Dance, 2020).

In just a few months (from December 2019 to March 2020, approximately), the COVID-19 pandemic emerged as a global phenomenon that profoundly and in various ways affected the lives of different groups of the urban population and changed the way each of them perceived and used public spaces. For some, they came to constitute an asset in the development of their productive life, while for others, they started to be revalued as opportunities for social interaction. This changed perception had a profound impact on social links and forms of social inequality in the urban context (De Rosa, Mannarini, 2021, p. 370).

The socio-spatial changes observed during the lockdown may be indicative of potential post-confinement effects of the COVID-19 pandemic on the use of public space. The growth of income inequality seems to have a clear impact on mobility conditions, which in turn directly influences social disparities in the use of public space. Lower-income families have a greater need to be in public and are more likely to expose themselves to the virus due to work obligations and limited access to private transport (Honey-Rosés et al., 2021).

Just as the period of lockdown exacerbated existing social inequalities in terms of mobility, it also highlighted differences in the social, leisurely, and recreational use of public spaces. For the higher-income economic sectors, public space was redefined as a “threatening”, potentially dangerous place that should and could be avoided, but lower socio-economic sectors and some vulnerable groups reevaluated public space in a different way.

For the latter, public spaces are often the only outdoor entertainment venues that relieve them from overcrowded housing conditions (Honey-Rosés et al., 2021, p. 10); they are also an alternative for socialisation and recreation for various “vulnerable” social groups (particularly children and the elderly) (Gehl Services, 2022), for whom alienation may aggravate the feeling of loneliness with long-term negative consequences for physical and mental health (De Rosa, Mannarini, 2021, p. 375).

The lifting of lockdown measures has brought about a radical change in various groups’ perception of the symbolic and functional character of public spaces. They have since become spaces for socialising, recreation, and leisure for high-income sectors, spaces to see and be seen in, while for lower-income workers they have been redefined as sites of work and obligatory mobility, a necessary and material component of their working life.

In this new socio-spatial divide, the public and the private are related in a different way, the habitability of public space is fragmented and responds differentially to social demands, creating new “urban spatial assets” which are simultaneously used for work and consumption by different social groups. During a pandemic, the private and the public appear either separate or linked

depending on how we use them, and these uses (and the activities that support them) can be transformative of people's own interactions with each other (Nagamine, Vitale, 2020, p. 13).

4.3. Public policy on public spaces and the COVID-19 pandemic

Urban policymaking, particularly in relation to public space, is carried out on the premise of vaguely defined public interest, which often tends to privilege the socio-economic elite. This idea of 'public interest' considers the abstract 'average citizen', apparently understood as the majority of the population, as the beneficiary of the urban initiatives of a neutral government acting within the framework of social policy that generally does not recognise the socio-economic and socio-cultural differences between the city's inhabitants (Aguirre-Ramírez, Martén, 2017).

The idea of the 'average citizen' makes invisible the disparities present in the socio-economic reality of the city and ignores the habitability requirements of different social groups in the design of public policies. In actuality, an urban policy established on the basis of the idea of the 'average citizen' produces conditions that do not necessarily reflect the needs of the actual users, especially the most vulnerable social groups (Jaramillo, 2018; Honey-Rosés et al., 2021, p. 9).

In addition to the challenges faced by the government in implementing spatial initiatives aimed at shaping equitable public space that responds to the needs of social diversity, the post-lockdown "new reality" has brought in a new ingredient to the mix – the fear of contagion. Some authors have already pointed to this factor as an element to be taken into account in urban policy decisions. As they argue, there is no certainty about when the current pandemic will end, and furthermore, the recurrence of pandemics will likely be a constant, at least in the near future (Khateeb, Shawket, 2022).

Many urban actors have been demanding more outdoor spaces and more flexibility in their use in the aftermath of the pandemic, particularly after the end of lockdown. In several cases, there emerged a trend of neighbours and neighbourhood businesses reorganising themselves to set up outdoor spaces where the risk of transmission is lower. This increased demand for space at the expense of public sites in fact seems to tend to generate conflicts between different users of public space (CATAPULT, 2020; Honey-Rosés et al., 2021, p. 6; Krischer, 2022; Gehl Services, 2022; UN-Habitat, 2020).

Government policy on the use of public space appears, in this context, as a fundamental instrument to offer alternatives allowing for the efficient use of public space by the different interest groups that have emerged in the pandemic. It is the ideal means to establish, both at the regulatory level and through public action, conditions of habitability that help to meet the challenges arising from the health crisis. According to the UN-Habitat report (2020) on public policies on COVID-19, the measures adopted in different

parts of the world were mainly aimed at facilitating movement and favoured the development of commercial and service activities in public space carried out at a safe distance and with a wider use of public space; they sought to reduce human crowding, following the recommendations of international health organisations.⁸

As already visible in the report by UN-Habitat (2020), the experiences amassed throughout more than two and a half years of the pandemic have changed the relationship between citizens and public space and have led us to conceive of public space as a flexible sphere that must adapt to diverse circumstances, in contrast to the relatively specialised forms of use of public space that had predominated beforehand. This new way of looking at public space also implies a new form of governmental and social action around it, one based on the premise of equity in which different actors of urban society have their diversity taken into account and see their needs met and interests reflected in new forms of occupation and use of public space related to its habitability.

5. Habitability and specialisation in La Condesa neighbourhood

5.1. Habitability and public space in La Condesa neighbourhood

La Condesa is a neighbourhood located in the south-western perimeter of the Historic Centre of Mexico City, which in the last three decades has become a highly gentrified neighbourhood and a gastronomic icon of Mexico City (Gasca, 2017; Cruz, 2019). From its origins until the 1980s, it was a place with relatively high levels of habitability that responded to the different types of inhabitants that populated it, a situation that has changed in the last thirty years.

When its construction began in 1902, it was conceived of as a housing area intended to accommodate a middle and upper-middle income population, with a significant presence of immigrants, mainly engaged in commercial activities. In its initial real estate development (1902–1940), it was dominated by single-family housing, mostly privately owned, addressed to the higher economic social strata, with a scattered presence of multi-family rental housing dedicated to middle-income social sectors (Salinas, 2013, p. 147).

The neighbourhood was born as one of the first real estate developments in Mexico City to introduce in its urbanisation what from then on would be the basic infrastructure, such as electricity, lighting, drinking water and sewage systems. It was also one of the first to incorporate a public park and a market as environmental and service elements essential for urban development, in

⁸ See the recommendations published by the World Health Organisation in 2022 on this subject (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>).

a city that in the late nineteenth and early twentieth centuries was beginning its process of physical expansion (Jiménez, 1993).

The construction of the neighbourhood was linked to the consolidation of an emerging middle class that had been demanding, since the end of the previous century, an urban space that reflected their social aspirations and vital needs, ranging from the basic to the psychological and those related to self-fulfilment. The original living conditions in terms of infrastructure, environmental amenities, and commercial services at the time provided high standards of habitability for these new social sectors. They gradually enriched their quality of life throughout the process of consolidation of the neighbourhood, with the appearance of a growing diversity of services related to the new forms of urban life which they represented.

The environmental quality of developed space in La Condesa was defined from the first years of its real estate consolidation. This was supported by an architectural design that in a large part of the building complex reflected the style of Mexico City's architectural avant-garde of the time, both the so-called Academic and Neocolonial trends and Art Deco. It was an architectural expression of a decorative arts style which in Mexico acquired its own reinterpretation and became imbued with elements of nationalist character (Compean, 2015; Valerdi et al., 2010; Magaña, 2017).

These architectural models were perceived by the new middle classes as an expression of the country's launch into the "modernity" of the beginning of the century. They appeared as an environmental and symbolic offering with a nationalist tint, quickly recognised as an expression of the identity of a newly emerging social group (Magaña, 2017, p. 35).

This housing dynamic of the neighbourhood continued until the 1940s, when it ceased to be considered a residential area for the upper and middle-income population. The conditions of habitability and the symbolic perception of La Condesa changed throughout the intensive expansion of the city, in which new neighbourhoods on the urban scene were addressed to the growing middle class and the new bourgeoisie that emerged in the heat of the new industrialisation process (Neri, 2009, p. 76).

As the middle classes opted for new locations to settle in the city, La Condesa neighbourhood experienced a change of two-fold nature. On the one hand, it saw the outflow of a large part of the original residents, especially those of foreign origin, and on the other, it witnessed the construction of rental housing accompanied by the arrival of a population of new migrants representing Mexico's middle class, who joined the neighbourhood as tenants (Castillo et al., 2018, p. 38).

This demographic and socio-cultural transformation, which according to Neri (2009) lasted until the 1970s, entailed a notable modification of the neighbourhood's habitability conditions: the range of shops and services was extended and diversified, and public space started to be used more intensely as a consequence of the opening of commercial premises on the ground floors of apartment buildings.

From the 1970s until the middle of the following decade, La Condesa neighbourhood again observed a new process of socio-demographic change accompanied by a transformation in its habitability conditions. According to Neri (2009, p. 76), this time it was triggered by a new wave of real estate development in the south of Mexico City, which was driving the middle class towards this area in the search of new comforts and, in particular, better environmental conditions.

The new process of socio-demographic change in the neighbourhood was also associated with a deterioration of habitability components due to the ageing of the infrastructure and redensification through the construction of residential buildings. It was accompanied by the proliferation of small businesses and the appearance of office buildings, which meant that the neighbourhood was no longer an attractive place, in terms of habitability, for a large part of the original population that was still living there (Castillo et al., 2018, p. 38).

The dynamics of the neighbourhood's tertiarisation changed not only the profile of its permanent resident but also the conditions of habitability due to the emergence of a new urban actor (the office worker), who from then on became part of the human landscape. The presence of this new group added to the existing service sector and led to a diversification in the type of services offered in the area. These responded to the operational needs of these new actors (low-cost restaurants for office workers and services complementary to office work).

This process of economic and social transformations in La Condesa neighbourhood was interrupted in 1985, when an earthquake struck Mexico City. The incident caused severe damage to numerous buildings in the city centre and surrounding neighbourhoods, including La Condesa; the effects of the disaster exacerbated the decrease in the quality of living conditions already observed in the area, which in the previous decade had led to its progressive abandonment by the resident population (Díaz, 2016, p. 133).

The different physical components of the neighbourhood's urban habitability were severely affected by the degradation of buildings and various elements of the infrastructure and public services. Its effects were decisive in driving away the local population; the remaining owners, even those whose buildings had not been damaged, left the neighbourhood (Salinas, 2013).

This deterioration of material conditions snowballed into the decline of other indicators of La Condesa's qualitative habitability: residential housing was converted into commercial and/or office spaces, historic buildings were abandoned and occupied by unhoused people, the streets became rife with prostitution and criminal activity. This accumulation of events had a decisive impact on security conditions and quality of life in the neighbourhood, leading to a rapid reduction in rent prices, the emergence of a new settler population with lower relative incomes, and the disappearance of numerous shops and services (Neri, 2009, pp. 78 and 106).

The devaluation of the area continued into the middle of the following decade, when a stage of urban recovery began. Various public and private

initiatives were taken to promote the recovery of the neighbourhood, taking advantage of the rent gap that had arisen after the 1985 earthquakes (Neri, 2009, p. 78; Salinas, 2013; Castillo et al., 2018, p. 39).

There were two types of initiatives taken on the part of private actors which resulted in the acceleration of the process of tertiarisation, already observed in the neighbourhood before the earthquake: on the one hand, the lower rents attracted a large and diverse group of entrepreneurs who moved from the neighbourhoods most affected by the earthquakes and settled in La Condesa; on the other hand, the area saw the return of former owners or their descendants, who, seeking to take advantage of changes in legislation, transformed their rented or rundown homes into commercial establishments which had a high impact on the life of the neighbourhood⁹ (Salinas, 2013, p. 149).

For its part, the city government approved several planning instruments that significantly contributed to the recovery of the neighbourhood. In 1987, the General Development Programme of the Federal District¹⁰ (PGD) was approved (DOF, 1987). It designated La Condesa as a Special Controlled Development Zone (ZEDEC), subject to an urban development plan aimed at the recovery of the area's architectural values and urban image as well as at controlling the change of land use taking place in the neighbourhood.

Additionally, in 1996, the Mexico City government published the General Urban Development Programme (PGDU) (DOF, 1996), under which the historic centre was extended to the so-called Extended Perimeter, and it was deemed necessary to promote actions that would prioritise the improvement of neighbourhoods such as La Condesa. The strategy was based on the improvement of qualitative and material factors that would lead to better living conditions in the area.

The actions considered of greatest priority were comprehensive projects meant to “consolidate and dignify” some of the city's neighbourhoods based on the existing conditions, that is, to apply strategies to make use of the deteriorated areas with low occupation density and equip them with adequate accessibility, public amenities, and infrastructure. These initiatives sought to revitalise the city's historic areas through the protection, rescue, and use of heritage sites and monuments.¹¹

⁹ Taking into consideration articles 26 and 27 of the 2011 Law on Commercial Establishments of the Federal District, Salinas (2013, p. 148) calls high-impact businesses those that disrupt the daily life of the community and whose activity disturbs road traffic and the tranquility of the surrounding areas due to the high noise levels that may be generated by the performance of their activities or the behaviour of their customers.

¹⁰ The Political Constitution of Mexico City, on the basis of which Mexico City was founded, entered into force in 2018, replacing the Statute of Government of the Federal District (DOF, 2016).

¹¹ In 1997, La Condesa neighbourhood boasted 325 properties of artistic value catalogued by the National Institute of Fine Arts and Literature (INBAL) (SEDUVI, 1997, as cited in Neri, 2009, p. 99).

Added to these measures was the so-called Bando Number 2, enacted on 7 December 2000 (GCM, 2009), which restricted the granting of building permits in the peripheral municipalities of Mexico City to encourage the redensification of central areas. This trend, which had been present since the previous decade, stimulated real estate investment in several neighbourhoods in the Cuauhtémoc Municipality, including La Condesa neighbourhood.

The process of socio-economic transformation resulting from these public and private initiatives brought about a socio-demographic change in the neighbourhood. As Díaz (2016) and Salinas (2013) point out, the protagonist of this change was mainly the population between 25 and 59 years of age, of national and foreign origin, made up of singles, young families with an average of 2.4 members by 2010, workers and professionals working in the field of culture, and a growing presence of national and foreign tourists. It was a new population that demanded a new type of comforts, different from those that had existed in the city's central neighbourhoods until the 1980s (Moreno et al., 2011; Neri, 2009).

This socio-demographic transformation associated with the revaluation of the neighbourhood has led to a radical change in the profile of local commercial and service activities; changes that, to a large extent, are taking place outside the existing regulatory framework. Intended to control land use change, the legislation has been violated via various administrative mechanisms, sometimes by fraudulent means, leading to a process of accelerated transformation in land use change in the neighbourhood¹² (Salinas, 2013).

5.2. Specialisation in La Condesa neighbourhood and a change in living conditions

The process of tertiarisation of La Condesa is not new; as we have discussed, it started in the 1970s with the appearance of office buildings that emerged as a consequence of the migration of the original residents, which allowed real estate developers to take advantage of the centrality of the area to offer commercial space to new businesses. This dynamic based on the construction of offices or their arrangement in former residential dwellings has not ceased and has led to this type of use now accounting for almost a quarter (24.4%) of the economic units in the neighbourhood (Table 1).

The growth of office space was accompanied by the disappearance of small workshops that catered to the residents of La Condesa and constituted an important part of the economic activity and habitability of the neighbourhood

¹² One of the main means used was the mechanism of acquired rights, which is a legal instrument that enables the operation of commercial establishments that have been active since before the zoning introduced under the Partial Urban Development Plan of 1982; as shown by Salinas (2013), many of the steps that were taken under this mechanism were supported by fabricated documentation.

until the 1970s. As a result, there are merely ten artisanal economic units left today, including two tailoring workshops, one locksmithing workshop, and a couple of automotive workshops, which together with wholesale trade establishments addressed to businesses barely represent 5.2% of all economic activity (Table 1).

The disappearance of crafts-oriented businesses was accompanied by the gradual waning of petty food supply trade. It was progressively replaced by wine and liquor, gourmet, natural and organic food shops which became the dominant form of food supply. Along with such establishments, associated with the presence of a new inhabitant profile (predominantly singles or young couples without children) with a hedonistic lifestyle, there emerged a range of services which ended up definitively altering the pattern of trade and services in the neighbourhood.

These include beauty services (hair, skin, nail, foot, and eyebrow treatments), cosmetic and aesthetic medicine clinics, beauty and personal care boutiques, and, consequently, health and beauty shops. In addition, various facilities have emerged linked to a new vision of health associated with physical appearance: spas, gyms, yoga and massage centres, and tattoo shops, which have proliferated in recent years and today include 36 establishments, the third most important category in terms of overall economic activity in the neighbourhood (Table 1).

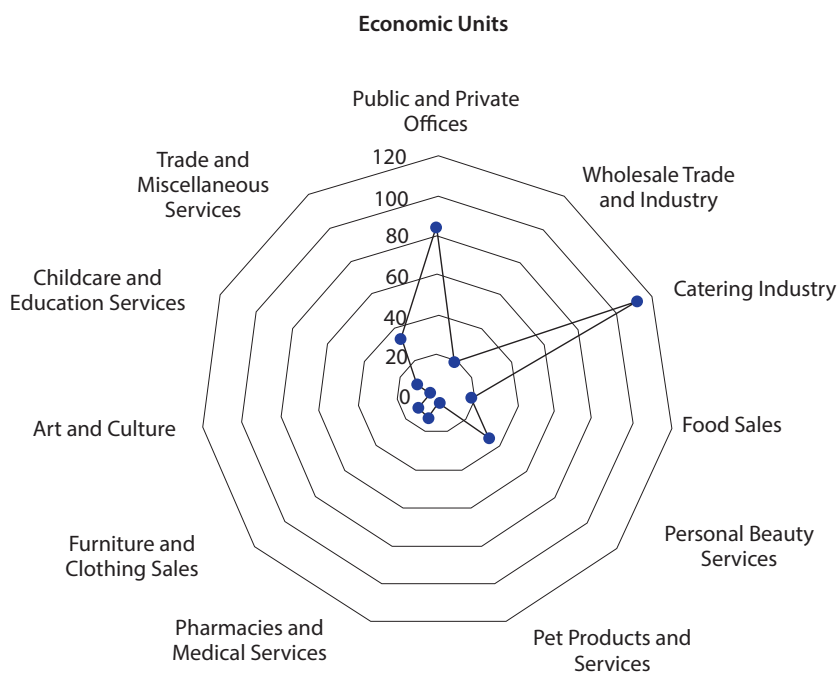
The new socio-demographic profile of the couples settling in the neighbourhood has also changed La Condesa in terms of the services traditionally linked to the presence of a significant child population. General educational services for local children are limited to two primary schools with “innovative” educational models and a nursery. The remaining educational establishments (6) are vocational schools which include, alongside an industrial technical school, several artistic skills training centres. Concomitantly, the child population has been replaced by a significant presence of pets, which has led to the emergence of businesses aimed at this new “inhabitant” group (two pet accessories and supplies shops, and three animal clinics) (Table 1).

The new population and their consumption practices and activities have also attracted a new sector to the area – clothing, which did not exist there until a few years ago; as a result, “luxury” fashion and sportswear shops arrived in the neighbourhood, targeting young people in particular. The new commercial landscape of La Condesa is completed by a diverse set of shops and services accounting for almost 8% of retail activity, including 33 outlets selling computer technology and mobile phone equipment, recreational products shops (games, music, and tobacco products), gifts and sweets shops, dry cleaner, laundries, footwear care shops and decoration (2), modern furniture shops (4), and two art galleries.

These new sites of economic activity are mixed with a currency exchange service, a collateralised credit establishment, five hardware, paint, and cardboard products shops, and four car parks, which cater more to the businesses

Table 1. Economic units by groups of activity

Type of economic activity	Econ. Units	% / total
Public and Private Offices	84	24.4
Wholesale Trade and Industry	18	5.2
Catering Industry	113	32.8
Food Sales	19	5.5
Personal Beauty Services	36	10.5
Pet Products and Services	5	1.5
Pharmacies and Medical Services	13	3.8
Clothing Sales	12	3.5
Art and Culture	2	0.6
Childcare and Education Services	9	2.6
Trade and Miscellaneous Services	33	9.6
Total	344	100

**Figure 3.** Economic units by groups of activity

Source: Directorio Estadístico Nacional de Unidades Económicas (DENUE) 2017 y 2021 (INEGI), verified on Google Maps and during field research

and offices in the area than to the needs of the resident population. Among the services that we could consider as contributing to habitability which have remained in the area, together with basic education facilities catering to the remaining child population, there are medical services (hospitals, clinics, surgeries, seven in total), pharmacies and laboratories (three and one, respectively). Together with the cultural services provided by the local cultural centre and a theatre, they constitute places of common use for both the new and the old settlers (Table 1, Fig. 3).

Alongside this type of commerce and services aimed at meeting the luxury consumption needs of the new residents, the last two decades have seen the emergence of the main protagonist in the neighbourhood's economic activity. This has undoubtedly been the catering industry, which accounts for almost a third of all economic activity and almost half (45.5%) of all established retail and consumer services (excluding public and private offices, industrial and wholesale trade establishments) (Table 1).

Table 2. Catering services and food sales

Restaurants	Bakeries and cafés	Ice cream shops	Semi-fixed street food vending	Total
80	26	4	3	113
70.8%	23%	3.5%	2.7%	100%

Source: Directorio Estadístico Nacional de Unidades Económicas (DENUE) 2017 y 2021 (INEGI), verified on Google Maps and during field research

The neighbourhood's gastronomic landscape is made up of four types of establishments selling prepared food: restaurants, bakeries and cafés, ice cream shops, and semi-fixed street food vending. Among them, restaurants alone account for almost 71% (Table 2) of all catering facilities. This type of service has had a unique impact on the socio-economic reality of the area and, particularly, on the conditions of habitability of public space. Most restaurants operate for more than 12 hours every day of the week, and most of their patrons are people arriving from outside the neighbourhood, resulting in a heavy flow of visitors virtually all day long. This has a bearing on the use of public space, especially on pedestrian flows on the pavements, vehicle traffic, and parking availability.

Adding to the impact of the restaurants are the coffee and pastry shops that have proliferated in the area, which now number 26 establishments. Operating alongside them are ice cream parlours and semi-fixed street food vending spots, which together account for only about 6% of catering service enterprises. They constitute a diversification component of the sector and influence the specialisation of the area (Table 2).

Semi-fixed street food vendors in particular are beginning to play an important role in the habitability of public space. Initially perceived as a marginal

activity, they are now appreciated by tourists in the area, especially foreigners, as a new tourist attraction. Currently, groups of foreign tourists are a growing presence in La Condesa, travelling to the neighbourhood by bicycle or on foot to seek out such establishments (Linthicum, 2022). Consequently, they contribute to the densification of mobility flows on streets and pavements, which implies increased competition for public space between different types of users.

The particular link between businesses in the catering industry and public space is a determining factor for the latter's habitability. Not only does the public-private interface that separates restaurants, cafés, and ice cream parlours from the streets provide transparency defining the landscape conditions and formal qualities of the neighbourhood, it also may have an impact on the use of public space.

By their very nature, catering services tend to expand into the public space, generating a commercial realm-interface. If the restaurants in a given area are particularly varied and densely distributed, this interface leads to such establishments coming into conflict with the mobility and interconnection functions of public space.

5.3. Habitability and the gastronomic gentrification of public space

La Condesa neighbourhood's specialisation in catering services and the gentrification of public space that it generates have been exacerbated following the COVID-19 pandemic. As we have seen, the effects that this health crisis has had on public space, especially after the lifting of lockdown measures imposed by the authorities, have been observed in several cities around the world, and the case of La Condesa is not an exception.

Its uniqueness lies in the relative weight of the catering industry in the use of public space, which has been decisive for the present habitability of the area. Unlike other economic activities, including retail trade, catering services are characterised by intense flow permanently crossing the public-private interface. In the case of La Condesa neighbourhood, adding to this quality of "permeability" between catering activities and public space is the level of dispersion of such businesses in the area.

Catering outlets are located mostly along the main avenues, forming corridors on the east-west axis, with a high concentration on the avenues Michoacán, Vicente Suarez, and Fernando Montes de Oca towards the south of the neighbourhood. These establishments are clearly addressed to occasional visitors and foreign tourists. A similar level of concentration of catering services is visible in the north-eastern end of the neighbourhood, with a high presence of traditional outlets linked more to the offices and commercial workplaces operating in their vicinity than to the tourist activity in the south of the neighbourhood (Fig. 4).

Catering services are more dispersed to the north-east, on Veracruz and Juan de la Barrera avenues and along Antonio Solá Street, as well as on the

eastern border of the neighbourhood on Tamaulipas Avenue. The service model in this area, although more dispersed, reproduces the characteristics of the establishments in the south, that is, it is essentially aimed at a visiting consumer with a relatively high income (Fig. 4).

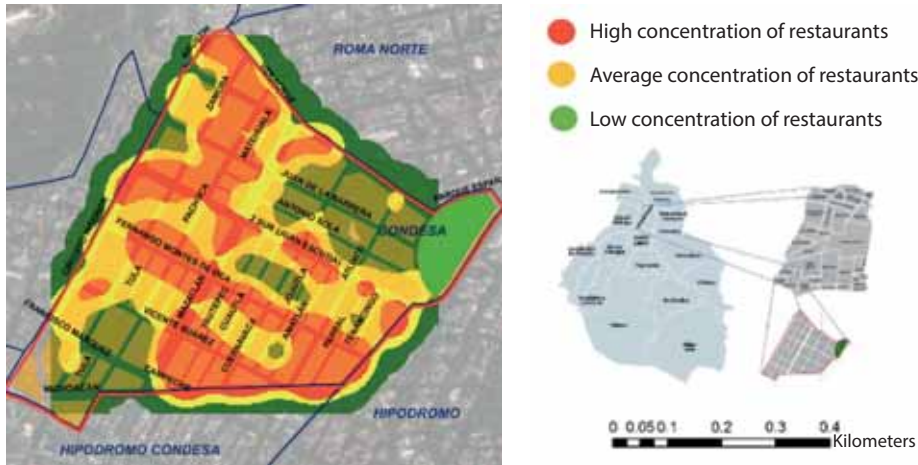


Figure 4. Concentration levels of catering services

Source: Own elaboration

Due to this distribution of catering outlets in La Condesa, the impact of their operation on local living conditions is felt throughout the neighbourhood and by the entire population. Consequently, the restaurants and cafés have a decisive influence on the use of public space. Even before the pandemic, they were contributing to the disappearance of traditional services and influencing the local landscape. Although they certainly were not an object of major disputes over the use of public space, they had an important symbolic, economic, and landscape-shaping impact on the habitability of the place.

6. Habitability and COVID-19 in La Condesa neighbourhood

6.1. COVID-19 post-lockdown government action

The COVID-19 pandemic led the federal government to introduce nationwide measures aimed at closing down activities considered non-essential (including restaurants). These regulations were in force from 31 March to 30 May 2020 (DOF, 2020a, 2020b). On 29 May of the same year, the guidelines for the implementation of the Gradual Plan towards New Normality in Mexico City were published in the *Gaceta Oficial de la Ciudad de México* (Official Gazette of Mexico City, GOCM).

Under the Gradual Plan, requirements necessary to reopen businesses were established on 12 and 19 June. These included the Measures for the Use of the City's Outdoor Public Space (GCM, 2020) adopted for an indeterminate period ("until further notice"). Based on these measures, catering outlets in the city would start reopening after a little more than two and a half months of being closed.

One of the guidelines in the plan is to provide open spaces, both public and private, as a way of conforming with social distancing measures in the provision of catering services. It proposes the use of the following free spaces in order of priority (GCM, 2020): a) terraces or uncovered spaces on the premises; b) parking on the premises; and c) free public spaces such as pavements, parking strips on carriageways (even metered parking), and lanes on carriageways.

The assumed aim of the plan is to affect pedestrian circulation on pavements as little as possible and to mediate the use of public space in favour of pedestrians (and especially vulnerable groups). In this sense, the control measures only authorise occupying public space within the public-private interface plane, which restricts the occupation of public space in the interface realm only to the front of the establishment.

To effectively ensure safe distance between pedestrians and users of catering services, the restrictions oblige businesses to respect a minimum pedestrian circulation width of two metres. In individual cases where the circumstances do not allow to keep this distance while ensuring safe pedestrian circulation, the authorities may restrict the occupation of public space in favour of mobility.

In situations when alternatives for the use of private spaces have been exhausted, the plan allows, in order of priority, for businesses to occupy a portion of public space only up to a surface area representing 40% of the original capacity of the establishment, which encompasses both its interior and exterior (capacity calculated on the basis of the establishment's operating record).

Although the provisions of the plan are ambiguous in terms of the time for which public space may be used, it is stated that only removable furniture may be placed within its area. In addition, the furniture may only be placed adjacent to the public-private interface of the establishment, and it is categorically forbidden to place it on pavements which are less than two metres wide or in a way which by any means obstructs access to other businesses or residential areas.

6.2. Habitability of public space after the COVID-19 lockdown

The reopening of businesses after the lifting of lockdown was almost immediate, and it brought with itself a massive invasion of public space which did not respect most of the provisions of the aforementioned plan in terms of the occupation and use of public roads. This profoundly affected the functionality of pedestrian and vehicular routes and, consequently, the habitability of public space.

In most cases, restaurants relaunched their activity by occupying pedestrian walkways and on-street parking spaces, with the establishments' private

parking premises not made available for the patrons. Although the local restaurants do not own these car parks, they are their primary users, and virtually all the establishments have a valet parking service which makes use of both street parking spaces and private car parks.

The authority responsible for regulating mobility did not take any evident action to guarantee or improve the functioning of public spaces, especially pedestrian walkways. Pavements were already deficient in terms of material conditions allowing for their correct use before the pandemic – not only were they not repaired, but their use and maintenance was left in the hands of the neighbourhood's catering industry outlets.

The only guidelines set out in the plan which came to be implemented was not placing furniture in a way which would obstruct primary roads in the area; otherwise, it was evident that the establishments took advantage of the vague provisions and interpreted them for their exclusive benefit, without establishing measures to protect the population that uses the public roads to move around.

Our field research has shown that less than 10% of businesses in the neighbourhood have respected the measures to control capacity and limit the occupation and use of pavements. We can conclude that in almost all cases, catering outlets have taken the opportunity to extend their activities to the whole area of the interface surrounding the restaurant property, not only in its front; in addition, they have also expanded seating space available to their customers (Fig. 5: a).

Restaurants have also expanded the public–private interface to encompass virtually all pavement space, clearly privileging commercial use over the interests of pedestrians and vulnerable groups who use them. On pavements three or more metres wide, together with planters placed by the vehicle lanes, the space for pedestrian circulation has been reduced to less than one and a half metres; furniture has been set out even on pavements with a width of two metres, almost totally obstructing pedestrian circulation (Fig. 5: b and c).

Some “accessories” have actually become semi-fixed installations built to be used permanently; taking advantage of the ambiguity of the regulations, they occupy public space 24 hours a day (Fig. 5: d). In general terms, the vagueness and lack of clarity of the provisions established by the plan, together with lax application or outright absence of enforcement measures on the part of the authorities, have demonstrably led to catering outlets indiscriminately appropriating public space.

The reasoning behind reopening catering services in a way which infringes on public space is the idea that public space is a collective and homogeneous “spatial entity” in which, by its very nature, public interest prevails over private interest. The decision-makers did not understand that the moment they allowed the public–private interface to expand onto public space, public interest would need to fiercely compete to keep its place in a space now dominated by private interest.



a) Extension of business activities to the whole interface area in contact with the restaurant.



b) Reduction of pedestrian circulation surface below the standard on pavements with a width of 3 m or more.



c) Furniture placed on 2 m wide pavements.



d) "Accessories" that have been converted into semi-fixed installations.

Figure 5. Patterns of occupying public space in the neighbourhood of La Condesa

Source: A. Villar

7. Conclusions

Based on what has been observed in La Condesa neighbourhood, we can conclude that the habitability conditions of public spaces are constituted by a set of inherent components which include their material aspects (roads, pavements, parks, urban furniture), functional aspects (services and activities carried out for the benefit of the resident population), and subjective symbolic aspects (landscape components of natural and built space that constitute identity elements).

All these elements are shaped in the process of transformation of the city. It takes place in successive phases and manifests itself as a series of

adaptations following socio-demographic changes to meet the needs of the city population on the whole and of the population that inhabits the different neighbourhoods that make up the urban centre.

In this sense, the habitability of public spaces is more than a fact – it is a process in permanent flux, with its indicators constantly varying. This variation is not only due to the changing consumption patterns of the resident population, but also, to a large extent, to the emergence of new urban actors. The latter pass through various places with new requirements to meet their needs, and these may eventually come into conflict with the habitability conditions of the resident population.

In this sense, we can conclude that not every transformation of urban space implies a positive change in the city's habitability conditions, nor do all human groups perceive these changes in the same way. In order for this transformation to be considered favourable for the process of building habitability, it must align with the needs of the population that resides in a certain place and the people who pass through it, covering a wide spectrum of social needs ranging from basic to psychological and related to self-fulfilment.

Social inequality has a decisive impact on the conditions of habitability of public space; not only does it cause people to migrate from one place to another in search of habitability conditions aligning with their patterns of living and consumption, but it also provokes a dispute over public space in which each socio-economic group tries to safeguard and protect its own interests, seeking to preserve the conditions necessary for the satisfaction of its own needs according to their current level of actualisation (basic, psychological, and related to self-fulfilment).

The COVID-19 pandemic and the urban norms that were implemented to regulate the use of public space in Mexico City, including La Condesa neighbourhood, did not in themselves significantly modify the dynamics of use and economic activities in the area, and consequently the neighbourhood's habitability. This process of transformation of La Condesa, following the pattern of gentrification, began decades before the outbreak of the pandemic. By the 2010s, it had already progressively decreased the habitability conditions of the area, putting its residents at a disadvantage in favour of visitors.

Within this dynamic, the proliferation of catering services in La Condesa not only led to a progressive economic specialisation of the neighbourhood, but also modified and deteriorated its levels of habitability. This new profile of economic life resulted in gradual disappearance of services rooted in the habitat of the resident population, reducing those meeting their basic needs to a minimum in favour of those catering to the needs of the new type of resident – one who uses the neighbourhood for leisure – and of visitors and tourists, abstract entities with “global” consumption needs.

The pandemic, together with the regulatory measures established by the city authorities to resume business in line with the principles of social distancing, reinforced this process. It led to the catering business spilling over public

space by allowing restaurants to extend their operation to the realm of the public–private interface and expand it. The streets are now a site of catering activities much like private spaces used to be in the past.

The decision to regulate the occupation of public space in emergency situations seems to have been a logical one, responding both to the demand of the owners of catering outlets and to the social demand for a return to “normal” social life. In this sense, the Measures for the Use of the City’s Outdoor Public Space represented a plausible and coherent plan to deal with the economic and social effects of the pandemic. However, based on what has been observed in the public space of La Condesa, the original intentions to prioritise pedestrian mobility and restrict the infringement on public space by restaurants have not been backed up by an effective control system that would guarantee compliance with the plan’s provisions.

In this sense, public action cannot be reduced to a regulatory formality, but must be reinforced by active supervision to ensure compliance with the norm, so that it is possible to reconcile the interests of the different social and economic groups that make use of urban space. Consequently, the fundamental responsibility of the public authorities in terms of governing public space is to mediate in the dispute over its area, ensuring as a priority that it responds to the habitability needs of vulnerable groups (in terms of age, health, and economic status).

Public space is a social domain which by its very nature must be accessible to the entire population: entrepreneurs, residents, visitors, and commuters; its habitability must offer equitable conditions for each of these groups to develop its activities, and governmental action must guarantee this equity through direct action and regulatory initiatives.

The newly adopted regulations of public space undoubtedly offered an alternative which was eagerly awaited after the lockdown and closure of businesses during the initial period of the pandemic. These measures were anticipated not only by the city’s catering services, but also by the users. However, they eventually left behind the residents and social groups who use the city as a means of satisfying their basic needs.

In the new post-lockdown reality, as seen in different examples around the world, public space has become a revalued social good, demand for which has grown from all sectors of the population. Access to public space should not be provided on market terms but given to all those who wish to use it, in particular to those for whom it is a constituent element of the activities necessary for their survival.

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ABSTRACT

Habitability and gastronomic gentrification of public space in the times of COVID-19. The case of La Condesa neighbourhood in Mexico City

In the context of contemporary urban processes, among which gentrification appears as the one with the greatest impact on Mexican cities, the COVID-19 pandemic has decisively influenced the dynamics of the use and occupation of public spaces, as well as their habitability conditions. In the case of Mexico City, the return to social and productive activities after the COVID-19 lockdown stage was supported by an urban policy aimed at intensifying the use of public spaces to meet the needs of economic reactivation while ensuring adequate sanitary conditions and social distancing. The implementation of this policy decisively affected the intensity and diversification of the use of public spaces, which came to be occupied and modified in terms of habitability by economic actors from the catering services sector, affecting the living conditions of the common residents.

Keywords: COVID-19, gentrification, habitability, public spaces

THE IMPACT OF THE COVID-19 EPIDEMIC ON THE CHANGE OF WARSAW INFORMATION LAYOUT ILLUSTRATED BY THE EXAMPLES OF THE PGE NARODOWY STADIUM AND THE TENEMENT HOUSE AT 37 TAMKA STREET

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1. Introduction

The outbreak of the new COVID-19 disease in the Chinese city of Wuhan at the end of November 2019 marked one of the most important events in modern history. The rapid spread of the new pathogen at the turn of 2020 resulted in the declaration of a global epidemic by the WHO on 11 March 2020. The pandemic, which continues to this day, has been a breakthrough event, triggering a series of rapid and wide-ranging behavioural, social, economic, and spatial changes.

The pandemic has hit cities particularly hard, as they constitute large concentrations of people and a field of numerous social practices. The sanitary regime implemented to counteract the spread of the disease resulted in the transformation of urban life and many components of the city space itself. One of them was the domain of urban information, consisting of an innumerable set of symbols and signs informing city users about specific activities, content, and events taking place in its landscape. The dynamic nature of the pandemic and its long duration triggered a number of changes in municipal space in terms of information and spatial layout.

An interesting example in the context of the discussion in this paper is the change in Warsaw's information space caused by the outbreak of the pandemic. It will be analysed on the basis of two of its elements – naming and urban art, represented by two different objects: the PGE Narodowy Stadium and the mural on the wall of the tenement house at 37 Tamka Street. As the pandemic is an ongoing issue, the discussion of the indicated examples reflects the lingering current issue of how to modify the system of signs and symbols in the urban landscape in times of crisis.

2. The city as a system of signs and symbols

Before moving to analyse specific examples, it is necessary to start with explaining the basic concepts of the city and urban space and, first of all, to define 'sign' and 'symbol' themselves, highlighting the role they play in the city landscape. According to the basic definition in the PWN Encyclopaedia ("znak", n.d.), a sign can be understood as "any object, property, event functioning in the process of human communication (within a specific language), in which it is used to convey certain content (meaning) concerning external or internal reality, emotional, aesthetic, volitional experiences, etc." Importantly, signs are further divided into natural signs and artificial (proper) signs; the latter category includes word signs and signs of derivative expression in the form of signals, as well as wildcards, including symbols.

A symbol can be defined as a sign or an artistic rendition intended to represent in a conventional way specific events, people, and concepts. Its aim is to show, mark, or replace a given thing, concept, or event, as well as to direct the recipient to the appropriate association. Symbols can take various forms: a material object, an iconic sign, a number, an inscription, a geometric form; as well as more intangible and immaterial phenomena such as sound, colour, behaviour, and movement in space (Mozer, 2001, pp. 137–138). The city speaks to its users on many levels with their help, and through the presence of deliberately introduced signs, it is also a message in itself (Mozer, 2001, p. 143).

However, many signs and symbols are created in an unplanned way, produced *ad hoc* to express the emotions of individuals living in the city or by external factors. In the city space, there are both top-down signs, such as advertisements and administrative road signs, and many spontaneously created inscriptions, drawings, tags, murals, stickers, as well as unofficial names assigned by city users to individual objects and places, functioning in both the real and the virtual space (Mozer, 2001, p. 143).

Symbols reflect current attitudes, beliefs, and feelings of the population (Wallis, 1977, p. 56, as cited in Szmytkie, 2014). The relationship between people and symbols is bilateral – on the one hand, people create new symbols and give them specific meanings; on the other hand, a symbol itself has its own power to shape meanings, attitudes, values, and views of individuals and communities (Dyczewski, 1992, p. 139, as cited in Mozer, 2001). The process of creating new symbols is indiscrete and continuous; it is also associated with the destruction and removal of earlier symbols whose overtones have ceased to be consistent with the current feelings and views of the society (Wallis, 1977, p. 56, as cited in Szmytkie, 2014).

Urban space and the city belong to the complex systems of signs to which city users are exposed during their everyday and festive practices (Szczepański, Nurek, 1997, p. 129, as cited in Mozer, 2001). The city consists of various forms, means, and codes by which it establishes a dialogue with its recipients.

They can be defined as a cultural space, a meeting place for various perspectives and values as well as for many individuals and social groups (Kmieć, 2015, p. 136). It is also a special form of a collective life, bringing together elements of town planning, economics, philosophy, and sociology (Lachowska, Pielużek, 2021, p. 26). The city is a system containing two independent subsystems – urban and social, which are closely related and interact with each other. Thus, the adaptation and exploitation of urban space, which is a manifestation of the relationship between these components, is the result of political, cultural, and social changes. These changes are especially visible on the information plane (Lachowska, Pielużek, 2021, p. 27).

Urban space is closely related to the socio-political situation and, depending on it, performs specific functions for its recipients. In times of peace, security, prosperity, and absence of major social tensions, it is a place of everyday activities: work, recreation, development, inspiration, and consumption of material goods. However, with the emergence of social and political tensions, crises, a sense of menace and insecurity, it becomes an active site of gatherings and verbal and physical struggle for rights (Lachowska, Pielużek, 2020, p. 93). Depending on the nature of the crisis, it may also turn into an extinct and empty space in which everyday processes and interactions between individuals are significantly reduced.

This is precisely what happened during the ongoing COVID-19 pandemic, when the imposed restrictions and socio-economic lockdown of 2020–2021 resulted in a clear reduction of people-to-people contacts and stifled the operation of private and public services, which affected the urban life. In the initial phase of the pandemic, between the winter of 2019 and spring of 2020, it even led to its almost complete stop, which triggered numerous protests in many countries related to the social discontent caused by the restrictive pandemic policy.

3. The communicative role of the city's information layout

The city's communication with its users is essential for its proper functioning. It transmits contents that shape the residents' everyday life and activities (Mozer, 2001, p. 127). This is because urban space is a fully anthropogenic product carrying a large variety of information, both material (written in words) and non-material (carrying specific systems of meanings in the form of signals and images) (Mozer, 2001, p. 129). The images visible throughout the city, together with what they are meant to convey, are essential in the process of decoding this system of signs. The information they contain is subject to processes of valuation, evaluation, and commentary in the minds of individuals and in the wider social discourse (Szczepański, Nurek, 1997, p. 129, as cited in Mozer, 2001).

Each image within a city with its individual elements is a carrier of meanings, constituted by and constitutive for its recipients. City users see these

images from an innumerable set of perspectives, views, and information layers, each of which through its own form establishes a dialogue with the observer and communicates specific content to them (Szczepański, Nurek, 1997, p. 129, as cited in Mozer, 2001). Reading the systems of signs contained in the urban space is a multi-level and multi-dimensional activity, and their gradual decoding becomes the domain of the city users (Szczepański, Nurek, 1997, p. 56, as cited in Szmytkie, 2014).

Information layers are shaped by the forms of various elements of space which convey specific meanings and contents to the recipients. In this aspect, urban space, due to its anthropogenic character and continuous development, has a rich semantic structure which changes over time and is constantly reinterpreted depending on the current events and contexts. It also contains communication and information elements with predetermined meanings and tasks (Mozer, 2001, p. 56, as cited in Szmytkie, 2014). Places with a particularly high density of signs and content transmitted to the observers are, in particular, downtown areas of cities (Mozer, 2001, p. 131). The city centre features extensive information layers influencing the semantic and aesthetic aspects of the given urban area. These include: architecture and urban planning with its underlying values, greenery informing about the change of seasons, pedestrian and car traffic reflecting fashion and technological and social changes, and the information layout of the city (Wallis, 1979, p. 131, as cited in Mozer, 2001).

What is understood by the term 'city information layout' is a wide array of all kinds of signs, paintings, inscriptions, lighting and graphic elements (neon signs, placards), administrative and road markings, house numbers, city information boards, as well as street names (including city transport markings) and local names (districts, geographical features); all these are displayed in the urban space on fences, walls of buildings, roadways, pavements, and lampposts (Szczepański, Ślęzak-Tazbir, 2008, p. 57, as cited in Szmytkie, 2014; Wallis, 1979, p. 9, as cited in Kruszewski, 2010). The information layout of a city also includes independent artistic initiatives, understood as occasional installations or displays of urban art (Wallis, 1977, p. 56, as cited in Szmytkie, 2014).

This broad collection of signs is indispensable for the users of a city to understand its spatial structure, because it informs them about specific services and events and manages traffic. In this way, the role of information layout, too, is much broader, and reducing it to the role of an information tool is a gross oversimplification. As a carrier of information, it may perform a cognitive function, and the artistic value of individual signs converts it into a source of aesthetic and ideological experiences (Wallis, 1977, 1979, p. 56, as cited in Szmytkie, 2014). Three main forms of information layout in the city space can be identified: visual advertising, visual information, and promotion of certain values and attitudes (Mozer, 2001, p. 132). These features make it a kind of an autonomous information message that diversifies the city space and changes the overtones of the elements existing within it (Wallis, 1979, p. 56, as cited in Szmytkie, 2014).

The information layout of a city plays a significant role in shaping social reality (Mozer, 2001, p. 132). It changes in line with social processes, becoming an important aspect of the social production of space (Jałowicki, 1988, p. 56, as cited in Szmytkie, 2014). Its elements are inextricably linked with the cultural and ideological aspects of the ongoing social discourse and current value systems (Mozer, 2001, p. 132). The target shape of the layout is the result of an accumulation of various information-related activities and is subject to random and spontaneous events (Wallis, 1977, p. 56, as cited in Szmytkie, 2014). Thus, it reflects not only mass culture, but also events of particular importance which have had a considerable impact on society and the media space (Mozer, 2001, p. 132).

4. The pandemic and name changes of public facilities on the example of the PGE Narodowy Stadium

Writing is an important element of a city's information layout. The basic components of various visual installations are graphical representations of either a single word or a name consisting of several parts (Mozer, 2001, p. 134). Inscriptions are one of the most important forms of communicating information to the recipient (Kmieć, 2015, p. 136). They are an inseparable part of the practice of naming places and objects and have their physical manifestations in the city space in the form of boards, information signs, maps, and plans, and on the virtual plane – on digital maps, applications, and websites.

There are two main types of nomenclature: common names referring to the general character of a place and the services it offers and proper names referring directly to a specific object (Mozer, 2001, p. 134). The proper names of individual places and buildings play an especially important role in the city landscape and its information layout. Proper names have an individual character, are capitalised, and are not used in the plural. They are given to facilities important to the city. They are reference points and areas of intersection of the daily activities of many users.

At times, proper names gain recognition when they become broadly used online, by information outlets, and on social media accessed by a wider audience. In addition, this popularity may increase when the proper name is accompanied by an elaborate graphic design in the form of a logo or other graphic symbol, which, accentuated in space, can emphasise its informative value. These signs often have high artistic quality, constituting an added value to the information layout of the city and consequently making proper names more recognisable in the urban landscape.

Under a socio-political crisis, proper names of objects may be subject to modifications. These new versions at times replace the original name or function in parallel to it. The appearance of a new name imbues the given place with additional meanings, reflecting the ongoing event as well as the

accompanying change in the function of the object. It then becomes a source of information on the new reality and the transformation it has undergone, fixed in the city's information layout. A change of the proper name in direct connection with a specific event is temporary. As the situation reverts, the name usually becomes obsolete and returns to its original state.

This process could be observed during the ongoing pandemic, with certain objects in the city being converted into temporary hospitals. This was especially true of sports facilities. These buildings, due to their large cubature and good communication with the rest of the city, were used as temporary medical centres. Consequently, their original sports functions were suspended for the time being. With their new purpose, the information layer of the objects in the social discourse changed. This was also accompanied by a temporary change of the name, marking the new function of the facility in the city's information layout, especially by including the word 'hospital', communicating its new medical character to the city users.

An interesting aspect from the point of view of further analysis are new names employing national symbolism and referring to the national character of a given facility. An example here can be Cardiff's Millennium Stadium, which is the Welsh national stadium. On 13 April 2020, it was adapted as the second largest temporary COVID-19 hospital in the UK (Rhys, 2020). Its new name was selected in a vote – the winning proposal was the Dragon's Heart Hospital, referring to the red dragon seen on the flag and national symbols of Wales. The new name additionally emphasised the national character of the Millennium Stadium, which may have contributed to its better consolidation in the city's informational layout. With the closure of the provisional hospital, the arena completely reverted to its original name of the Millennium Stadium.

An example of a facility of similar importance is the PGE Narodowy Stadium (Eng. PGE [Polish Energy Group] National Stadium). It is located in Warsaw, on the right bank of the Vistula River, at 1 Księcia Józefa Poniatowskiego Avenue in the Praga-Południe district. One of the most important sports arenas in Poland, it was built in the years 2008–2011 at the former site of the socialist realist Dziesięciolecia Stadium (Eng. Tenth-Anniversary Stadium) from 1955. The reason for its construction was the progressive degradation of the Dziesięciolecia Stadium, used as a marketplace since 1989, and the winning bid of Poland and Ukraine to jointly organise the 2012 UEFA European Football Championship. The official opening of the new stadium took place on 29 January 2012. As indicated in the article "Stadiony w Miastach Gospodarzach – nie tylko na EURO 2012" posted on the official website of the company PL.2012 (2011), the object was designed to become a multi-functional facility, complying with standards required to organise exhibitions and concerts. The stadium also provides ample office space, being the largest conference centre in Warsaw accommodating 1,600 people.

The PGE Narodowy Stadium changed its function in October 2020. Warsaw's hospitals with designated COVID-19 wards were struggling due to lack

of beds and skyrocketing number of patients. In line with the main goal of the government's strategy to combat the coronavirus, which was to protect the health of citizens and maintain the efficiency of the health service, it became necessary to create a field hospital for patients with milder symptoms in order to relieve better-equipped medical facilities. The stadium's design envisaged the possibility of its use in crisis situations. It was feasible to convert it into a hospital due to the large volume of the building, amounting to over 200,000 m² of total area, as well as proper layout which allows it to be divided into a number of independent and self-sufficient modules. The possibility of adapting the interior of the building according to the current needs, together with its extensive network of installations and good communication with the city, contributed to the final conversion of some of the stadium's premises in the first COVID-19 field hospital in Poland, called "Szpital Narodowy" (Eng. The National Hospital) (Fig. 1).



Figure 1. View of the former main entrance gate to the temporary hospital at the PGE Narodowy Stadium in February 2024

Source: J.Z. Kowalski

The hospital was opened on 29 October 2020. It was subordinate to the Centralny Szpital Kliniczny MSWiA (Eng. Central Clinical Hospital of the Ministry of Interior and Administration) at Wołoska Street, which was the main COVID-19 facility in Warsaw. It was supposed to offer patients the best possible care, comparable to the standards available in a proper hospital setting.

The newly created temporary hospital had 300 beds, medical staff of 250 people, and full equipment from the resources of the Material Reserve Agency. In subsequent stages, the number of beds was gradually increased to 1,200. The hospital was divided into modules, each of which contained beds for a maximum of 28 patients in order to facilitate logistics for the staff working there.

By the decision of Head of the Chancellery of the Prime Minister Michał Dworczyk and Spokesman of the Ministry of Health Wojciech Andrusiewicz to reduce the number of temporary hospitals, the facility operated until 23 May 2021. In total, it admitted over 1,800 patients during the first period of the pandemic. Despite the suspension of admissions, the facility operated as a COVID-19 vaccination point with the daily administering capacity of 1,000 doses. However, due to the renewed increase in the number of hospitalisations during the fourth wave of the coronavirus pandemic in the autumn of 2021, the hospital reopened again on 25 November 2021.

The name “Szpital Narodowy” was not assigned to the facility by administrative decision followed by setting up a new name plate and changing the name on maps, but it did function on the Internet, including official media and state websites. It can be found on the official website of the Republic of Poland (*gov.pl*), which also features the official logo of the field hospital at the PGE Narodowy Stadium with the name “Szpital Narodowy”. The same can be found on the website of the Polish Press Agency (Fig. 2). The logo was also reproduced in the articles of popular media outlets in Poland and on private portals, such as: *Dziennik Gazeta Prawna*, *Polityka Zdrowotna*, *Polsat News*, *TVN24*, or *Forsal.pl*. To this day, the facility has its own Twitter account, also featuring the name “Szpital Narodowy”, with 301 tweets and 1,530 followers as of 22 September 2022.



Figure 2. Official logo of the Szpital Narodowy on the website of the Republic of Poland (*gov.pl*)

The presence of the name “Szpital Narodowy” in the virtual space had a clear impact on the consolidation of the institution’s name in the city’s information layout. It caught on in the social discourse and, in the period of the hospital’s operation, was used parallel to the official name of the facility, PGE Narodowy Stadium, emphasising its new function and the connection to the time of the pandemic in the urban landscape. The name “Szpital Narodowy” was created through the transformation of the original name of the PGE Narodowy Stadium, clearly emphasising its relationship with the commonly recognisable building, which also contributed to its adoption among the city’s

inhabitants. The PGE Narodowy Stadium has been a facility of great importance for modern national identity. Hence, when the hospital arranged at the same site also came to have the word “Narodowy” in the name, it became a symbol of nationwide mobilisation to fight the pandemic, reinforcing the message communicated by the name to city users.

5. The pandemic and the change of the city’s information layout on the example of the mural at 37 Tamka Street

Another important element of a city’s information layout are various manifestations of urban art. The term “street art” was first used in 1985 by Allan Schwartzman, and it refers to art created in open public places, most often in city spaces commonly perceived as belonging to the “streets” – fences, building walls, street lamps, street furniture, pavements, and roadways (Sikorski, 2012, p. 370). Street art includes various forms of artistic expression, from small and spontaneously created tags to large and professionally painted murals. By definition, a mural is a large-format, ephemeral, and temporary artistic work whose underlay are the outer walls of buildings (Smoczyńska, Łapiński, 2019, p. 15). According to another formulation, a mural should be understood as a “[...] decorative wall painting, the purpose of which may be both to impress the recipient and to advertise a product, service, or institution” (Stępień, 2010, p. 5). At the end of the twentieth century, however, the function of murals began to change from strictly advertising-related to a more and more informative one, addressing current problems, human values, and specific issues in the urban space (Kmieć, 2015, p. 139). Thus, murals represent highly politically or socially engaged art, and in their form and expression constitute a clear and direct commentary on events important for a given community (Kamińska, 2014, p. 7).

Murals occupy a special place in a city’s information layer. Not only are they the carriers of meanings that create the urban tissue, but they also initiate changes in its perception (Sławek-Czochra, 2013, p. 421, as cited in Kalinowski, 2015). Their goal is to creatively change the public space, at the same time inspiring the recipient to perceive the environment differently. As information carriers, they are meant to bring the recipient’s attention to a given issue or problem, shape their view, make them think, and promote certain values and attitudes (Kmieć, 2015, p. 140). Murals often carry information on socially engaging issues, such as commemorating a person or event important for a given community, criticising the authorities, or representing attitudes and views towards a specific event (Stasiak, 2016, p. 87).

A characteristic feature of murals is their temporary nature. The form and content of a given mural are inextricably linked with an event taking place at a specific time and embedded in a given socio-political context. Therefore, murals are works of art of transient and perishable nature (Lachowska, Pielużek, 2021, pp. 36–37). They are created in response to current events, becoming

a source of information established in the city space (Kmieć, 2015, p. 159). Due to the temporal nature of these events, the physical presence of the mural in the city space may be relatively short, reflecting the flow of the course of history, characterised by constant and cyclical emergence of new situations requiring an appropriate commentary (Lachowska, Pielużek, 2021, pp. 36–37).

In times of crisis, urban art increases the dynamics of the ongoing events in space. Through artistic creativity, various symbols are modified and reinterpreted, acquiring new meanings adapted to the current socio-political situation. Following the changing discourse, individual murals are sometimes further developed and modified by adding new elements, symbols, and meanings to them, which may change the original message of the work (Lachowska, Pielużek, 2020, p. 102). A mural can therefore be treated as a semiotic code that may contain one element only or be more elaborate and consist of several interrelated subcodes (Lachowska, Pielużek, 2020, p. 104).

This process was noticeable during the pandemic, when murals began to appear in city spaces as part of the campaign to support the medical staff fighting COVID-19. They prominently featured strong symbolic codes using well-known motifs, processed and used in a way intended to convey a specific message and shape attitudes related to the heroic struggle of doctors, nurses, and paramedics against the pandemic. They contained pop-culture superhero themes: poses and gestures, capes, costumes, and emblems combined with images of nurses and doctors. An inseparable element of the imagery were also medical masks, which became a symbol of the ongoing pandemic.

The most recognisable mural was called *Game Changer* and was produced by Banksy on the wall of the University Hospital in Southampton (Fig. 3). The entire mural was painted in greyscale and showed a boy playing with a nurse doll stylised as a superhero figurine. The nurse was wearing a cape and holding a pose with the right hand extended forward, an archetypal position of a superhero in flight. The nurse was wearing a medical mask. An important element of the work was also a trash can placed on the boy's right-hand side, inside which there were figurines of comic superheroes – Spider-Man and Batman. An example of a similar mural was the work entitled *Super Nurse* painted by the Amsterdam-based artist named FAKE (Fig. 4). It showed the bust of a nurse in scrubs, wearing a medical mask decorated with the Superman emblem. The symbols used in both works were to convey to the recipients that during a pandemic, medics are the real superheroes. The presented murals were supposed to be temporary and over time disappear from the city space.

In Poland, a mural employing similar symbols was painted on the wall of the tenement house located at 37 Tamka Street. Located in Powiśle, a part of the Śródmieście district in Warsaw, it was constructed around 1910 and has a total of five storeys. The building was erected at Tamka Street, which was once one of the most important streets in Powiśle and one of the main communication routes leading across the Vistula River towards the right-bank districts Ostrogski Palace and the monastery complex of the Sisters of Charity,



Figure 3. *Game Changer* mural by Banksy

Source: artraiders.com

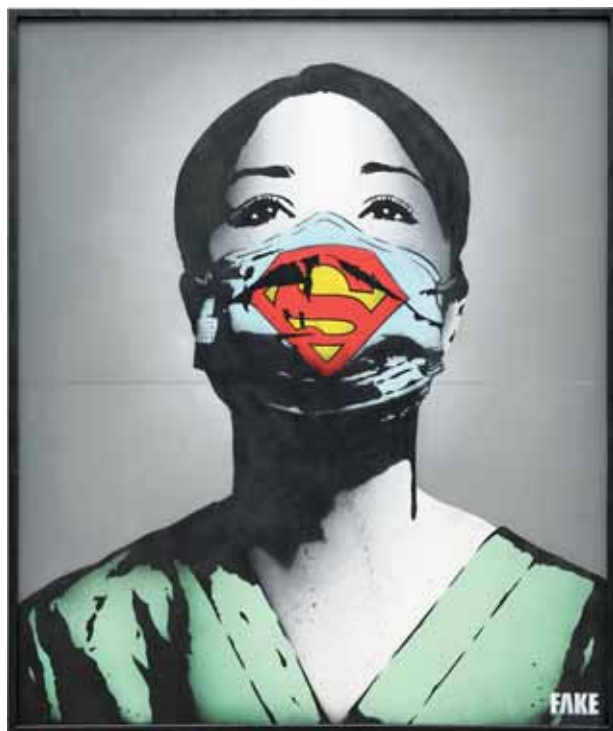


Figure 4. *Super Nurse*, main motif of a mural by the artist FAKE

Source: straatmuseum.com

of Warsaw. Due to its location between two Baroque edifices: the Gniński- the tenement house stood out from its surroundings, being a free-standing building with two gable walls. One of these has been used as a space for creating large-format wall murals since 2010.

With the declaration of the state of epidemic in Poland on 20 March 2020, the wall of the tenement house at 37 Tamka Street became an important site in the city's information space. At the time, a new mural dedicated to doctors, nurses, and paramedics came to be one of the most visible initiatives in the Warsaw landscape related to the fight against the pandemic. The work entitled *Nie każdy bohater nosi pelerynę* (Eng. "Not Every Hero Wears a Cape") was painted on the initiative of the naTemat.pl Internet portal in cooperation with Good Looking Studio. Works on the mural began at the end of March, and the completed piece was unveiled to the public on Wednesday, 1 April 2020 (Fig. 5).

According to the description of the campaign *Mural dla służby zdrowia* (Eng. "Mural for the Health Service") (2020) published on the mixx-awards.pl website, the artwork covered a surface of 210 m² and depicted eleven figures, namely: five representatives of medical staff wearing protective masks and medical uniforms, the figure of Superman in the characteristic blue-and-red costume with a cape, and, finally, five schematic figures in dark colours representing



Figure 5. The mural *Nie każdy bohater nosi pelerynę* on the wall of the tenement house at 37 Tamka Street, April 2020

Source: Photo by Radek Nowik. Good Looking Studio, naTemat.pl

society – two women, one elderly and one young, and a father with two children. The figures of doctors were painted against the background of a white geographical outline of Poland and the white-and-red national flag. The figure of Superman was depicted smaller in relation to the images of doctors and looking up to them, which was intended, in the creators' minds, to underline who the real heroes of the pandemic were. The other characters were gazing at the physicians in a similar way, which was meant to signal to the recipient that anyone, regardless of age, sex, and social status, might need help from the doctors if infected with the virus. The mural was painted on a grey background, with the slogan *Nie każdy bohater nosi pelerynę* (Eng. "Not Every Hero Wears a Cape") written in black letters in the upper right corner, accompanied by a smaller inscription stylised as handwriting: *Dziękujemy!* (Eng. "Thank you!"). The second inscription, in the lower right corner, was the logo of the originator of the project, the *naTemat.pl* portal. The mural was displayed on the wall of the tenement house from the beginning of April 2020 to the end of the same month, after which it was painted over and replaced with temporary advertising murals. In October 2022, it carried a decoratively illuminated ad for the dermocosmetic brand Lierac. Despite its relatively short existence in the landscape of Warsaw, it contributed to a temporary change in the information layout of the city, reflecting the social moods of the time and marking the pandemic event in urban space.

6. Conclusion

The analysis of sources and examples carried out in the present work shows the key role of signs and symbols in the socio-urban space of the city as carriers of information and content conveyed to users. Symbols reflect a number of processes taking place in the social, political, and economic discourse. They embody existing attitudes and views, and the process of their formation and transformation is continuous and fluid. The city, especially its central area, is a place with a particularly large accumulation of symbols and signs, presenting countless amounts of information to the recipients. Its information layer constitutes the city's information layout, which is a collection of all kinds of information signs functioning in the physical and virtual space of the urban centre. Due to the diverse nature and form of such signs, it is also a source of artistic and ideological experiences.

Like individual signs and symbols, the information layout is subject to constant modifications depending on the processes occurring in the city space and the social sphere. Such changes are particularly prominent during a crisis, when the natural everyday life cycle of the city is disrupted. One of the examples is the ongoing COVID-19 pandemic, which has contributed to a transformation in many aspects of the everyday life of city dwellers and has resulted in a significant reduction in the participation in urban life.

The analysis carried out in the article concerned two important examples of urban information layout, namely written content representing naming conventions of buildings on the example of the PGE Narodowy Stadium and street art in the form of a mural on the example of the tenement house at 37 Tamka Street. The study has shown how the information space of cities changed during the pandemic period. The signs, symbols, and their notable modifications reflected the attitudes that accompanied the society under restrictions. The temporary nature of some of these solutions bore testament to their close association with the time of crisis, which was a sudden and transitional period. Their visibility in real and virtual space gave sufficient grounds to emphasise both their rank and importance, as well as their broad recognition in the city landscape. The final conclusions relate to a topic that is still very much up to date in the context of the ongoing pandemic and future crisis events, which will result in further changes in the information layouts of cities and the sets of symbols and meanings which they carry.

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ABSTRACT

The impact of the COVID-19 epidemic on the change of Warsaw information layout illustrated by the examples of the PGE Narodowy Stadium and the tenement house at 37 Tamka Street

The purpose of this study is to prove the thesis about the influence of the COVID-19 pandemic on the information structure of the city, seen through changes and modifications of its signs and symbols. The analysis concerns two selected elements of the city's information layout, which are names of objects and urban art. Two objects in Warsaw have been chosen as examples in the discussion: the PGE Narodowy Stadium and a mural on the wall of the tenement house at 37 Tamka Street. In order to analyse the studied issues, the article opens with providing definitions of a sign, a symbol, urban space, and the information layout of the city. Discussion of each case study is preceded by an explanation of the importance of naming conventions and urban art in the city's information layout on the basis of both secondary sources and the author's own conclusions, and supported by a short presentation of foreign examples.

Keywords: urban space, city information layout, symbol, sign, inscription, urban art, COVID-19 pandemic

II. DESIGNING CITIES FOR PEOPLE

THE CONCEPT OF THE COMPASSIONATE CITY AS A RESPONSE TO THE DEMOGRAPHIC AND SOCIAL CHALLENGES OF EUROPEAN CITIES. A COMPARATIVE ANALYSIS OF BERLIN AND WARSAW¹

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1. Introduction

Cities, as objects of research, have seen many definitions and concepts describing their elements, structure, and functioning. By some, they are viewed organically and systemically (Parysek, 2015); by others, economically and hierarchically (Christaller, as cited in Eberhardt, 1963); and by others yet (especially in the case of the concept of ideal cities), as an opportunity for individual expression or a life's work (Gutowski, 2006). Similarly, urban management and development are presented in many, often antagonistic, theories. The elitist approach points to the role of elites in urban management, the pluralist approach emphasises the importance of social control, and the concept of urban regimes highlights the complexity of the local arena in which both private and public actors must cooperate and compromise (Sagan, 2000). By observing the changes in the main recipients of urban policies and urban design, it is possible to deduce what challenges are most relevant at any given time. This observation is more difficult now than in the past. Today's global urban centres are such complex structures that it is difficult to clearly identify their main actors and beneficiaries (Kotkin, 2018; Wilson, 2022). As noted by

¹ This chapter is based on the previously unpublished Bachelor's thesis by J. Goliński entitled *Can a City Be Compassionate? – Development Strategies and Urban Policies of Warsaw and Berlin in the Context of Compassionate City Concept* (Department of Geography and Regional Studies, University of Warsaw, 2021) and contains significant excerpts from this paper. It also constitutes its expansion under the project "Dualism in Commune Development in Poland in the Context of Policies and Aspirations of Local Communities as well as External Factors – Compared to Selected Communities in the EU", funded by Narodowe Centrum Nauki (NCN; National Science Centre, Poland), grant number DEC-2018/31/B/HS4/0026.

Jałowiecki (2018b), a process of privatisation of space is taking place in Polish cities, which is taking the urban centres away from their residents and handing them over to developers and corporations (Harvey, 2016). This process is more intensive in comparison to other European cities. It is therefore necessary to strive for the restoration of the social dimension, as spatial planning and programming cannot be implemented in isolation from local conditions and the needs of the local community (Castells, 1982; Merrifield, 2014).

It is assumed that significant transformations in urban space will take place in the coming decades. The climate crisis, increasing use of information technology (ICT), mass migration, and aging populations in the Global North are just a few of the challenges facing urban centres and changing the appearance of cities. While the issue of adaptation to climate change and the use of ICT are already topics addressed in academic works and public discourse, the problem of the aging population still seems somewhat overlooked, especially in terms of urban planning and policies. However, in recent years, more concepts and strategies are being developed to create cities tailored to the elderly and those in need. One of them is Allan Kellehear's concept of the 'compassionate city'. In his argument, the British sociologist, in line with the New Public Health trend, notes that old age and periods of illness and frailty which constitute a significant part of a person's life are constantly forgotten or stigmatised in public discourse (Kellehear, 2005). The aging process and the growth of cities are generating increasing demand for care services and putting a strain on the health care system. For this reason, Kellehear proposes urban growth and local development programming tailored to vulnerable people, seniors, and children.

The purpose of this study is to situate the concept of the compassionate city within the context of the current and future development challenges of cities in the Global North, and then to see whether elements related to this idea are being developed in the current urban actions and policies of the two studied cases – Warsaw and Berlin. To this end, an analysis of these cities' preparedness for the changes taking place was conducted. The analysis was carried out in two dimensions: strategic – an analysis of the strategic documents of the studied cities, and spatial – the level of development of individual elements of the compassionate city in the districts of the urban centres under analysis.

2. Population aging as a challenge for urban centres in EU countries

According to Eurostat research, in 2019, there were more than 90 million seniors living in the European Union. It is estimated that this number will grow to almost 130 million people in 2050. This represents more than 40% growth (Eurostat, 2020). In the same time period, the percentage of seniors in society will increase from the current 20% to almost 30%. Such a dramatic change in the age structure will have a significant impact on many aspects of the economy and government (Eurostat, 2020). The housing, health care,

and social services sectors will have to adapt to the coming challenges. Over the next few decades, it may well be that cities and urban policies will need major restructuring to meet the needs of their users. In the case of Poland, the situation looks even more serious. A report by the European Statistical Office shows that Poland will belong to the group of countries where the aging process will be most dynamic (alongside Spain, Slovakia, and Ireland). The ratio of working age population to post-working age population will change from 4:1 today to 2:1 in 2050 (Eurostat, 2020). The process of population aging, combined with mass migrations triggered by war and climate change, may pose significant challenges for urban centres and economies in EU countries (Sulmicka, 2016; Winston, 2019). For this reason, it is particularly important for local governments and local actors to take the coming transformations and the pressures they will cause into account when programming development. The increase in the number of seniors with the concomitant decline of the total population is particularly noticeable in Western and Eastern European countries (Fig. 1). In addition, this trend is far more pronounced in urban areas than in rural areas (WHO, 2017).

Recent studies on the assessment of megatrends and development trends in Poland in the perspective of the year 2050 (Jurkiewicz, Dziemianowicz, 2023) clearly show that experts expect an intensification of the trend of population aging in the world and evaluate this fact negatively from the point of view of Poland's development opportunities. It is to be expected that current and

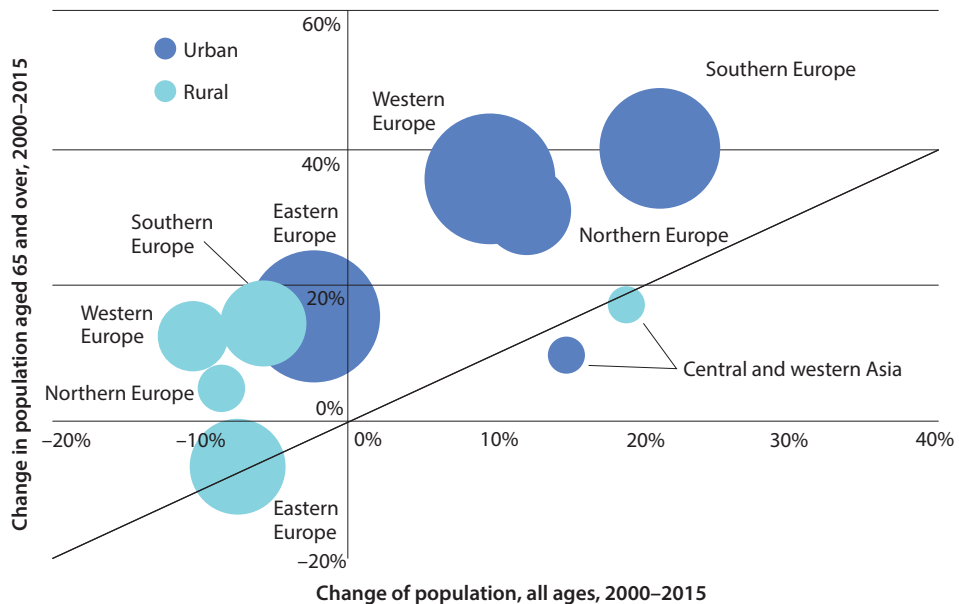


Figure 1. Aging patterns in geographic regions

Source: WHO, 2017

future development policies will increasingly take into account the issues of “silver economy”, including social issues, as well as the question of matching pension systems to the changing demographic structure. In addition, the issue of population aging already has a clear spatial dimension, including in Poland, with cities and functional areas performing slightly better than rural areas of the country in terms of demographic burden.

3. Concepts of cities of the future

Along with changes in the paradigm of urban development, we can see the emergence of new concepts of future cities, ideal cities, and visions provoking reflection on the directions of urban development. These concepts often grow out of a critique of urban phenomena and processes (Solarek, 2011) or centre around a new invention, a new paradigm, or new needs and challenges (Gutowski, 2006). While some of them focus mainly on the spatial dimension (such as modernist concepts of ideal cities – e.g. Niemeyer’s Brasilia), others deal with social, economic, or technological issues (Baraniewicz, 2017). Importantly, most of them are never fully implemented and executed. The ideas and concepts of cities of the future are not an exact blueprint but a broad vision of urban transformation that can be implemented in various planning processes. This is also how such concepts should be described and studied. Concepts of cities of the future can evolve over time. Such was the case with one of the best-known modern concepts – the smart city. The first models of this kind (Smart City 1.0) placed corporations and visionaries creating and promoting innovation at the centre (Cohen, 2015). According to these principles, elements of the smart city were to be delivered and implemented by a narrow group of decision-makers. In the case of Smart City 2.0, the focus was shifted to local authorities – in the developed concept, they were to be the drivers of change using technology in the city. The latest concept is Smart City 3.0, which puts informed residents at the centre (Cohen, 2015). City dwellers are seen as important decision-makers, and the social dimension intersects with the digital dimension (Rudewicz, 2019). The example of the smart city shows that the concepts of cities of the future should be considered as a broadly outlined contribution to the discussion on the directions of development. It should be a general outline to be then adapted to local conditions and potentials. The concept of the compassionate city can be treated similarly.

Concepts of ideal cities also enable us to pinpoint the issues and areas which theorists believe to be key at any given time. Analysing elements of several of the most well-known concepts of cities of the future, we can see that the current deliberations on the subject focus on issues such as sustainability, climate resilience, high quality of life, and innovation (Table 1). The concept of the compassionate city stands out among others due to its unique target group. It is one of the few concepts that puts seniors, people with disabilities, and people in need at the centre.

Table 1. Comparison of selected concepts of ideal cities

Concept	Sustainable city	Creative city	Smart city	Residential city	Compassionate city
Main recipients/stakeholders	All city residents, future generations of residents	Creative class (managers, scientists, artists)	Researchers, industry workers, investors	All city residents, future generations of residents	The elderly, people with disabilities, unhoused people, members of minorities
Core values	Development in line with the idea of sustainable development, climate responsibility	Openness to innovation, tolerance, diversity, residential attractiveness	Efficiency of management, development of innovation, development of ICT in the city, digitisation of city management processes	Resilience to upcoming crises, disasters, transformations; adaptation to climate change	Tolerance, local activism, support for those in need, ensuring a dignified life for seniors and the vulnerable
Elements	Environmental qualities, highly developed labour market, social justice	Development of creative professions, openness to innovation, business openness, developed scientific centres	Cooperation of local authorities with scientific centres and high-tech industry, extensive use of ICT	Openness to innovation, diversification of the city's economic structure	A developed health sector, extensive social policies, an active and inclusive local community
Example indicators	Availability of green areas, number of green and blue infrastructure facilities, percentage of energy derived from RES	Number of start-ups, number of art galleries and museums, R&D spending, tolerance studies	Degree of automation and digitisation, amount of R&D spending, number of high-tech enterprises	Number of start-ups, household income, availability of green space, number of NGOs	Will be specified later in the chapter

Source: Goliński, 2021, pp. 15–16

4. The concept of the compassionate city

The concept of the compassionate city was created by Allan Kellehear in 2005. According to Kellehear, in light of the aging population in the countries of the Global North, contemporary urban centres and their systems of development planning and public service delivery are not adapted to the coming challenges. He warns that unless there is a change in the paradigm of creating cities, which currently places young, fully able-bodied, motorised residents at the centre, in a dozen years or so, we will find ourselves in a situation where cities will be completely unsuited to the needs of the majority of the population. Kellehear (2013) calls for changes in both the social sphere, the delivery of public services, and spatial arrangement. One of the key elements of his concept is grassroots and community activism (Abel, 2018). By transferring some functions of the care and support for the elderly and sick to local communities, it will be possible to create cities that are friendlier and happier but also more efficient. Kellehear (2005) notes that, as medical science develops and people's life expectancy increases, the concept of public health should also evolve and expand. Economic and human resources make it possible for health care and care for the elderly and sick to be not just a sector we report to when illness or age compel us but an integral part of the city's functional and spatial structure. Kellehear describes the creation of compassionate cities as the next phase of the New Public Health. In the 1980s, there were many campaigns and transformations affecting the safety and health of the public, such as the development of safety features in cars, the banning of advertising for particular products, mandatory warnings about the harmfulness of stimulants on packaging or in advertisements (cigarettes, alcohol), and campaigns to raise awareness about AIDS. Similarly, this kind of a milestone in increasing safety and improving society's livelihood could now be implemented in the domain of urban planning and city management. For the development of a compassionate city, transformations in local politics, social policy, and urban and strategic planning are needed (Abel et al., 2016). In the face of the demographic processes described earlier, the view of social policy needs to be revised – we need to stop seeing it as a “necessary evil” and instead treat it as one of the many sectors of the administration's operation to which we should not turn a blind eye, as well as create a coherent fiscal system that can afford to fund it (Golinowska, 2018). In the area of local politics and strategic planning, cooperation and the involvement of local communities in decision-making processes seem to be key. Engaging society in strategic planning not only supports the acceptance and implementation of strategies but also in itself promotes involvement among the community and strengthens local democracy – key elements for the development of a compassionate city (Dziemianowicz et al., 2012). In this regard, increasing the involvement of seniors should be a priority – they are the target group of potential urban policies stemming from the concept of the compassionate city, and are still often absent from strategic

planning socialisation processes (WHO, 2017). Spatial changes must also be introduced. Today's large-scale cities are witness to increasing privatisation of space, with developers and investors becoming the main decision-makers (Jałowiecki, 2018a). In addition, we notice that the seizure of public spaces, despite being "public" by definition, is rooted in elitism, which is achieved by excluding undesirables (e.g. unhoused people) (Dassé, 2019).

Based on Kellehear's considerations and a review of the literature on the subject, the following main characteristics of a compassionate city can be identified:

- it has well-developed and multifaceted local health policies that identify support for the vulnerable as an imperative;
- it caters to the needs of the elderly, the disabled, the unhoused, disenfranchised minorities;
- it is an open and tolerant city, sensitive to social and cultural differences;
- it is inhabited by an active and inclusive local community, characterised by high social capital;
- it guarantees residents equal access to resources and services in infrastructure, health care, housing, and culture;
- it promotes grassroots activities and the development of informal groups;
- it involves local communities in decision-making processes, is characterised by a high level of local democracy.

5. An analysis of Berlin and Warsaw in the context of the compassionate city concept

For further statistical and spatial analysis, three key areas of the compassionate city have been formulated based on a review of the literature (Table 2). These areas consist of six elements, and these elements will be measured by seven indicators.

The urban centres selected as objects of the study are Berlin and Warsaw. Both cities are the capitals and the largest cities in their respective countries. In addition, they are tied by international cooperation, which may indicate similarities in directions of development and urban policy decisions. The links between the analysed cities are multifaceted: starting with the structure of Polish local governments, which was modelled on the German system during the reform; through the regional ties between the Mazovia and Brandenburg regions; to cooperation and numerous joint projects between the capitals of the two countries. Examples of cooperation include local government meetings, student exchanges, partnerships of individual districts, and joint training of officials. As Szmigiel-Rawska (2009) notes, these types of connections and cooperation make it possible to blur the border barrier between local government units and bring the two administrative structures closer on the institutional level. For this reason, examining the differences in the strategic planning and urban policies of Warsaw and Berlin seems justified.

Table 2. Areas, elements, and indicators of the compassionate city

Areas	Elements	Indicators
1. Health area	1.1. Developed and comprehensive health care services	1.1.1. Number of physicians/clinics per 1,000 people
	1.2. Developed and accessible health infrastructure	1.2.1. Number of pharmacies per 1,000 people
2. Spatial area	2.1. Developed public transportation, no spatial barriers	2.1.1. Number of stops per 1 km ²
	2.2. Green, compact city	2.2.1. Surface area of parks per person
		2.2.2. Surface area of green spaces per person
3. Social area	3.1. Active local community, high social capital	3.1.1. Number of local centres per 1,000 people
	3.2. Support and acceptance of minorities and those in need	3.2.1. Number of assistance facilities for the unhoused per 1,000 people

Source: Goliński, 2021, pp. 27–28

The indicators of a compassionate city, formulated on the basis of a review of the literature, were used for the analysis by adopting the following criteria:

- 1.1.1. *Number of physicians per 1,000 people* – data obtained from municipal statistical offices. Due to the lack of statistics on the number of doctors in Warsaw, this indicator was replaced by the number of clinics per 1,000 residents.
- 1.2.1. *Number of pharmacies per 1,000 people* – data obtained from municipal statistical offices.
- 2.1.1. *Number of stops per 1 km²* – data obtained from the websites of public transport companies. Stops of all forms of public transport (buses, streetcars, underground, commuter rail) were included.
- 2.2.1. *Surface area of parks per person* – data obtained from municipal statistical offices. They apply to parks, green areas, and all landscaped areas.
- 2.2.2. *Surface area of green spaces per person* – data obtained from municipal statistical offices. They include parks, as well as forests, natural green areas, and water areas.
- 3.1.1. *Number of local centres per 1,000 people* – data obtained from Google Maps. Due to the lack of a uniform database of points of this nature in the databases of both cities, the facilities displayed in a Google Maps search were selected. To search for the centres, the following keywords were used: *community centre, cultural centre, Gemeindezentrum, Kulturzentrum*.
- 3.2.1. *Number of assistance facilities for the unhoused per 1,000 people* – data obtained from documents posted on the websites of city offices. Such facilities are likely to be more numerous in both cities, but for the purposes of the analysis only those indicated by city offices were selected.

5.1. Analysis of strategy documents

Strategy documents, if prepared in a participatory manner, are not only a tool for strategic management but also a factor that triggers and/or strengthens cooperation in a given territorial unit (Dziemianowicz et al., 2012). From formulating a vision which can integrate the activities of various stakeholders, through the diagnostic process, the development of goals and courses of action, to public consultation, the process of creating the document and the subsequent written strategy can reflect the real aspirations of residents and their involvement in local affairs. Thus, it can be expected that strategies are, in fact, a certain agreement between their co-creators on how to bring to life a certain vision of development. We will deal with strategies focused mainly on economic issues, as well as those emphasising social or environmental issues.

The currently binding strategic document of the German capital is *Berlin Strategie: Stadtentwicklungskonzept Berlin 2030*. This is a bill passed by the Berlin Senate in 2014, work on which took more than two years. The final strategy document is complemented by a number of diverse studies and documents produced in the strategic process. The following publications were used for analysis: the main brochure (Berlin Strategy, 2014), the strategy text document (Berlin Strategy, 2014), the diagnostic status report (Berlin Statusbericht, 2013), and the strategy update issued in 2016 (Berlin Strategy 2.0, 2016). Analysing the strategic process carried out in the German capital, it is worth noting that some of the documents were already issued after the adoption of the new strategy, for example updates to strategic activities. This is definitely a good sign, showing that the local government does not treat the document strictly as a marketing publication that can be eventually shelved but as a basis for a long-term process that requires updating, with goals and instruments to be adapted to the changing situation. The *Berlin 2030* strategy is a widely socialised document. Prior to developing the strategy, the Berlin Senate held many meetings with stakeholders in the *StadtForum* (city forum) series. The meetings were divided thematically, and speakers included residents, members of third sector organisations, and experts (Berlin Strategy, 2014). Socialisation of the strategy was implemented at all stages of its development. In addition, *StadtForum* meetings have continued to take place since. They address topics related to the strategy as well as new issues of importance to the city's development and residents' quality of life (Berlin StadtForum, 2021).

Warsaw's main strategic document is the *#Warsaw2030* development strategy. It was adopted in 2018, although it had been in the works since 2015. It definitely stands out from the other Polish strategy documents and differs significantly from the previous 2020 strategy (Dąbrowska et al., 2022). It is characterised by extensive socialisation and a clearly more extensive evaluation and monitoring process as compared to the previous strategy document. The new document contains a vision and description of strategic goals, as well as instructions for their monitoring and implementation. Other elements,

such as a diagnosis and detailed monitoring indicators, are contained in separate publications. For this reason, the following documents were analysed: the main document *#Warsaw2030* (Strategia *#Warszawa2030*, 2018) and the annexes – the strategic diagnosis (Diagnosis..., 2016) and the monitoring indicators (Indicators..., 2018). The Warsaw document also stands out thanks to its extensive socialisation process. As Dziemianowicz and Cybulska (2019) point out, out of all the Polish province capitals analysed, Warsaw boasted the greatest public involvement in the process of creating a strategy document. A total of 23 meetings were held during the development stage, involving not only experts but also members of different age groups (including youth), and representatives of academic centres and business institutions (Dziemianowicz, Cybulska, 2019). The process of socialisation took place at all stages of strategy development – from diagnosis and visioning to implementation. It is worth noting that the process of creating the Warsaw strategy also employed innovative methods of creating consultation groups (Dziemianowicz, 2018). Local authorities made sure that the groups included experts as well as activists and residents (Dąbrowska et al., 2022). This is a major asset of the strategy in terms of seeking elements of the compassionate city, as including local communities in decision-making processes develops local democracy and social capital.

Both analysed strategy documents were prepared in a professional manner. Numerous similarities can be seen between them, both in the process of creating the strategy and in the final form of the documents. Both are comprehensive and carefully prepared. The two cities developed a similar structure of their respective strategies and followed a similar work process (abbreviated promotional brochure, numerous additional studies, extensive socialisation of the strategies, comprehensive nature of the documents). The cooperation of the two local governments is evident, and the Warsaw team working on the strategy made use of the German experience (this should be seen as an advantage, indicating trust in partners and a willingness to use a set of good practices).

Despite numerous similarities, a few differences can also be pointed out (Table 3). The *Berlin 2030* strategy, in addition to strategic goals and actions, includes an extensive spatial study, describing the planned areas of intervention and new local centres that fit into the set strategic goals. The Warsaw document lacks a similar aspect. The goals, even those related to the functional and spatial structure, are described strategically at the scale of the entire city, without indicating detailed areas of intervention. The Warsaw strategy, on the other hand, is distinguished by a greater level of elaboration. Goals are divided into strategic and operational categories, and detailed examples of activities and their indicators are specified. In the case of the German capital's strategy, there are no lower-category goals, and the main goals are broadly described. This may be due to the larger size of the city, as well as differences in the functioning of the two local governments.

Differences between the strategy documents are also apparent in terms of the presence of compassionate city elements. The goal of developing social responsibility and creating a city for all its users is expressed in both strategies but is more developed and highlighted in Berlin's document. Compared to Warsaw's strategy, it puts significantly more emphasis on social issues. This may be due both to differences in the social capital of the two countries and to the uniquely left-wing specificity of Berlin's residents and its local authorities. In contrast, both documents broadly describe local activity and equal strengthening of local communities. These aspects are an important part of the development vision and are included in the strategic goals. The problem of the aging population is also mentioned in both documents. In neither, however, does it form the core of the study, but is only indicated as one of the problem areas. Both documents also extensively describe the development of public transportation, public spaces, and green areas. Environmental issues, too, are discussed in detail in both case studies. Out of all the elements of the compassionate city concept, the least space in the documents is devoted to health care and developed health-related infrastructure. These issues only appear marginally in the diagnoses. The reasons for this may be the relatively low influence and decision-making power of local governments in the development of health services (this is an issue of national scale, dependent on government administration), and too small impact to include it in the strategy document (in the case of health infrastructure).

Table 3. Comparison of the degree of elaboration on compassionate city elements in the strategy documents of Warsaw and Berlin

Elements of a compassionate city	#Warsaw2030 Strategy	Berlin 2030 Strategy
Socialising of the strategy	+	+
Recognition of the problems of population aging and exclusion	+	+
Developed and comprehensive health care services	+	+
Developed and accessible health infrastructure	N/A	N/A
Developed public transportation, no spatial barriers	+	+
Green, compact city	+	+
Active local community, high social capital	+	+
Broad social support and acceptance of minorities and those in need	+	+

(+++) very strongly emphasised topic/process; (++) strongly emphasised topic/process; (+) topic/process has been addressed in the strategy

Source: Goliński, 2021, pp. 47–48

As the analysis demonstrates, although neither local government directly referred to the concept of the compassionate city, numerous connections and elements postulated by Kellehear can be found in both strategy documents. This shows that problems and areas of intervention related to the compassionate city have also been noted and diagnosed by other researchers and practitioners. It seems quite intuitive because, despite the atypical target group (the elderly, vulnerable people, members of minorities), the concept of the compassionate city aligns with current development trends and transformations in the functional and spatial structure of urban centres. The clearly visible turn towards the development of localism and compactness of cities (especially during the COVID-19 pandemic, e.g. the concept of the 15-minute city), the increasing environmental awareness and relevance of climate change adaptation, and the development of local democracy are important processes and transformations in urban planning and policies, each of which on some level is related to the concept of the compassionate city.

5.2. The spatial dimension of the compassionate city in Berlin and Warsaw

In this section of the study, we focus on a spatial and quantitative analysis of the elements of the compassionate city concept at the level of Warsaw and Berlin districts. The aim is to examine whether elements of the compassionate city are more developed in districts with a higher percentage of seniors (selected as the most numerous and easiest to measure in terms of numbers), and which districts in both cities have the best developed elements of the compassionate city. As Bierwiazorek (2016) points out, public space plays a key role in the lives of city residents. It should be accessible, safe, tailored to the needs of residents, and encourage activity and interaction among them. Assuming such characteristics of public spaces, it is important to analyse whether the districts where the highest percentage of seniors live are adequately suited to their needs. In addition, studies on the distribution and accessibility of given infrastructural elements of public space have repeatedly pointed out that areas inhabited by minority groups, with lower material status, from less privileged backgrounds, or in a different age group, are often characterised by worse accessibility of particular elements of urban space (Kabisch, Haase, 2014).

In Berlin, the units of analysis are 16 administrative districts (*Bezirke*). Their shape has remained unchanged since 2001. The districts are considerably larger, both in area and population, than Warsaw's districts. The German capital is home to more than 720,000 seniors, accounting for just over 19% of its population. This number, however, is steadily growing. Projections indicate that in 2030, the number of seniors could reach more than 850,000 (Berlin Prognose, 2017). However, the percentage of seniors varies significantly from district to district. The district with the smallest percentage of seniors is Mitte (10.12%), while the Steglitz-Zehlendorf district has the highest percentage (25.75%).

A higher percentage of seniors is found on the outskirts of the city, and the central districts have a low percentage of older residents (Fig. 2). There may be several reasons for this. The first is the youthful and student-oriented nature of Berlin. The city's central districts are characterised by hustle and bustle and heavy traffic, which are not circumstances desired by seniors. Another reason may be the level of affluence of German society. Due to high wages and an extensive pension system, German seniors may have more opportunities to move to the outskirts of the city for retirement than their Polish peers.

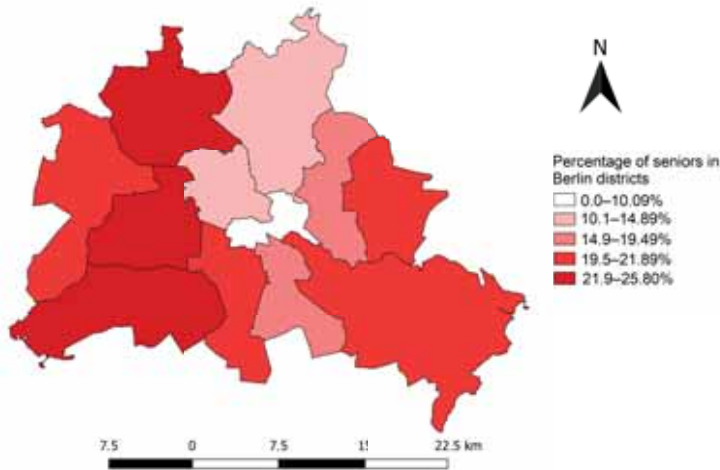


Figure 2. Percentage of seniors in Berlin districts (2019)

Source: Goliński, 2021, p. 51, based on SBB data

The next step in the analysis is to measure the indicators of a compassionate city and examine their Pearson linear correlation coefficient with the percentage of seniors in the district. The Pearson correlation coefficient values are shown in Table 4.

The correlation of individual indicators clearly varies. Correlation alone does not indicate a relationship between two variables under study, but seeing such results, one may wonder about the potential causes of the correlations that do occur. An analysis of the potential relationships in the above correlations could be the subject of further studies. The highest positive correlation coefficient is between the area of parks in m² per person and the percentage of senior citizens. Such a high correlation coefficient could be due to several factors, but it is probably not because of the adaptation of infrastructure to the needs of the elderly, rather due to the characteristics of villa suburban districts, which have the highest percentage of seniors. Although this correlation does not indicate deliberate efforts by local authorities to provide seniors with an adequate amount of green space, it may suggest that the amount and proximity of green space is an important element for the elderly when choosing

the district to settle in. There is a similar correlation for the surface area of green space. One of the strongest positive correlations is also one between the percentage of seniors and the number of physicians per 1,000 residents. This may be due both to the location of medical clinics in areas with a higher percentage of seniors, as they are the main users of such facilities, and to the fact that seniors may take the proximity of a clinic or medical practice into account when making the decision to move.

Table 4. The Pearson correlation coefficient between compassionate city indicators and the percentage of seniors in the district

Indicator	Number of physicians per 1,000 people	Number of pharmacies per 1,000 people	Surface area of parks in m ² per person	Surface area of green spaces in m ² per person	Number of local centres per 1,000 people	Number of assistance facilities for the unhoused per 1,000 people	Number of stops per 1 km ²
Pearson correlation (p value)	0.508* (0.092)	0.198 (0.537)	0.527* (0.079)	0.491 (0.105)	-0.353 (0.261)	-0.767*** (0.004)	-0.768*** (0.004)

* the significance of the correlation coefficient at the assumed significance level $\alpha=0.10$

** the significance of the correlation coefficient at the assumed significance level $\alpha=0.05$

*** the significance of the correlation coefficient at the assumed significance level $\alpha=0.01$

Source: Goliński, 2021, p. 52, based on SBB data

The negative values of two factors also seem interesting: the number of assistance facilities for the unhoused and the number of public transport stops per 1 km². In both cases, the negative correlation coefficient is quite high (below -0.7). This also may be due to the characteristics of districts with the highest percentage of seniors, as described above. Due to low population density, not as many public transportation stops may be necessary as in the case of inner-city districts. As for assistance points for the unhoused, the small number of such facilities may result from lack of demand or prejudice on the part of affluent residents.

In the case of Warsaw, 18 districts were analysed, the shape of which has remained the same since 2002. The distribution of the percentage of seniors in these districts differs sharply from Berlin's districts. There are currently less than 370,000 seniors living in Warsaw, accounting for 20.7% of the city's total population (Zegar et al., 2020), and their number continues to grow dynamically. According to analyses, Warsaw will be home to more than 550,000 seniors in 2050, making up more than 25% of all residents (Warsaw Report, 2021).

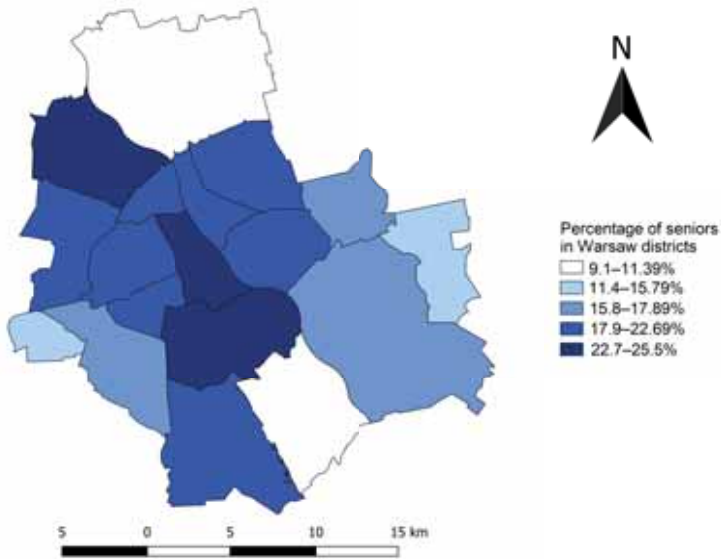


Figure 3. Percentage of seniors in Warsaw districts (2019)

Source: Goliński, 2021, p. 57, based on data from the CSO

Unlike in Berlin, where the highest percentage of seniors was found in outlying districts, in Warsaw, the highest percentage of people over the age of 65 resides mainly close to the city centre. The highest percentages are found in Śródmieście (25.46%), Mokotów (24.45%), and Bielany (24.28%). These are districts dominated by densely developed housing. In addition, Śródmieście and Mokotów have a distinctly downtown character. The smallest percentage of seniors resides in outlying districts. In Wilanów, the percentage of the elderly is less than 11.5%, and in Białołęka, it does not even exceed 10% (9.06%). This disparity between Warsaw and Berlin may be due to several reasons. One of them may be the location of public and social housing in Warsaw. Many of such buildings are located in the central districts of the city. An additional reason may be the difference in the wealth of Polish and German seniors. Elderly people in Warsaw have fewer financial resources and may not afford to move out to a suburban home in their old age. Another reason may be the different approach to housing and property ownership. In Warsaw, as in the rest of Poland, the dominant attitude is the desire to own an apartment for many years and to pass it on from generation to generation. The process of suburbanisation taking place in the capital may also be linked to this division. Young residents looking for a home often opt for outlying districts with sparse development, while seniors remain in apartments in the city centre.

Another part of the analysis is to measure the indicators of a compassionate city and determine Pearson linear correlation coefficients between each indicator and the percentage of seniors in the district (Table 5).

Table 5. The Pearson correlation coefficient between compassionate city indicators and the percentage of seniors in the district

Indicator	Number of clinics per 1,000 people	Number of pharmacies per 1,000 people	Surface area of parks in m ² per person	Surface area of green spaces in m ² per person	Number of local centres per 1,000 people	Number of assistance facilities for the unhoused per 1,000 people	Number of stops per 1 km ²
Pearson correlation (p value)	0.439* (0.069)	0.538** (0.021)	0.273 (0.274)	-0.420* (0.083)	0.069 (0.786)	0.002 (0.993)	0.625*** (0.006)

* the significance of the correlation coefficient at the assumed significance level $\alpha=0.10$

** the significance of the correlation coefficient at the assumed significance level $\alpha=0.05$

*** the significance of the correlation coefficient at the assumed significance level $\alpha=0.01$

Source: Goliński, 2021, p. 58, based on data from the CSO

The most positively correlated indicator is the number of stops per 1 km², which had the highest negative correlation for Berlin districts. This may be due to the differences in the functional and spatial structure of the districts with the highest percentage of seniors, as described above. Warsaw's downtown districts, which are characterised by the highest percentage of seniors, generally have a highly developed network of public transportation stops. Another indicator strongly correlated with the percentage of seniors is the number of pharmacies per 1,000 residents. The correlation may be due to the fact that pharmacies, like other service outlets, are more often located in downtown areas. Hypothetically, it could also be because the demand for pharmacies is greater for the Polish elderly due to the poorer quality of health care and the poorer health status of Polish seniors compared to the Germans. However, in-depth research and analysis are needed to make such conclusions. On the other hand, there are no differences when it comes to the correlation of the number of physicians/clinics. Although the indicators differ due to the lack of data (in Warsaw, the number of physicians was replaced by the number of clinics), there is a correlation in both cities. In this case, too, it would be necessary to examine whether this is due to the decision of the authorities – to locate medical outlets in districts with the highest percentage of seniors, or the decision of seniors – to consider the proximity of a clinic or medical practice in choosing where to live.

The only indicator with a negative correlation coefficient is the surface area of green space in m² per person. The largest amount of green space is found in suburban districts, a large part of which is made up of forests and other forms of natural greenery (Zegar et al., 2020). They have a suburban

character. Most such districts are low-density single-family housing complexes, inhabited mainly by young families with children. These districts also appear, due to greater distances between various sites and lower density of services offered, to be less attractive to seniors.

The relationship between the indicators described above and the percentage of seniors certainly needs to be further analysed. No firm conclusions can be drawn about the causes of the data correlation without in-depth research. However, it is clear that the correlation indicators draw a consistent picture of Berlin and Warsaw districts with the highest percentage of seniors. However, a question arises for further analysis – which came first? Were the various elements of a compassionate city developed under the influence of the presence of a large number of seniors in the district? Or did seniors choose particular districts to live in because of the already existing infrastructure?

5.3. A proposal for a compassionate city measure

The final section of the study is an attempt to create a comprehensive measure to build a ranking of the most compassionate districts. The indicator was developed with the use of a typical, and the most commonly applied, method of constructing a comprehensive variable for regional and sectoral comparisons, called the Hellwig development measure. The purpose of the measure is to be able to compare the degree of development of the various elements of the compassionate city concept in individual districts from both cities simultaneously.

The diagnostic variables used to build the synthetic measure were the compassionate city indicators formulated on the basis of literature review with the exception of indicator 1.1.1 (*Number of physicians per 1,000 people* – it was excluded due to the lack of uniform data in both cities). The indicators were selected subjectively. Before creating a comprehensive measure, the variability of the selected variables was examined because, as Kukuła (2000) notes, the diagnostic variables used in the creation of Hellwig's development measure must have high variability ($v \geq 10\%$). All variables met this criterion.

The second most important criterion when selecting diagnostic variables is a weak correlation between variables (Kukuła, 2000). The results of the correlation test of diagnostic variables are shown in Table 6.

If the variables are excessively correlated, the values of the diagonal elements (highlighted in yellow) exceed 10. For the selected variables, none of the values exceed 10. The variables are not highly correlated with each other, which allows for further analysis and the creation of a comprehensive measure.

The surveyed districts were assigned values of a benchmark comprehensive variable, the choice of which was determined by a previous normalisation procedure. The concept of determining the benchmark comprehensive measure is based on the selection of the so-called upper pole of development, called the development model, or the selection of the lower pole of development, the development anti-model (Hellwig, 1968). Such an abstract point P_0 (from o_i),

whose coordinates (after standardisation of the variables) take the largest values, respectively, was taken as a benchmark, since all the diagnostic variables included in the study are stimulants.

Table 6. Inverse matrix of correlation coefficients matrix

	1.2.1	2.1.1	2.2.1	2.2.2	3.1.1	3.2.1
1.2.1	1.59	0.69	0.45	0.15	-0.89	0.22
2.1.1	0.69	1.67	0.37	-0.27	-0.76	0.93
2.2.1	0.45	0.37	2.06	1.49	-0.31	-0.55
2.2.2	0.15	-0.27	1.49	2.57	0.18	-1.44
3.1.1	-0.89	-0.76	-0.31	0.18	1.89	-1.02
3.2.1	0.22	0.93	-0.55	-1.44	-1.02	2.44

Source: Goliński, 2021, p. 64, based on data from the CSO

For each of the studied objects (Warsaw/Berlin district) represented by a point with coordinates $(z_{i1}, \dots, z_{in})$ (n – the number of diagnostic variables included in the measure), the Euclidean distance c_{i0} to the model P_0 was determined according to the formula:

$$c_{i0} = \sqrt{\sum_{j=1}^n (z_{ij} - z_{0j})^2} \quad (1)$$

The taxonomic, comprehensive measure of development level was calculated using the following formula:

$$D_i = 1 - \frac{c_{i0}}{c_0}, \quad (2)$$

where $c_0 = \overline{c_0} + 2s_0$,

$\overline{c_0}$ – the average value of the determined distances c_{i0}

s_0 – standard deviation of distance c_{i0} .

Then, based on the value of the developed comprehensive measure, the districts were assigned ranks. The meter values of the individual districts of the two cities are shown in Figure 4, and the ranking of the districts is shown in Table 7.

The proposed solution is an example of a comprehensive measure that can be used to create a more complete tool to assess the level of development of elements of the compassionate city concept. The measure values of individual districts may be puzzling. The downtown, although it is the district with the highest rank in both cities, does not appear to be the friendliest of all the areas surveyed. However, it owes its rank to the concentration of services and functions in a relatively small area. It seems that in order to create a more

Table 7. Ranking of the most compassionate districts based on the comprehensive measure

District	Rank	Comprehensive measure
Śródmieście	1	0.518
Włochy	2	0.290
Charlottenburg-Wilmersdorf	3	0.275
Mitte	4	0.267
Wola	5	0.239
Praga-Północ	6	0.237
Ochota	7	0.231
Rembertów	8	0.221
Wesoła	9	0.215
Neukölln	10	0.209
Wawer	11	0.205
Praga-Południe	12	0.191
Treptow-Köpenick	13	0.189
Wilanów	14	0.187
Friedrichshain-Kreuzberg	15	0.183
Mokotów	16	0.181
Żoliborz	17	0.179
Pankow	18	0.146
Tempelhof-Schöneberg	19	0.141
Steglitz-Zehlendorf	20	0.135
Reinickendorf	21	0.134
Spandau	22	0.123
Lichtenberg	23	0.110
Ursus	24	0.106
Ursynów	25	0.104
Marzahn-Hellersdorf	26	0.090
Targówek	27	0.086
Bielany	28	0.084
Bemowo	29	0.070
Białołęka	30	0.037

* orange – Berlin districts; blue – Warsaw districts

Source: Goliński, 2021, p. 66

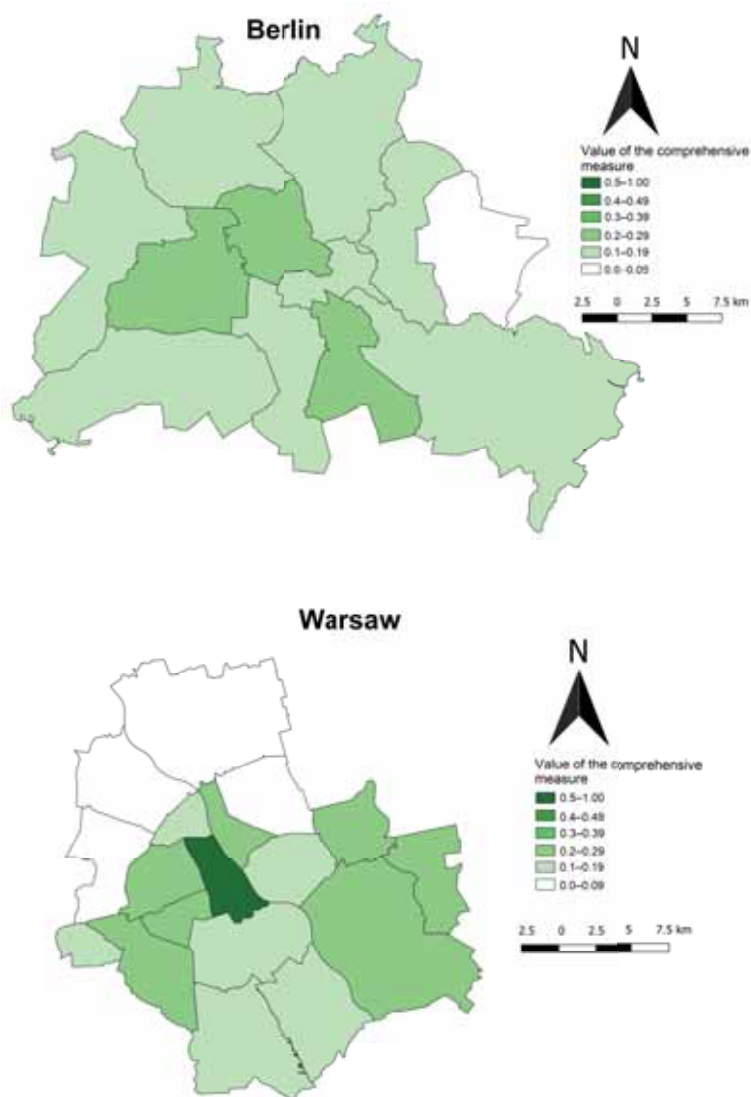


Figure 4. Values of the comprehensive measure in individual districts of Warsaw and Berlin (right-closed class intervals)

Source: Goliński, 2021, p. 67

comprehensive measure of a compassionate city, further variables should be added to the proposed diagnostic variables that take into account the friendliness of the space and the actions of the local authorities aimed at benefitting seniors. Another issue to be developed in the proposed measure is the issue of the weighting of the various diagnostic variables. This is because Hellwig's measure of development makes it possible to assign appropriate weights

to individual variables so as to best match the indicator to the purpose of the analysis. This analysis assumed equal weights for all variables to create a baseline ranking. Nonetheless, depending on the purpose of the study, the emphasis on particular target areas or groups can be increased. For example, by adjusting the measure to analyse the friendliness of districts towards unhoused people, there could be an increase in weights of variables such as the number of pertinent assistance points per 1,000 people, the area of parks in m² per person, or the number of physicians per 1,000 residents.

In the case of analysing the potential of districts in the development of social capital and local activity, weights could be increased for such indicators as the number of community centres per 1,000 people, the area of parks in m² per person, as well as added indicators such as, for example, the number of associations and NGOs per 1,000 people.

Such a comprehensive measure is characterised by a high degree of freedom and allows for broad analyses on many levels. The purpose of creating the measure was to indicate a potential path that further studies and research may pursue in an attempt to quantify the concept of the compassionate city and examine cities' adaptation to the needs of seniors or other users of urban space.

6. Conclusions

In the case of both analysed cities, it is possible to theorise that local authorities are aware of the demographic processes taking place and of the growing group of seniors in their local community population structure. Authorities in both cities are planning and taking measures to meet the upcoming demographic challenges. However, it should be noted that neither explicitly address the concept of the compassionate city. It is such a niche idea at this point that it has not found a place in the decision-making processes of the two local governments discussed in the present paper.

In terms of strategic planning and urban policies, both cities recognise social groups in need of support. Both Berlin and Warsaw provide assistance for those in need (already expressed at the vision level) and strive to create inclusive and tolerant cities and local communities. They are moving towards fostering sustainable development, creating a green and climate-resilient metropolis. The Warsaw strategy has more specifically formulated goals, while the Berlin document elaborates more on the spatial dimension of the actions taken. The *#Warsaw2030* strategy touches more broadly on the problem of localism, but it is the *Berlin 2030* strategy that more strongly emphasises social solidarity and support for the vulnerable. Both documents touch on most elements of the compassionate city.

The question of the relationship between the distribution of people in need of support and the level of development of compassionate city elements in the individual districts of Berlin and Warsaw is difficult to answer unequivocally

on the basis of the conducted analyses. Despite statistically significant correlations, further in-depth research is needed to determine whether, and to what extent, decision-making processes in the creation of urban spaces take the most vulnerable into account. This is because it is uncertain how many of the correlations identified in the analysis are due to conscious and deliberate actions by local authorities to improve the livelihoods of vulnerable people (seniors, unhoused people, sick people), how much these people themselves choose particular areas to live in, and how much of this is dependent on the functional and spatial structure of the city.

According to the proposed comprehensive measure, the elements of the compassionate city are most developed in Warsaw in the districts of Śródmieście and Włochy, and in Berlin in the districts of Charlottenburg-Wilmersdorf and Mitte. However, it is worth remembering that this is a baseline measure that can and should be further developed and modified, depending on the objectives of the study and the target group.

The concept of the compassionate city is still a little-known and narrowly described issue. It should continue to be gradually researched and developed so that, as Harvey (2010) points out, local government decisions and programmed development take the needs of all residents into account as much as possible. The concept should be gradually developed hand in hand with the implementation of those elements that are already an important part of urban development – social capital, sustainable development, climate change adaptation. In this way, as the aging of the population intensifies, it will be possible to quickly implement strategic and planning decisions.

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ABSTRACT

The concept of the compassionate city as a response to the demographic and social challenges of European cities. A comparative analysis of Berlin and Warsaw

The demographic transition and the aging process will be big challenges for urban centres in the Global North. It is necessary to consider how to prepare cities for the coming transformations. One of the solutions may turn out to be the concept of the compassionate city, created by Allan Kellehear. It assumes remodelling the functioning of urban centres to accommodate the most vulnerable – seniors, children, people with disabilities. The empirical part of the article examines Berlin and Warsaw. It presents the results of the analysis at two scales – macro (strategy documents) and micro (district). The strategy documents are analysed for the presence of elements of the compassionate city concept. The study examines districts where spatial analyses of the proposed indicators of the compassionate city were carried out. Finally, a comprehensive measure for assessing the level of development of compassionate city elements is proposed.

Keywords: compassionate city, urban policies, strategic planning, aging population, Berlin, Warsaw

PHYSICAL BARRIERS CONSTRAINING WALKABILITY IN CITIES. CASE STUDY OF WARSAW, POLAND

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1. Introduction

Nowadays, cities happen to face serious challenges, and their inhabitants experience both opportunities and difficulties resulting from living in urbanised areas. As a consequence, multiple theories have been developed in order to solve the most crucial problems associated with urban life. One of those is the 15-minute city concept proposed by Carlos Moreno.

Warsaw, as a city with a long history, has been influenced by numerous trends, theories, and concepts over centuries. One of the most significant was modernism and the provisions of the Athens Charter (Le Corbusier, 1943). In the capital of Poland, the objective of creating a functional city and separating areas of living and recreation from industry was operationalised during the 1933 CIAM Congress in Athens in the presentation of Jan Chmielewski and Szymon Syrkus and then summarised in their work *Warszawa funkcjonalna*. Although the city was significantly destroyed during World War II, some of the pre-war concepts were restored and even developed by the communists during the times of the Cold War, resulting in the creation of monofunctional sectors where living areas were separated from other services (Gnich, 2013). Nowadays, the process of city planning is regulated by the Study of Land Development Conditions and Directions (Pol. *Studium Uwarunkowań i Kierunków Zagospodarowania Przestrzennego*), but all past regulations have left traces which are still starkly visible in the spatial and functional structure of Warsaw.

The COVID-19 pandemic accentuated many problems underlying not only modern cities but also entire societies. The aim of this study was to define the main physical barriers which limit walkability in some parts of Warsaw. The author asked the following questions:

- Where does good accessibility end abruptly?
- Which barrier is responsible for differences in accessibility between neighbouring areas?

2. Fifteen-minute city concept

First of all, as the '15-minute city' (FMC) concept is a bit fuzzy and strongly dependent on local conditions, we need to start by clarifying our understanding of this term. The author of the concept, Carlos Moreno (et al., 2021), claimed that access to the most important services within a radius equivalent to a fifteen minutes' walk or a bike ride would improve the citizens' quality of life, because they would not be forced to spend so much time and money on commuting. One of the profits of implementing this concept in cities is local economic development, as pedestrians are more likely to step into neighbouring services while walking (C40 Cities Climate Leadership Group, C40 Knowledge Hub, 2021). It may also support a more equal and inclusive city and a stronger sense of community, as it forces the shaping of a city by citizens and for citizens, bearing in mind those most vulnerable (Moreno, 2020). Moreover, the concept helps to improve the health and welfare of the citizens through active walking, which helps to fight and prevent obesity in the population. Finally, decrease in fossil fuels emissions from transport and improved air quality can be observed as a result of reduced individual mobility (Moreno, 2019).

Critical services should be understood as the services which are most frequently used or which are the most difficult to access. Sometimes, critical services are also called core urban amenities (Pozoukidou, Chatziyiannaki, 2021). As conceived of by Moreno (et al., 2021), the critical services category includes living, working (not included in the present research), commerce, healthcare, education, and entertainment. This paper also includes an additional category – public transport stops.

There are four dimensions in which the 15-minute city concept can be operationalised. These are density, proximity, diversity, and digitisation (Moreno et al., 2021). A walkable city needs high density to gather more people and services within walking distance. Each sector of a city needs to encompass as much of a variety of facilities as possible to remove the need to travel long distances between monofunctional districts. Pedestrian access is crucial, as it improves the effectiveness of the mobility pattern at the core of the concept (Dovey, Pafka, 2020). The present research only takes into account the aspect of proximity.

Sufficient access to critical services results in better life quality, which is understood as a subjective perception of the surrounding environment. It reflects the level of fulfilment of individuals' or groups' needs or the level of dissatisfaction with life (Beck, Stave, 2011). It also refers to the satisfaction of a particular person with their surroundings in terms of both the social aspect and the quality of physical space (Mulligan et al., 2004).

Moreno's concept is growing in popularity and has been used in a plethora of municipal policies, such as the 20-minute neighbourhoods in Melbourne

(Thornton et al., 2022) and ‘quarter-hour Paris’ (Fr. *Ville de quart d’heure*) (Bocca, 2021). Both cities try to implement the FMC guidelines in order to improve citizens’ health and quality of life.

The FMC concept is not the only proposal for the improvement of life quality in the urban environment. Popularity of the Happy City (Montgomery, 2013) has been growing recently in the academic and mainstream discourse. It focuses on multiple improvements in various aspects of urban living, including localness and mobility. A similar concept is the Soft City (Sim, 2020), whose main postulate is densifying the city with access to greenery and essential services. Both these concepts, as well as the FMC, strongly underline that walking or cycling should be the prioritised mobility pattern and that services should be located at a short distance.

The biggest difficulties in incorporating the concept are elements of the space called barriers or edges (Lynch, 1960). Their main characteristics are visual prominence, continuous form, and difficulty in crossing them. The most common edges are rivers and other kinds of blue infrastructure, arteries inaccessible to pedestrians.

3. Methodology

Based on the analysis of the perception of distance among citizens of Warsaw (Analiza percepcji..., 2019), a list of critical services as indicated by the respondents has been created (Table 1).

Table 1. Categories and types of critical services taken into account in the research

Category	Types
Healthcare	pharmacy, basic healthcare, specialist healthcare
Green Infrastructure	small green area, big green area, very big green area
Education	kindergarten, school
Retail and Commercial Services	small grocery store, market, post office, food service establishments
Sports and Recreation	small sports venue, big sports venue
Culture	library, local activity centre, community centre, seniors’ club
Public Transportation	bus, tram, train, or metro stop

Source: Own elaboration based on Analiza percepcji..., 2019

The data from the analysis mentioned above has also been used to assign weight to each type of service according to its importance to the respondents. Afterwards, the distance from each residential building in the city to each type

of critical service has been calculated using the road network outline, on the basis of which a score has been assigned to each item. Finally, average scores have been assigned to the buildings divided into a grid of cells measuring 100×100 m each. After assessing the accessibility of critical services in each cell, differences between certain parts of the city have been observed and physical barriers have been identified.

4. Discussion

The average score of each grid cell containing at least one residential building in Warsaw (Fig. 1) varies between individual parts of Warsaw. Certain areas have gained some of the best scores possible, while others have turned out to offer rather poor access to critical services. These disparities are due to multiple aspects of different nature, such as the spatial planning system in Poland, both today and in the past, as well as development density and the history of a given area.

The areas of Warsaw with best access to critical services have been identified in the central parts of the city and along major arterial roads (Puławska Street towards Piaseczno, Krakowska Avenue towards Raszyn, north of Połczyńska Street towards Ożarów Mazowiecki, Radzymińska Street towards Marki). Among the districts best equipped with services are also housing estates built in the late 1920s and early 1930s (Żoliborz, Bielany, Ochota, Stary Mokotów, Praga-Południe, Praga-Północ) and areas with residential blocks from the 1970s (Ursynów, Tarchomin, Bemowo).

Conversely, the areas with poor access to critical services are located in the suburbs. Among the most excluded are Białoleka, Zawady, Siekierki, the area near Puławska Street, the environs of Cmentarz Północny [Northern Cemetery], Wawer near the Vistula River, Aleksandrów. These are mostly remote areas typically dominated by single-family housing.

5. Barriers

The term ‘walkability’ (Bradshaw, 1993) refers to how well-suited a part of a city is to pedestrian traffic as well as to what may hinder or encourage travelling by foot. There are multiple factors that can influence the behaviour of pedestrians, such as topography, connectivity, pavement width or surface, etc. (Ruiz-Padillo et al., 2022). However, built environment and infrastructure are only a few of the barriers present in a city; put up for reasons connected to information, security, or personal biases, they strongly affect the mobility of elderly people in the cities and are the most difficult to overcome (Strohmeier, 2016). Warsaw, too, is an example of a city with multiple physical barriers limiting walkability in the context of the FMC concept.

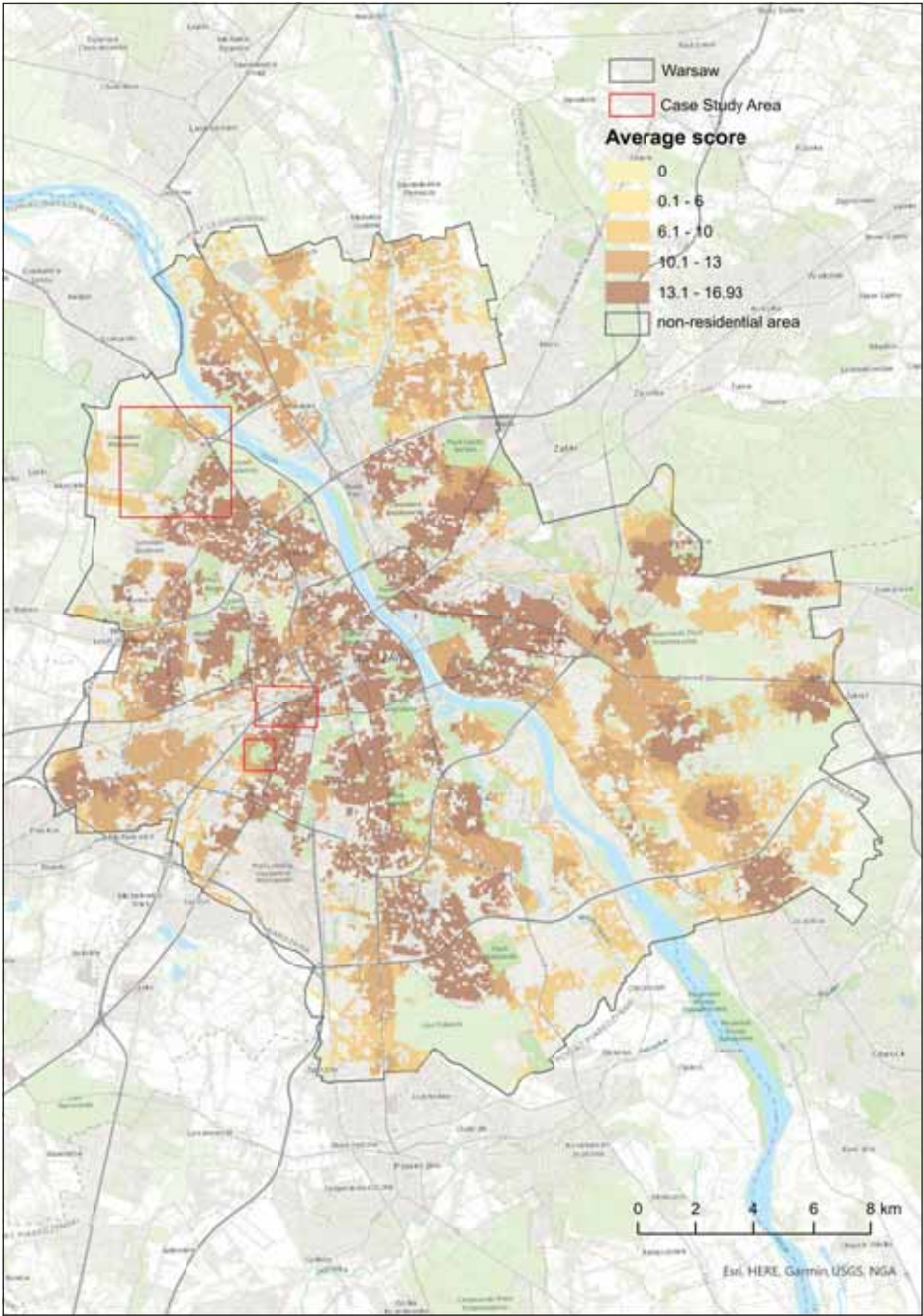


Figure 1. Pedestrian accessibility to critical services in Warsaw, Poland

Source: Own elaboration based on OpenStreetMap, CEIDG, BDOT10k databases

Green areas, Ochota

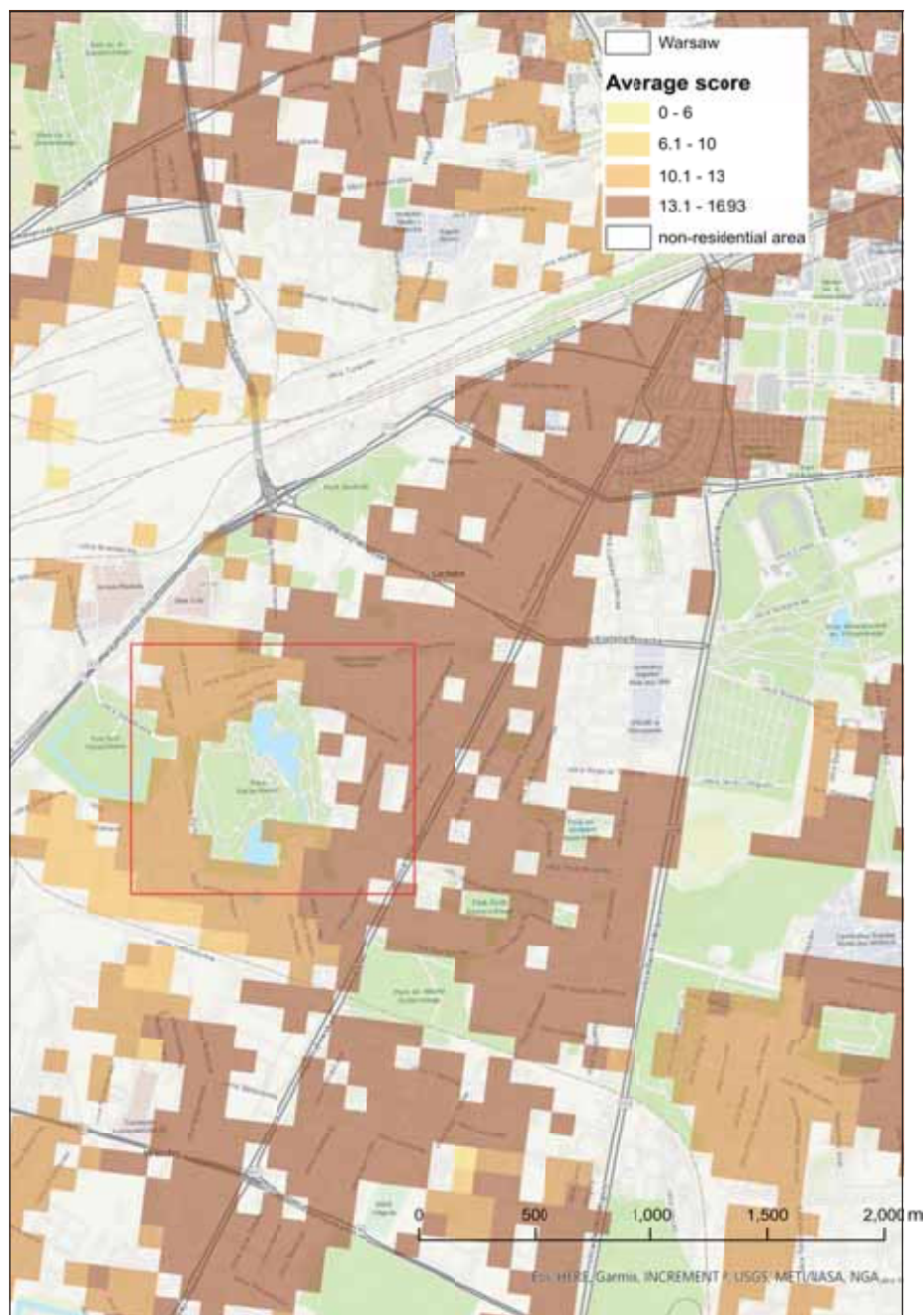


Figure 2. Pedestrian accessibility to critical services near Szczśliwicki Park in Ochota District, Warsaw, Poland

Source: Own elaboration based on OpenStreetMap, CEIDG, BDOT10k databases

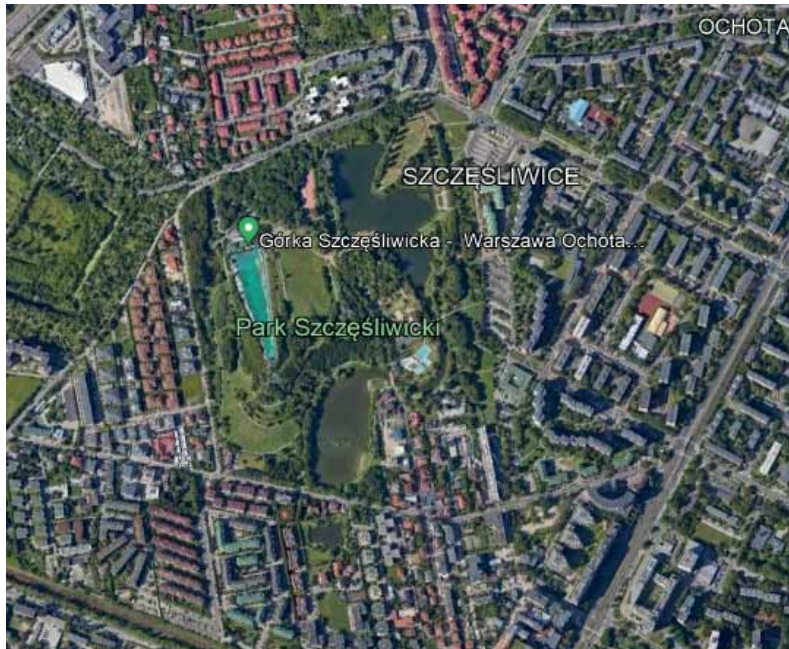


Figure 3. Area of Szczęśliwicki Park in Ochota District, Warsaw, Poland

Source: Google Earth



Figure 4. Szczęśliwicki Park

Source: Author

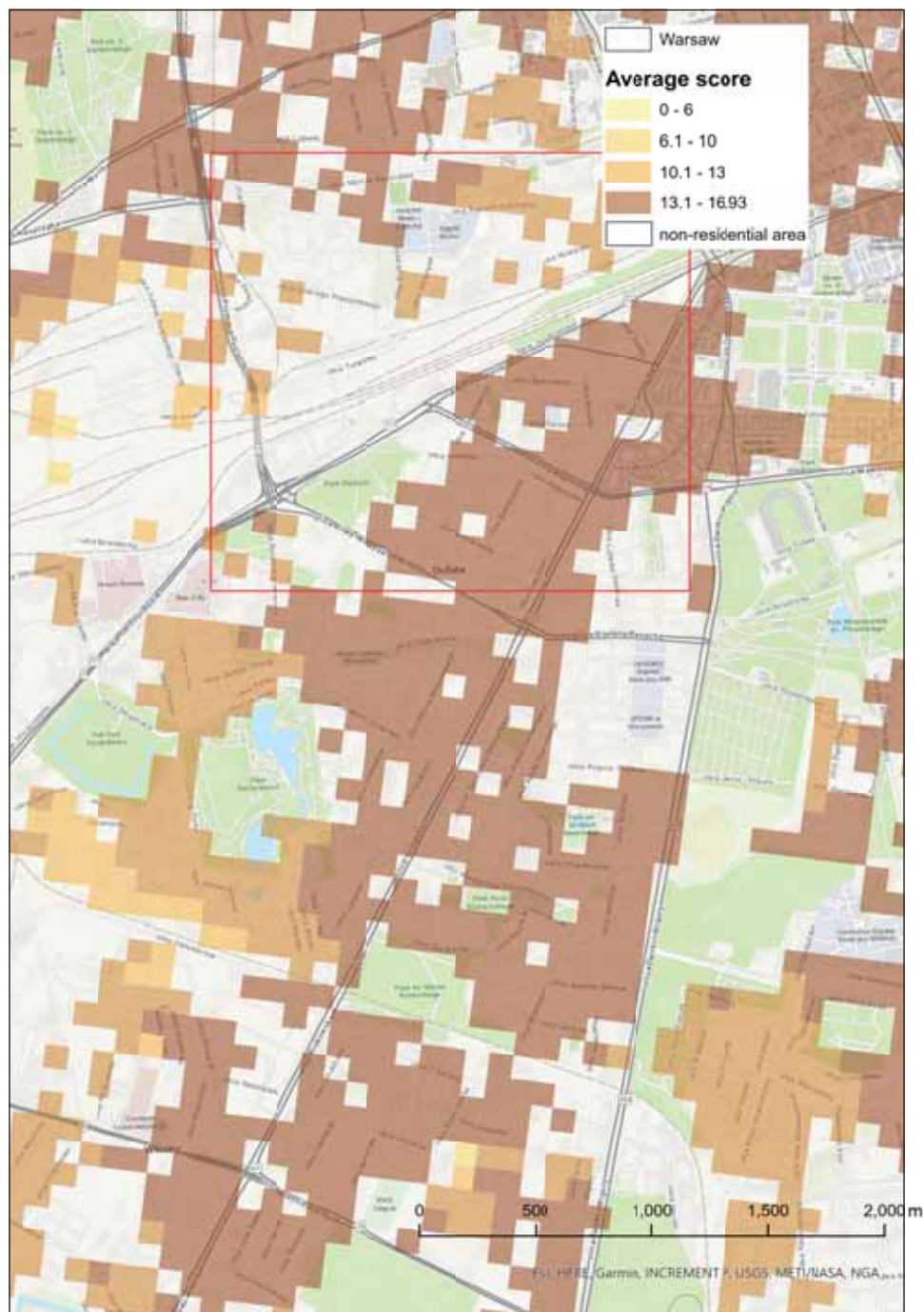


Figure 5. Pedestrian accessibility to critical services near the Warszawa Zachodnia Train Station in Ochota District, Warsaw, Poland

Source: Own elaboration based on OpenStreetMap, CEIDG, BDOT10k databases

Green areas are critical services in themselves, but considering that they are often extensive areas with scarce lighting and pavements, not sufficiently adapted to the needs of people with disabilities and closed during the night, they can also be seen as significant barriers for pedestrians. One of the examples can be the Szczęśliwicki Park in the Ochota District in the western part of Warsaw. Most services are located east of the park, so residents living to its west need to pass through to reach them. Szczęśliwicki Park also contains blue infrastructure, which constitutes an additional barrier. The solution to this issue might be to locate additional services west of the park, as the green area itself, apart from being a critical service, has a great value for the local ecosystem.

Communication infrastructure, Ochota



Figure 6. Area near the Warszawa Zachodnia Train Station in Ochota and Wola Districts, Warsaw, Poland

Source: Google Earth

Another barrier that can be observed in the Ochota District is the large transit area dominated by frequently used railway tracks. The lack of possible passage under or above the tracks makes it practically impossible to cross the area, and citizens living north of the tracks need to use the services north of their homes, even if the actual distance to the same type of facilities in the

south is shorter. Adding tunnels or footbridges may increase accessibility, but such an investment would require considerable financial resources and might not be a convenient solution for people with disabilities.



Figure 7. Railway tracks near the Warszawa Zachodnia Train Station

Source: Personal archive

Industrial areas, Młociny

The last barrier analysed in the present study is located in the north of Warsaw, close to the Młociny metro station. The northern part of the Bielany District is one of the areas with best access to critical services in the city. The north-western section of Bielany is occupied by an active steelworks whose premises may only be entered by authorised staff. Therefore, local residents living north of the industrial area need to go around it to reach critical services concentrated around the metro station, south of the steelworks. The barrier represented in this example is definitely the most difficult to overcome, as the group of people living in the northern area of Bielany is rather small, and opening additional services in that area may not be financially viable, while changing the designated use of land on the parcel housing the steelworks would require for many actors to reach a consensus.

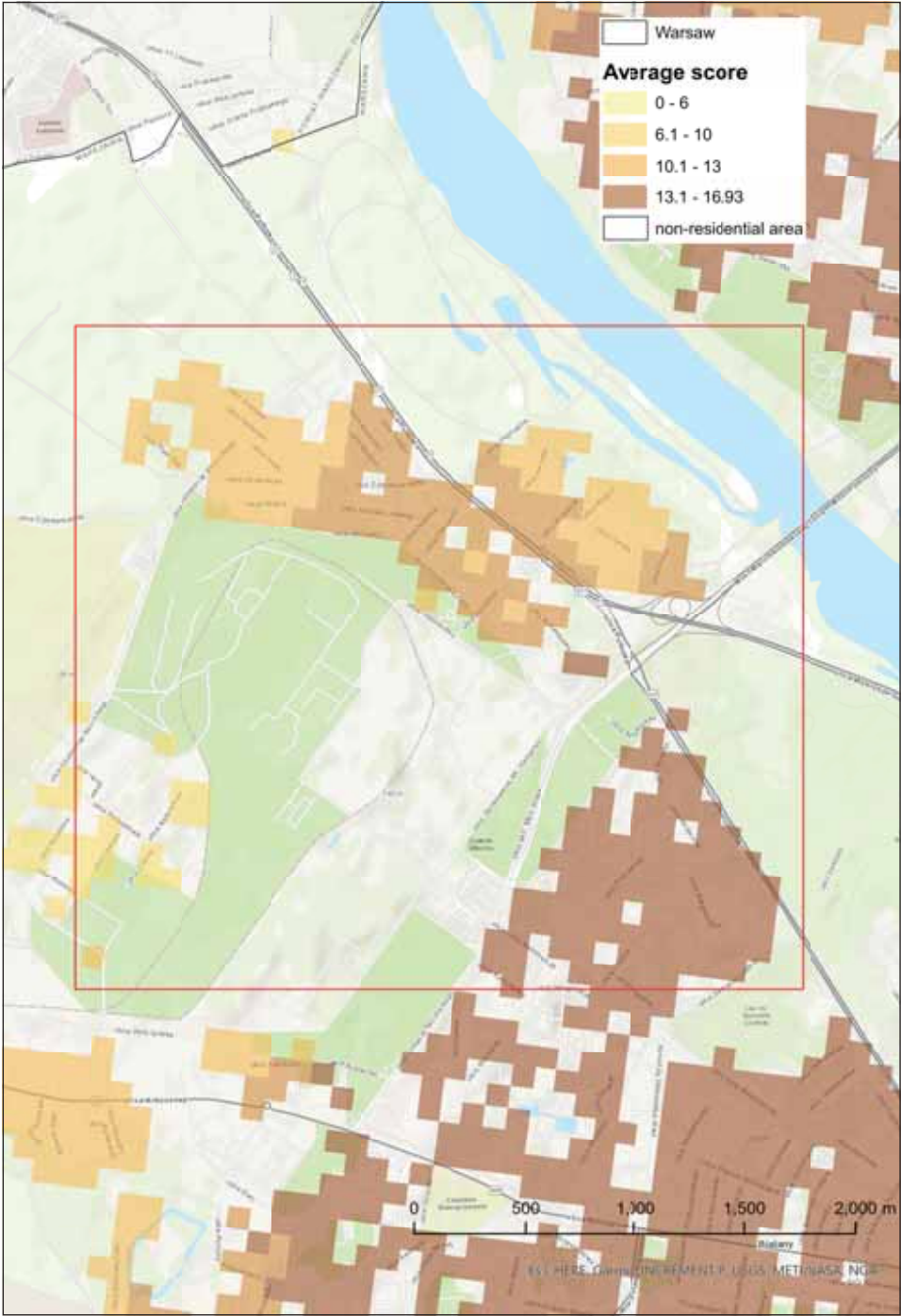


Figure 8. Pedestrian accessibility of critical services in Młociny, Warsaw, Poland

Source: Own elaboration based on OpenStreetMap, CEIDG, BDOT10k databases

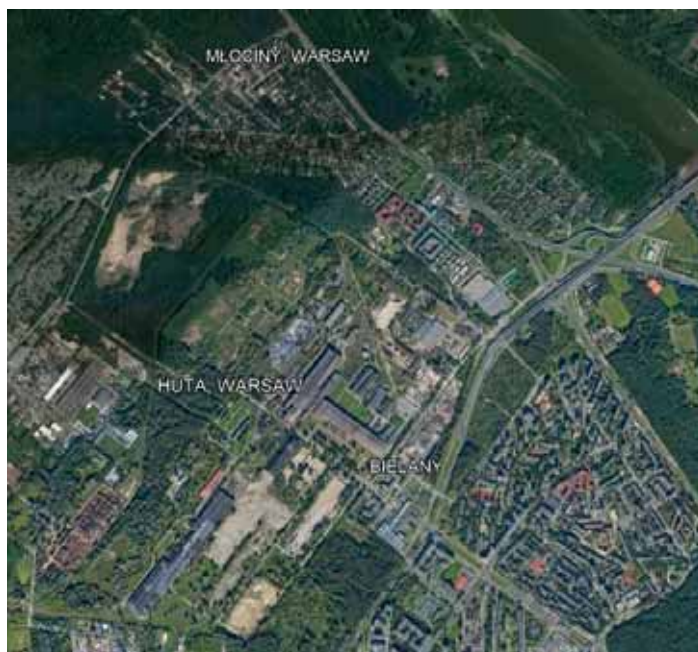


Figure 9. Area of Huta Warszawa [Warsaw Steelworks] in Młociny, Warsaw, Poland

Source: Google Earth



Figure 10. Fence of former Huta Warszawa [Warsaw Steelworks] with a “No Trespassing” sign

Source: Personal archive

6. Conclusions

After taking a close look at the above three examples of barriers in Warsaw, one may notice that they have one thing in common. They are all huge monofunctional spaces which are not accessible to all residents of the city. Some of those barriers can be easily eliminated by installing additional lanterns or improving the quality of pavements, but others would require tremendous changes in order to make them safe, easy, and pleasant for pedestrians to pass. It is therefore recommended to focus on creating multifunctional spaces to take full advantage of the 15-minute city concept.

Moreover, monofunctional areas are not beneficial in both the Soft City (Sim, 2020) and the Happy City (Montgomery, 2013) concepts. Barriers considerably hamper the accessibility of services, which in turn lowers the residents' quality of life by forcing them to spend more time travelling from their domiciles to commercial areas. Edges also threaten social relations between neighbours, as they encourage people to travel by car instead of walking and interacting with each other.

Putting more interest in creating streets with a varied range of services available to all citizens improves public safety (Bielinskas et al., 2014) and reduces the risk of sexual harassment (Miranda, van Nes, 2020), contrary to monofunctional and closed areas. Barriers in the city space also influence the sense of security among residents. However, it is crucial to bear in mind that green areas are in fact critical services, and their ecological value should not be sacrificed in the efforts to improve safety.

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ABSTRACT

Physical barriers constraining walkability in cities. Case study of Warsaw, Poland

Warsaw faces problems connected with suburbanisation, car traffic as well as physical barriers challenging the city's walkability. Numerous monofunctional spaces play a great role in Warsaw and are significant barriers to pedestrian access to critical services, an obstacle which the citizens face each day. This paper contains a spatial GIS analysis of accessibility to critical services such as health care, education, public transport, green infrastructure, sport, and recreation as well as culture from residential buildings in the capital of Poland in the context of Carlos Moreno's 15-minute city concept. The author indicates the main monofunctional areas in the city which are the leading physical barriers for pedestrians.

Keywords: 15-minute city, pedestrian accessibility, physical barriers, walkable city, critical services

FUNCTIONAL MIX ON A CITY SCALE. CASE STUDY OF WARSAW, POLAND

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1. What is functional mix?

The dissemination of modernist ideas in the domain of shaping urban space in the second half of the twentieth century had a strong impact on the functioning of cities. World War II forced the reconstruction of many urban centres or – as in the case of Warsaw – even rebuilding them from scratch. In addition, the postwar growth of the automotive industry largely increased the availability and popularity of cars as the main means of transport. Together with the development of new industries, these changes resulted in the functional segregation of urban space, which became the foundation for the modernist concepts implemented in urban planning (McCracken, 2010). However, the division of the city into functions also had a negative facet – endless investments in the development of car infrastructure, the disappearance of neighbourly ties, or the degradation of urban space. Already in the 1960s, critics pointed out that we should return to thinking about the city on a human scale (Hess et al., 1999). It was at that point that people began to talk about the departure from the division of urban space into monofunctional sectors in favour of spaces offering a mix of urban functions.

The functional mix of urban space is understood as the coexistence of various forms of space use in such a way that the user has as many different options as possible for taking advantage of the urban space at the shortest possible distance (Dovey, Pafka, 2017). The location of various functions allows the inhabitants of cities to travel less to perform various tasks, and thus reduces their need for everyday mobility, making the inhabitants independent of time-consuming and capital-intensive forms of movement (Boarnet, Sarmiento, 1998; Cervero, Duncan, 2006). Shortening the distance between “where we are” and “where we want to be” allows for more efficient use of the city and the creation of pedestrian neighbourhoods, which are more beneficial for the environment (Krizek, 2003; Stevenson et al., 2016). One of the first and most famous proponents of introducing functional mix into urban space was Jane Jacobs (1961), who distinguished between primary functions

that attracted people to a given neighbourhood and secondary functions that existed thanks to the traffic generated by the primary functions. However, in the literature there are also other classifications of functional mix, ones which show more precisely how we can categorise the ways in which urban space is used.

2. Methods of testing functional mix

Le Corbusier divided urban space into three domains: Living – understood as the area where people reside; Working – the area of performing necessary duties; Leisure – the area where all additional needs are met (Le Corbusier, 1957). Van den Hoek, on the other hand, classified space according to a simpler criterion: into residential and non-residential zones (van den Hoek, 2009). Another conceptualisation is by Lee and Moudon, who list over 100 forms of space use in cities (Lee, Moudon, 2006). It is obvious that there are plenty of ways to describe the forms of using urban space, but it is crucial to generalise them in such a way as to clearly indicate the differences between them without excessive fragmentation of individual functions. However, when considering categorisations, the question immediately arises: Is it possible to measure the level of functional mix in a city and if so, how?

The literature indicates that there is no single way to determine the level of functional mix in urban space. Its measurement depends on the scale of each study and the quality of available data (Mitchell Hess et al., 2001; Moudon et al., 1997). Depending on the combination of these two factors, an appropriate method should be adopted, the use of which will render the most accurate presentation of the studied phenomenon. Dovey and Pafka (2017) identify five main approaches to studying functional mix: entropy, dissimilarity, destinations, proxies, mixed-use index. However, the authors indicate that all of these approaches are quite unique, because each is applied to functional mix but understood differently. In their opinion, the method of functional measurement must be case-specific and adapted to a specific study, so before choosing one, one should ask oneself: What exactly do you want to measure? In order to answer this question, we first need to go back to the two basics of functional mix research: the type of data analysed and the scale of the study.

The purpose of the present paper has been to study the degree to which functional mix is present throughout Warsaw. The scale of the study is very large, because functional mix concepts are most often tested for specific neighbourhoods or housing estates, very rarely on a district scale. Extending the scope to a whole city is quite complicated. The very idea of functional mix applies to very small areas, because we want as many functions as possible to be available within the smallest possible radius. Therefore, in order to present the phenomenon on a city scale while not losing sight of the core of the concept, Warsaw has been divided into a grid of cells measuring 100×100 metres.

Dividing the city into smaller units allows us to analyse the phenomenon within each cell, which makes it possible to keep true to the “local” nature of the concept. By dividing Warsaw into a grid, a total of 60,100 cells have been obtained, which, with the appropriate cartographic visualisation, allows for the local phenomenon to be presented on a large scale.

3. How to represent functional mix on the scale of the whole city?

In order to study the phenomenon of functional mix, the present paper uses a method inspired by Dovey and Pafka (2017). The researchers have devised the triangle of Live/Work/Visit (Fig. 1), which shows the three main functions of urban space; specific forms of urban space discussed in the study, visible in the diagram on the left, have been marked out on the triangle. It should be noted, however, that due to the nature of the data used in the research, some categories have been omitted or modified, which is described in more detail in the “Methodology” section. Depending on the specific nature of a given form of use, it has been assigned a specific place supposed to reflect its relationship to each of the three functions: Live, Work, Visit. For example, the “hotel” function is categorised as “Live”, but due to the concomitant high dependence on the “Visit” category, it is located close to the centre of the diagram.

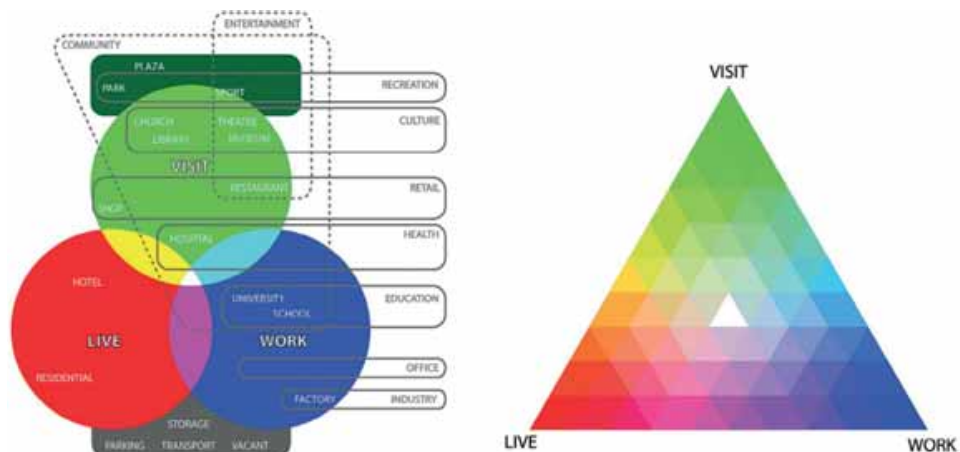


Figure 1. Live/Work/Visit functional mix triangle

Source: Dovey, Pafka, 2017

By mapping out data on the above graphs, it is possible to appropriately divide the functions of urban space use while showing the impact of the function depending on the form of use. The division into the three functions reflects the reason for the use of a given space by humans, thanks to which we can examine to what extent a given function dominates a specific area in the

city and thus forces the users to travel to meet other needs. In addition to the ratio of forms of space use to functions, one should also pay attention to the differences in terms of generating mobility by specific functions. One grocery store is visited by more people per day than a house or an office, which means that one store brings a given area closer to being dominated by one function more than one house. The authors have assumed a mobility generation ratio of 1:2:5 for the categories of “Live”, “Work”, and “Visit”, respectively. This means that, according to the researchers, forms of use belonging to the “Live” function generate two times less mobility as the ones in the “Work” function and five times less than those in the “Visit” function. All these variables should be taken into account when calculating the value of functional mix in a given area. However, before presenting the calculation method used specifically for this study, it is necessary to focus on the data on which the research was based, as these also had a key impact on the method.

Most studies dealing with functional mix use the measure of the surface covered by buildings performing a specific function, thanks to which we can more easily compare specific areas (March et al., 2012). However, this approach can only be used if such data is available, which is most often when analysing functional mix on a local scale, e.g. a neighbourhood or housing estate. In the case of a study created for the whole city, we do not have the spatial data that allows us to make such comparisons. In order to take into account all forms of land use indicated in Figure 1, the present research uses CEIDG data from 2019 (Central Registration and Information on Business, 2019), which includes information on the location of specific business activities. After appropriate qualitative processing of these data and their adaptation to the needs of spatial analysis, a total of 349,091 objects located in Warsaw has been obtained, and each point has been marked out on the grid according to its location. The CEIDG data, however, do not contain information on the number of inhabitants. These data have been obtained from the Warsaw City Hall, with the sources providing the number of people living in each of the 100×100 metre cells of the grid (Warsaw City Hall, 2019). As a result, each cell has been assigned a specific number of inhabitants and a specific number of points broken down by forms of space use. Having gained knowledge on what material is available for analysis, it has been possible to answer the question: What exactly do you want to measure?

4. Methodology

Taking into account the quality of the available data and the spatial scale of the study, it has been concluded that the obtained data would have to be properly generalised. Several hundred thousand points assigned to tens of thousands of cells is too much information to analyse on a city scale. In addition, it should be remembered that, by definition, the study of functional mix is actually

a comparison of categories and description of their coexistence in a specific area. Taking these factors into account, the main axis of the study has been to address the question: Which function of the functional mix dominates a given area and to what extent? The answer will show whether monofunctional areas can be distinguished in Warsaw and whether Warsaw is functionally mixed on the scale of the entire city. In order to achieve this goal, an appropriate method has been developed to investigate the issue.

In order to compare the examined cells, it has been necessary to create a method that would allow us to obtain one value representing the level of the functional mix in the area. Working on the assumption that we want to answer two questions: which category dominates over the other ones and to what extent, it has been decided that the final value would reflect the extent to which a particular category prevails in a given area. To give an example: when analysing a specific cell on the grid, we want to check which of the three functions: “Live”, “Work”, or “Visit” is overrepresented there and to what extent this overrepresentation dominates other categories. To obtain such a value for each of the analysed cells, a comprehensive method described below has been developed.

The first step was to create categorisations for each function, as they all have their own characteristics. We know, for example, that two schools located within a perimeter of 1 ha have a greater impact on the functioning of that area than two people who live there permanently. We also know that on a city scale, one person may live in one area, and several hundred people in another. Therefore, it was necessary to develop classes reflecting how objects of a given function are represented in one area. After assigning points to the cells on the grid, information has been obtained on the minimum and maximum number of data, which has allowed for the creation of a five-level classification. The values have been divided using the natural division method (Jenks method), which allows for the greatest internal homogeneity of classes while maximising the variance between them. In this way, four classes have been obtained for each function alongside one “zero” class which represents the absence of a specific function in the researched area. The higher the class, the more prominently the function is represented in a given area. In the case of some functions, “zero” also reappears in other classes, which means that this function is so scarcely represented in the studied area that its occurrence itself is unique, therefore it is represented in further classes. Table 1 shows the classes obtained in this way.

As can be seen in the table below, the number of objects located in individual areas varies quite significantly depending on the function. Still, thanks to the appropriate classification, it is possible to observe how much a given category stands out in a given area in comparison to other examined cells. However, Figure 1 demonstrates that each category relates differently to specific functions, while the functions generate mobility in different ways. Therefore, the obtained classes had to be adjusted to the previous assumptions formulated on the basis of literature review. For this reason, the second step

Table 1. Functional mix categories broken down into classes

Category	Class 0	Class I	Class II	Class III	Class IV
Residential	0	1–92	93–303	304–709	710+
Rental	0	1	2	3–4	5+
Hotel	0	1	2	3	4+
Library	0	0	0	1	2+
Church	0	0	0	0	1+
Culture	0	0	1	2–4	4+
Shop	0	1	2–3	4–15	16+
Restaurant	0	1	2–4	5–16	17+
Park	0	0	0	0	1
Recreation	0	0	1	2–4	5+
School	0	0	1	2–4	5+
Health Service	0	0	1	2	3+
University	0	0	0	1	2+
Industry	0	0	1–2	3–6	7+
Warehouse	0	0	1	2–5	6+
Office	0	0	1	2–4	5+

Source: Own study

in the study has been to multiply each category by two factors: the mobility generator multiplier and the references to specific functions in relation to the obtained classes. Table 2 below shows the individual values by which the functions were multiplied. In the case of the mobility generator, the operation is simple – one value of this indicator is assigned to each function. When it comes to referring to specific functions, however, the matter becomes more complicated, because we have to multiply each category three times: once for each function. Thanks to this, we will obtain information on how much a specific category affects the share of the indicated function in the functional mix. The multipliers representing the attachment to a specific function have been adjusted primarily on the basis of the Dovey and Pafka triangle showing the relation of categories to functions, as presented in Figure 1, and on the author's interpretation. As part of this calculation, there were 6 points to be distributed according to a given function. For example, for the category of "Residents", the function "Live" received a multiplier of 5, the function "Visit" a multiplier of 1, and "Work" – the value 0. This is justified by the fact that residential areas, as a form of land use, mainly generate traffic of people living within them, but the study recognises that they may also generate traffic of

Table 2. Multiplier values for individual categories

Category	Mobility generator multiplier	Multiplier by “L” function	Multiplier by “V” function	Multiplier by “W” function
Residential	1	5	1	0
Rental	1	4	2	0
Hotel	1	3	2	1
Library	5	0	5	1
Church	5	1	5	0
Culture	5	0	4	2
Shop	5	0	4	2
Restaurant	5	0	4	2
Park	5	0	6	0
Recreation	5	0	5	1
School	2	1	1	4
Health Service	2	1	3	2
University	2	1	1	4
Industry	2	0	0	6
Warehouse	2	0	1	5
Office	2	0	1	5

Source: Own study

people “visiting” the area as part of their free time. Conversely, it has been concluded that the mobility generated by residential areas among non-residents coming from the outside in the context of work (e.g. nannies or domestic help) is not significant enough to be included in the overall calculation. Such valuation, although based on secondary sources on the issue, is quite subjective, but it has nonetheless allowed us to relate individual categories to functions.

By multiplying each category by the mobility generator and the function multiplier, we get a specific value which reflects how much the category affects functional mix in a specific area. However, the categories themselves are not the point of reference for the entire mix in the study – these are in fact functions. Therefore, the obtained values should be used to create an indicator for each function, showing how much a given function dominates in a specific area. This is the third step of this method – namely, the arithmetic mean for each function is calculated from the value obtained after multiplication. For example, to arrive at the value for the “Visit” function, we sum up the multiplied values of all categories and then divide by 8, i.e. the number of categories that make up the function. Given below is the formula for obtaining the

function index, where X =indicator value, c =category class, m =mobility multiplier, $L/V/W$ =Live/Visit/Work function multiplier, y =categories assigned to a specific function.

$$X = \frac{\sum_y ((c \times m \times L) + (c \times m \times V) + (c \times m \times W))}{y_n}$$

Using this formula, we get three indicators showing the strength of each function in the given area. As mentioned earlier, the aim of the study is to answer the question: Which function of the functional mix dominates the indicated area and to what extent? We already know which function is the strongest, what remains is to answer the second part of the question. To this end, a simple operation is carried out for each of the areas: given the three function pointer values, we choose the one with the highest value and subtract the other two from it. For example, if a particular area has a “Live” index of 10, a “Visit” index of 25, and a “Work” index of 5, the minuend of that region is the value of the “Visit” index. It should be emphasised that it is only possible to obtain a viable result when the indicator value is negative. This occurs when the other two ratios together exceed the value of the largest of the three ratios. However, in this study, cells with such a value account for only 0.57% of all developed areas on the grid.

By using the above method, we find out how much the dominant function outweighs other functions. However, in order to compare the results at the scale of the entire city, it is necessary to properly arrange these differences in relation to each other. Therefore, the method of natural division has been used again, where four classes have been established for each function, reflecting the level of dominance of a given function. The maps below show the collective results of the study, as well as the results for individual classes. Classes determine how strongly a particular function dominates a given area. A higher-class level means that a specific function has a stronger impact on the functional mix of a given area.

5. Overview of Warsaw's functional mix

The map in Figure 2 clearly shows that there are areas in Warsaw that are not built-up. Of the 60,100 cells on the grid making up the map, with an area of 1 ha each, 21,381 cells are developed areas, which is 35.6% of the entire analysed territory. As you can see on the map, the empty spots include undeveloped green areas such as the Kabacki Forest or the Vistula River, the areas of the Okęcie and Bemowo airports, as well as the railway premises in Żerań and in the vicinity of the Warszawa Wschodnia and Warszawa Zachodnia train stations. These areas, therefore, cannot be defined as undeveloped, but due to their characteristics, they are not taken into account in this study.

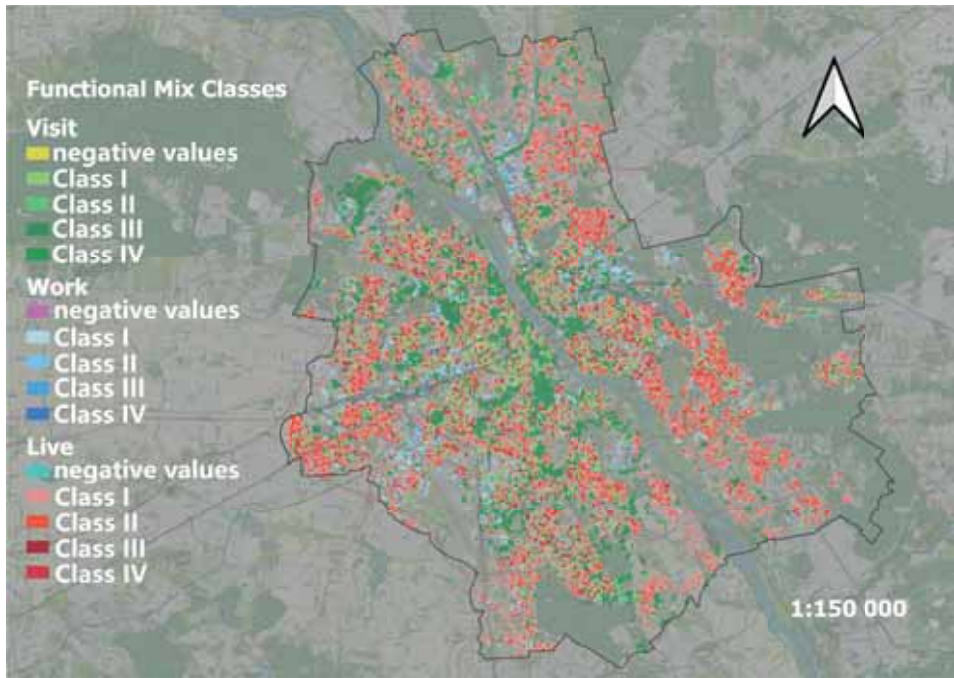


Figure 2. Map of the functional mix in Warsaw

Source: Own study

A closer look at the marked areas, on the other hand, reveals certain accumulations of specific functions. What first catches the eye is the prominence of the “Visit” function in the central area of the city, especially Class IV. These are usually organised green areas, i.e. city parks, forests under the management of municipal authorities, or outdoor recreation areas. They are quite dominant in the urban space, especially in the central parts of the city. On the one hand, this is testament to good accessibility of natural areas, a factor extremely valuable for the inhabitants, but on the other, it in a way contradicts the paradigm of building density, especially in downtown areas. Depending on the development policy of the city authorities, the assessment of such a state of affairs may vary, but it is worth paying attention to the effectiveness of the created tool, which allows us to quite easily notice the accumulation of a specific function in one area.

At the same time, it is worth paying attention to the construction of aeration corridors in the city: especially to the north-east of the Okęcie airport, in the Ursus district in the west, and in the districts of Targówek and Białołęka in the north-east. In these areas, new housing projects have been developed in recent years, often in places that were intended to remain empty in order to provide air circulation in the city. On the map, we can see a fairly large accumulation of the “Live” function in those areas, which is proof of the

increasingly intensive development in these places. The frequent occurrence of “Live” functions may also suggest that services are not keeping up with the construction of new housing estates. In the context of the same function, it is also worth paying attention to the old districts of Warsaw, located closer to the centre: Mokotów, Wola, Żoliborz, Praga-Południe, and Praga-Północ. In these districts, one can see a greater patchwork of colours, meaning less accumulation of specific functions in one area. The old urban fabric, adapted to the functioning of the city over the course of many years, enables the coexistence of various functions, which positively affects the quality of life in these districts.

The last thing to pay attention to is the accumulation of sites performing the “Work” function in the areas of the city which are peripheral but located close to railway lines. These are places such as the neighbourhood of Żerań, or the vicinity of the Warszawa Wschodnia and Warszawa Zachodnia railway stations. This may be due to the nature of these areas: they are often occupied by old factories and warehouses. However, the accumulation of the “Work” function sites in such areas shows that today, while they are quite mono-functional and often dilapidated, they in fact have quite a lot of potential for revitalisation and the introduction of new functions. Moving away from the study as a whole, it is now worth focusing on individual classes.

Class I of the functional mix accounts for as much as 47.19% of all developed grid cells. This is good news, because it means that almost half of the analysed urban space is characterised by a high level of functional mix, which means that it is user-friendly. What is particularly worth pointing out is the “Work” function – in relation to the other functions, it has a small share in Class I; however, within this function itself, Class I constitutes 67.5% of the entire function without division into classes. This means that areas where work has the strongest impact on the functional mix often also include services and residential areas, which in theory should reduce the need of city users to travel. However, it is important to remember that work is a unique function in that it usually requires people to leave the area in which they reside to perform it, so the spatial distribution of workplaces is more important in this context than mixing with places of residence. Consequently, when analysing the former, a certain regularity can be noticed in Class I. Within the range of the city’s central districts, one sees a mix of the “Visit” and “Live” functions, while the farther we move towards the periphery, the more we see larger clusters of red representing places of residence. This is particularly visible in the districts on the right side of the Vistula River. This fact may be explained by two factors in particular. The first is the historical function of the broadly understood city centre as the node of the most important transport networks, which is why large shopping malls, attractions, and entertainment sites are located there and encourage people to visit this part of the city. Moving away from the city centre, the nature of space use changes – we have not only fewer services, but also fewer multi-family buildings. And this is the second important element – single-family housing takes up more space than blocks of flats, which means



Figure 3. Class I functional mix map

Source: Own study

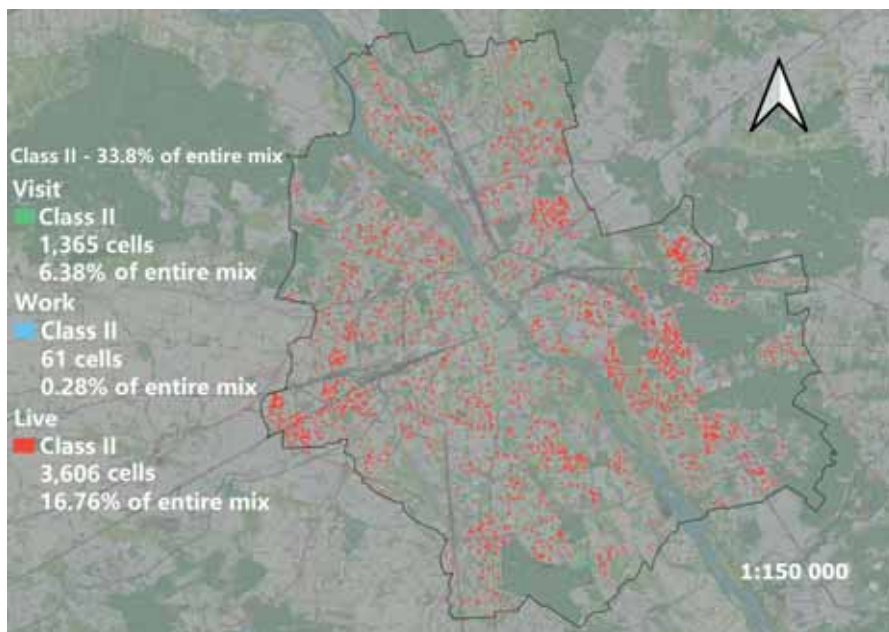


Figure 4. Class II functional mix map

Source: Own study

that in this particular study, where the data is assigned to a specific space, the physical possibility of introducing other types of development is limited.

When we look at Class II, we can notice a certain trend. Standing out again are areas dominated by the “Live” function, located on the outskirts of the city, in particular the districts of Ursus, Targówek, Wawer, and Rembertów. However, it should be remembered that we are talking here about a class that already reflects greater dominance of a given function in space. Looking at Class I earlier and now at Class II, the dominance of the residential function on the outskirts of the city in terms of spatial range becomes quite clear, which may suggest inadequate space management in those areas. An important note to bear in mind is that the scarcity of sites associated with the “Visit” and “Work” function, which are particularly poorly represented in Class II, forces inhabitants of the periphery to travel around the city. With inadequately organised public transport, this quite easily leads to increased car traffic, which results in congestion having a very negative effect on the functioning of the city and the quality of life of its inhabitants. Classes I and II in total account for over 70% of the entire developed space analysed in this study. On the one hand, this means that urban space is largely not dominated by specific functions. However, if we pay attention to the spatial distribution of the described functions, we can indicate specific areas of the city in which the “Live” function in particular has a disproportionately large share.

Class III constitutes almost 25% of the developed areas, but it is impossible not to notice the fact that the “Visit” function comprises over 20% of this class. The reason for this is visible at first glance. Class III includes, to a large extent, well-maintained green areas, a large part of which is located on the left bank of the Vistula River. And although we are talking about Class III here, i.e. a class with a large dominance of a certain function in the mix, it is hard to describe it as a negative phenomenon in the case of greenery. However, bearing in mind the maps showing the distribution of Classes I and II, it is worth noting that we do not see many areas of maintained greenery in places where the residential function is dominant. Of course, it is important to remember that areas devoid of maintained greenery are very often located in the vicinity of natural green spaces: forests or wetlands. However, the appropriate conclusion is not that there should never be any top-down initiatives to arrange new forms of greenery or recreation. Highly maintained green areas often seem to be friendlier to use, which may encourage residents to take advantage of them more often. As for Class IV, it is worth paying attention to the locations of the most dominated areas. Despite a large spread across Warsaw and a relatively small cohesion, areas dominated by the “Visit” function within this class are fairly densely accumulated in the centre. It should be remembered that we are talking here about the highest level of one function dominance, so the fact that such areas exist in close proximity to each other proves that they are highly monofunctional. An interesting aspect is also the function of “Work”. Although in Class IV it is difficult to distinguish specific places where this

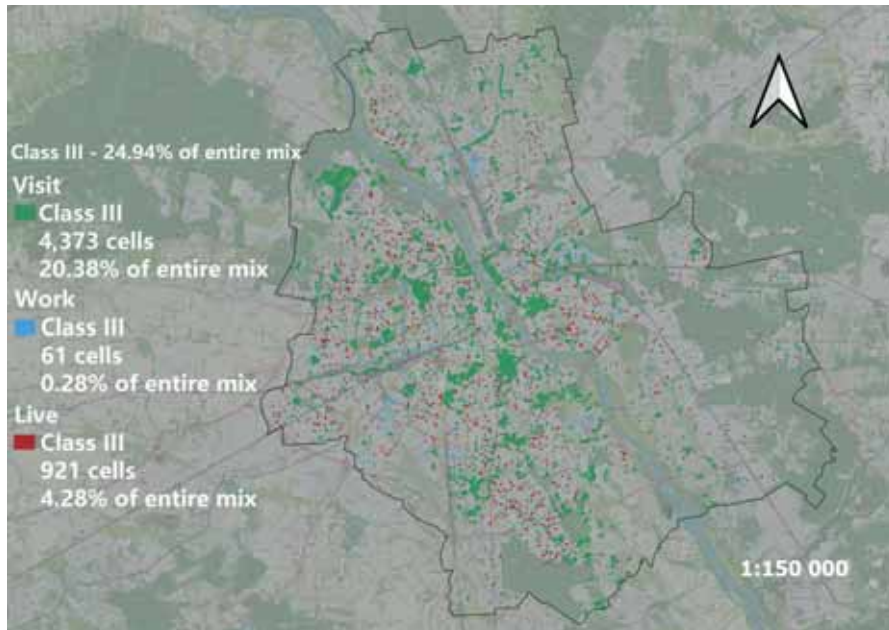


Figure 5. Class III functional mix map

Source: Own study



Figure 6. Class IV functional mix map

Source: Own study

function would be concentrated, the 353 cells occupied by this function in this class constitute almost 28% of the entire function, which shows quite a large variation within it.

6. Conclusion

Studying functional mix at a city scale is an extremely intricate task. Bearing in mind the fact that the phenomenon is most often researched at the scale of individual plots, housing estates or, at most, districts, it has been necessary to reject certain assumptions that are usually made in similar analyses. One should be aware that the study of functional mix in the whole city will not yield an answer to the question of how we should change the urban space to make it more mixed. However, an attempt to track the phenomenon on a large scale allows us to look at the problem differently. The question we wished to answer was: Which function of the mix dominates the indicated area and to what extent? And answer it we have. In each analysed cell, it has been possible to indicate a specific dominant function and show how much it affects the coexistence of other functions. However, on the scale of the entire city, a single area is only one component of a more complex problem. The broad perspective leads us to ask more specific questions. Why are the peripheries so dominated by housing? Why are there so few services in the areas of new housing estates? Why does work so rarely dominate as a function at a city scale? The map often reflects phenomena that we perceive in the social space of the city, but we find it difficult to back this intuition up with numerical data and represent them cartographically. Thanks to the city-scale analysis, we can see not only how important green areas are, but also how well-developed the housing sector is in peripheral districts. Using the example of Warsaw, one can see the intermingling of sectors and stakeholders on many levels. It is crucial to involve city dwellers in activities organised by municipal bodies. Just as important is giving them the opportunity to engage in grassroots activities, react to the actions of the authorities, and exercise their freedom of expression. By combining bottom-up and official activities, horizontal and vertical interpersonal ties can be strengthened.

Another conclusion drawn from the study is the evaluation of the method used. Of course, the quality of the data is not perfect, but they have nevertheless allowed us to create a map that objectively coincides with the empirically known reality. However, the greatest strength of the created method is a kind of “data recycling”. When interpreted at the scale of an individual plot, data used in the research of functional mix would be too general and thus useless. After all, the outline of a grocery store may span across two grid cells with an area of 1 ha, and if one point is assigned to only one area, the shop will be classified accordingly. However, thanks to the appropriate generalisation of data and their adjustment for comparison, it has been possible to obtain

results that have brought us to many interesting and important conclusions. Looking at the issue of functional mix on a large scale makes it possible to indicate the processes taking place in a specific space. Thanks to this, we are able to identify areas requiring more thorough research of functional mix on a smaller scale – district or neighbourhood. Hopefully, the above study will become an inspiration for further work aimed at improving the quality of urban space and the quality of life of city dwellers.

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ABSTRACT

Functional mix on a city scale. Case study of Warsaw, Poland

Functional mix is one of the foundations of creating a city that is friendly to residents. Mixing functions allows to reduce the distances necessary to meet various needs in the city. Due to its specificity, functional mix is analysed in the literature mainly at the scale of districts or neighbourhoods. However, according to the author, examining functional mix at the scale of the entire city may show the studied phenomenon in a new light. The following article presents a new method of studying functional mix based on the use of spatial data. The results show that it is possible to create a functional mix map showing the intensity and spatial structure of the studied phenomenon at a city scale. Thanks to this, it is possible, among other things, to identify problem areas that require thorough analysis.

Keywords: functional mix, Warsaw, walkability, big data, spatial management

“WELCOME TO THE PARK!” – MANAGEMENT AND PROMOTION OF URBAN GREEN SPACES THROUGH THE LENS OF LOCAL GOVERNMENT SOCIAL MEDIA

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1. Introduction

In urban areas, the presence of accessible green spaces is an important factor contributing to the quality of life (Bertram, Rehdanz, 2015). As the global level of urbanisation is increasing, with 74% of Europeans living in urban areas (United Nations, 2018), visiting urban or suburban greenery is, for many people, the easiest and sometimes the only opportunity to come in direct contact with nature. In this paper, we explore how local authorities mediate the people–nature relations while communicating with a wide public.

The ecosystem service (ES) framework highlights the benefits of ecosystems for people. This includes services provided by urban ecosystems, and urban green spaces in particular. The ecosystem services provided by urban green spaces can be divided into two main groups: regulating and cultural (Veerkamp, 2021). Regulating ES are relatively well-recognised; already in 1999, Bolund and Hunhammar emphasised that urban green spaces (UGS) might be the most effective in counteracting urban environmental problems. Urban greenery mitigates urban heat island effects (Stewart, Oke, 2012), sequesters carbon (Strohbach et al., 2012), reduces noise (Koprowska et al., 2018), and intercepts water (Berland et al., 2017). Along with these important regulatory functions, urban green spaces provide cultural ecosystem services (CES) – nonmaterial benefits that arise from direct contact with nature (Chan et al., 2012). The great importance of the cultural ecosystem services provided

by urban green space is widely recognised (Dickinson, Hobbs, 2017), and the popularity of this conviction is growing together with the global rise of urbanisation. Combined with sociodemographic and cultural transformations, urbanisation puts increasing pressure on the stability of the relation between human and nature. Urban dwellers are increasingly separated from the natural environment (Balmford et al., 2009). This can not only negatively influence their health, but also result in the loss of ecological knowledge and awareness that may lead to the rise of environmental threats (Kareiva, 2008). Multiple health and psychological benefits are associated with being able to spend leisure time in a natural environment (Krzymowska-Kostrowicka, 1997; Abraham et al., 2010). Moreover, direct contact with nature offers numerous educational benefits and prevents loss of human–nature interactions, which is recognised as a major civilisational threat (Soga, Gaston, 2016). In this paper, we focus on two cultural services that are recognised as important benefits contributed by UGS: recreation and ecological education.

As the entities responsible for planning, management, and decision-making, local authorities play an important role in shaping the growing public awareness of the positive impact of ecosystem services on the quality of life of city residents (Lakes, Kim, 2012). Still, the mechanisms of how socio-political factors influence the CES flow are poorly recognised in comparison to biophysical functions of urban green spaces (Matthews et al., 2015). Understanding the role of governance in fostering supply and facilitating access to ES is considered an important step toward the operationalisation of the ES concept (Potschin-Young et al., 2018).

Engaging stakeholders in governance processes is widely recognised as a prerequisite of responsible, sustainable management (Ferreira et al., 2020; Rodríguez-Fernández et al., 2020). Urban green spaces form an attractive platform for mutual recognition and cooperation between local authorities and the citizens. The participatory approach in the management of urban greenery, to a large extent, guarantees that the decisions taken will meet the needs of stakeholders. Different spaces may be valued differently by various groups of people (Kronenberg, Hubacek, 2013); only when recognised can these values be addressed in planning and management practice. Networking between different green space users offers a diversity of experiences. Addressed as social-ecological memory, this diversity is considered a factor that enhances urban resilience (Colding, Barthel, 2013; Muñoz-Erickson et al., 2014). The main challenge for successful ES governance is to understand the capacity of different actors to support and co-produce ES flow, understood as delivering benefits from nature to humans (Bennett et al., 2021). As pointed out by Kronenberg et al. (2016), although involving a broad array of stakeholders in UGS governance is common in countries with long democratic traditions and a well-developed civil society, there are also many countries – including Poland – where green spaces are managed in a much more centralised manner. Even in such cases, communicating to a wide public is nowadays considered as a standard practice for any authority.

In the present day, social media are a major channel of online interactions. Local governments use them as an opportunity to address the citizens directly. This is not only practical for many management purposes, but also helps to enhance people's political and social activity. There is a vast amount of research proving that the use of social media by public authorities helps to improve communication, confidence in the government, and transfer of good practices (Bertot et al., 2012; Picazo-Vela et al., 2012). According to a study by Gellerstedt et al. (2020), citizen perception of quality of life in a given municipality is related to its image created in social media. Facebook is the preferred platform of communication of the local authorities with the citizens (Bellström et al., 2016; Haro-de-Rosario et al., 2018). In their analysis of Facebook practices in Western European municipalities, Bonsón et al. (2017) demonstrated that the audiences of official Facebook pages are rather extensive, but citizen engagement remains low. Activity and engagement of citizens are neither related to municipality characteristics nor to Facebook page metrics or the technological readiness of the population. According to the cited authors, running social media profiles is rather a decision of authorities than a consequence of citizen demand.

In this paper, we ask the following questions:

1. What types of public green spaces are presented by Facebook profiles of local authorities in a big European city and its environs?
2. Do (and how) local authorities' Facebook posts refer to cultural ecosystem services provided by urban green spaces?
3. What is the balance between highlighting natural and man-made elements of urban green spaces in Facebook communication?
4. Does the information on urban greenery provided on official Facebook profiles encourage citizens to interact with the authorities?

We aim to respond to these questions by exploring Facebook accounts of local governments of the Warsaw metropolitan zone.

2. Study area

The study area is located in central Poland and covers the city of Warsaw (18 boroughs) and 18 adjacent municipalities (1,539 km²) (Fig. 1). While the green areas within the urban core are widely recognised as vital 'green infrastructure' and are subject to growing interest in their functions, it is often disregarded that an urban area does not end at its administrative limits, but has much more blurred boundaries. Both from the ecological and social perspectives, cities and their environs form a joint system. Therefore, it is necessary to include in the analysis not only the main city but also its outer surroundings. Although it is widely recognised that ecosystem services change along the urban–peri-urban gradient, studies that focus on spatial changes of CES are scarce (Radford, James, 2013).



Figure 1. Study area

Source: Own elaboration

Warsaw is the biggest Polish metropolis. Boasting nearly two million inhabitants, it is located in the Great North European Plain, in the course of the Vistula River. Originally consisting of a variety of deciduous forests, the current land cover has been significantly changed by human activity. From densely built-up areas in the city centre, it gradually passes to settlements dispersed in a mosaic of agricultural land and forest. Publicly accessible green spaces (PGS) comprise 442 km² of the study area (27.7%), including 381 km² of forest and 12 km² of parks, along with 49 km² of other green areas, such as cemeteries or brownfields. In this study, we focus on parks and forests. These are the areas recognised as recreational by local authorities and the majority of inhabitants. They are also large enough to serve as sites of sport activities and offer a chance to break away from the urban buzz. According to Zick et al. (2009), the minimum area allowing people to relax and engage in active recreation is 2 ha. There are 330 parks or forests larger than 2 ha within the study area. They vary in size from 2.03 ha (small park between apartment buildings) to 7,150 ha (suburban forest), with an average area of 7.9 ha. Almost all UGS in the area are public lands. They are managed by various institutions. The special unit of the City Hall dedicated to urban green management is responsible for 32 parks and 95 smaller squares (mainly in the city centre – the majority are smaller than 2 ha and have not been included in this study). Other parks are managed directly by the local authorities. Forests are generally supervised by the State Forests administration. The special Urban

Forests unit is designated to manage forests in Warsaw. Some urban historical parks (e.g. Łazienki and Wilanów residences) are registered as museums and managed by the Ministry of Culture. The significant number of UGS in Warsaw, especially on the outskirts of the city, is subject to various forms of nature conservation. The Kampinoski National Park is located in the northern outskirts of Warsaw and covers UGS in Izabelin, Stare Babice, and Łomianki municipalities. Mazowiecki and Chojnowski Landscape Parks cover big forest areas east and south of Warsaw. Smaller natural reserves (also within the city boundaries, e.g. Las Bielański) and Natura 2000 areas (e.g. Vistula valley) complement the network of protected areas.

3. Data and methods

3.1. Data

We analysed the text content posted on the official Facebook profiles of the local governments of the boroughs of Warsaw and the adjacent municipalities (33 profiles in total). The posts published between 1 January and 31 December 2020 were manually searched for any mentions of nature. We looked for terms like: 'green', 'forest', 'park', 'nature', 'flowers', 'trees', etc. This query found 719 posts that were then subjected to further analysis.

3.2. Methods

The textual content of all the posts was copied to an Excel sheet and manually described. Five groups of information were considered. These were:

- **Basic spatial and temporal data.** We noted the source of the post and the date of its publication, and we checked if it referred to a particular UGS.
- **Type of communication.** We verified if the post was purely informational or rather aimed at encouraging an activity. Invitations to participate in public events, consultations, and any other forms of social engagements were identified.
- **Activity referenced.** We looked for mentions of activities recognised as the most important CES provided by the urban green spaces, recreation, and education. The category of 'sport' was distinguished due to its specific nature – its organised form and high level of physical involvement of the participants. Aesthetic experiences were not included in the study, as they referred primarily to the visual content that was not considered.
- **Natural versus cultural elements.** We identified how often natural elements that form urban greenery (plants, water, and animals) were referenced and compared this with the mentions of man-made elements (facilities and objects considered as part of the cultural heritage).
- **Engagement.** We checked the number of comments under and shares of each of the posts.

4. Results

4.1. Public green spaces – where and when?

Across all the analysed profiles, a total of 719 posts referring to UGS was found. Their number varied significantly, from just 1 in Ożarów Mazowiecki (municipality west of Warsaw) to 73 (Bielany, borough in the northern part of the city). As shown in Figure 2, the number of posts devoted to urban greenery was significantly smaller outside the city of Warsaw. The character and size of accessible UGS did not influence this pattern. Among the profiles where mentions of UGS were almost absent were both these belonging to the municipalities where UGS are scarce (e.g. Ożarów Mazowiecki – 1 post, Piasztów – 3 posts) and those in which UGS, primarily forests, cover extensive areas and are well-recognised as attractive recreational sites (e.g. Marki – 2 posts,

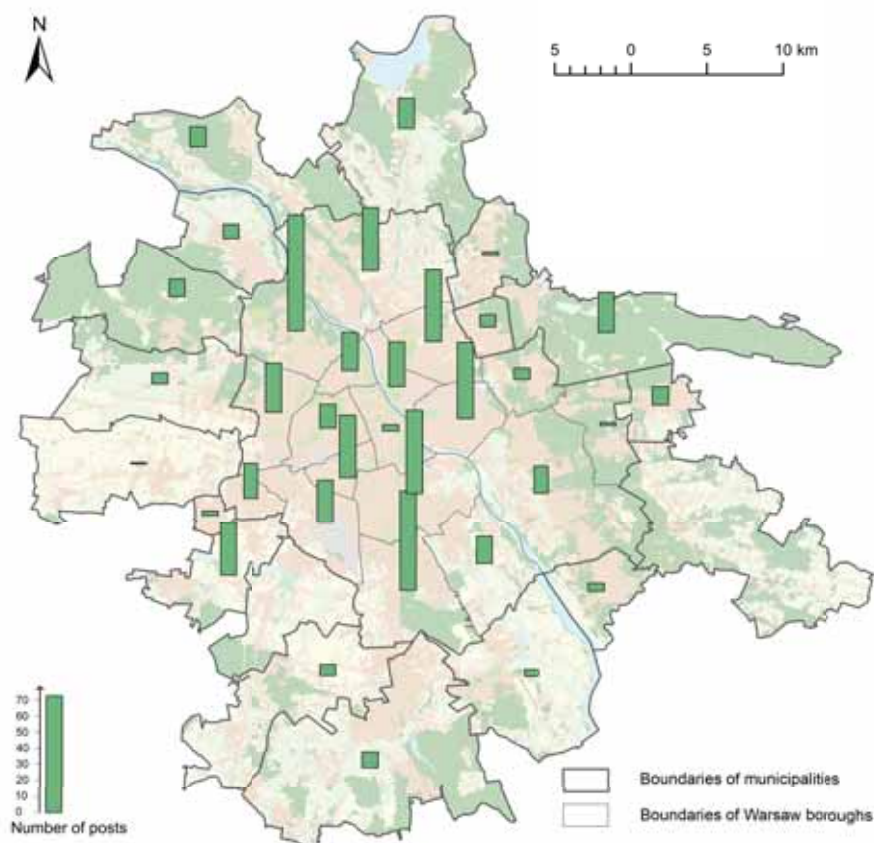


Figure 2. Number of Facebook posts referring to urban greenery on the profiles of local authorities in 2020

Source: Own elaboration

Konstancin-Jeziorna – 4 posts). Another group of profiles which rarely featured posts about UGS were those from the most central and densely built-up boroughs (Śródmieście and Wola – 4 and 14 posts, respectively).

The majority (88%) of the posts about UGS were published between April and December. Predictably, summer (July–September) was the period when the topic was especially popular. The highest number of posts concerning urban greenery appeared in September (115, 16% of the whole sample). As shown by Figure 3, the municipalities outside of Warsaw posted information about green areas more regularly than the city's boroughs. The differences were especially noticeable in winter.



Figure 3. The dynamics of posts referring to urban greenery on Facebook profiles of the local authorities in Warsaw and its environs in 2020

Source: Own elaboration

Across all the profiles, the majority of the UGS-related posts were general and did not refer to any specific UGS or referenced multiple (Fig. 4). Still, the content of 26 out of 33 of the profiles allowed us to identify the most often mentioned PGS.

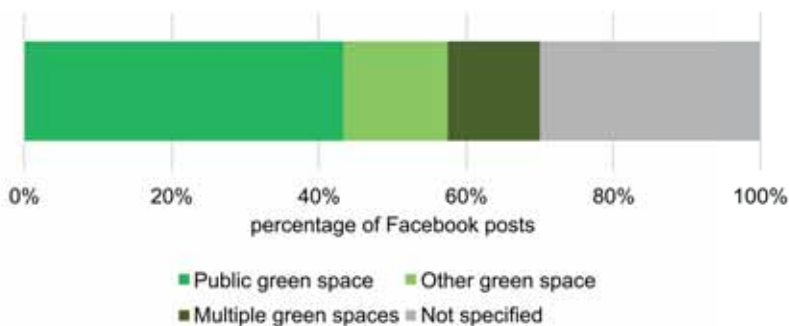


Figure 4. The percentage of posts on particular green spaces versus general ones (multiple or non-specified). Facebook profiles of the local authorities, Warsaw and its environs, 2020

Source: Own elaboration

We assume that these were the areas that for certain reasons were recognised by local authorities as important (Fig. 5). All the areas listed by their particular names are located in the administrative units whose authorities promote them on Facebook. There are different strategies of promoting PGS. In some cases (e.g. Łomianki, Michałowice, Ursynów), several different areas (up to 4) were mentioned with a similar frequency. More often, however, just one PGS within a particular administrative unit was regularly promoted on Facebook. Bródnowski Park in Targówek, a borough in north-eastern Warsaw, is a kind of “superstar”: posts dedicated to this park constitute almost half of all the posts referencing urban green published by the local authorities. While being one of the bigger PGS in the borough, Bródnowski Park is by no means the only one in the neighbourhood. In order to find the reasons for why it is preferentially treated by the authorities, we shall take a closer look at the content of the posts.

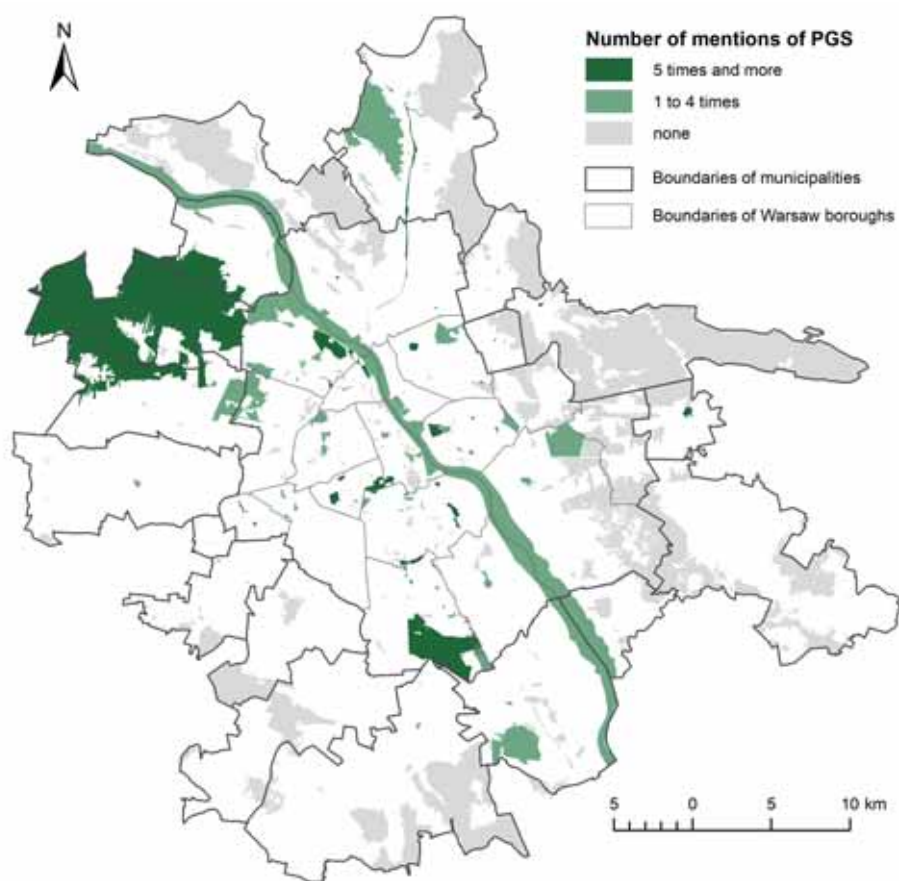


Figure 5. Public green spaces mentioned in the Facebook posts of local authorities. Warsaw and its environs, 2020

Source: Own elaboration

4.2. What is going on within PGS? – CES promoted

Although none of the posts referred to cultural ecosystem services per se, recreation was a frequent topic on the analysed Facebook profiles. In 2020, the first year of the pandemic, access to green areas was temporarily banned between 1 and 20 April. These restrictions coincided with the start of spring, a time when people in Poland tend to go outdoors and enjoy nature after a long winter. Consequently, the lack of access to green spaces was especially painful, and their reopening was eagerly anticipated. During this period, local authorities put a lot of effort in informing the citizens on the imposed regulations and tried to ease their bad moods. After lifting the ban, organised and non-organised forms of spending time outdoors were eagerly promoted. A total of 274 analysed posts focused on recreation and another 41 on sports events. As portrayed on the local authorities' Facebook profiles, recreation did not by any means boil down to simple enjoyment of nature, but rather consisted in using facilities that seem to be the core part of any UGS worth a mention on social media.

A far more important connection to nature itself seemed to be environmental education. Local authorities actively promoted educational activities and acted as their organisers. The initiatives were addressed to different age groups and included outdoor lessons, guided walks, competitions focused on environmental knowledge or promoting environmentally friendly attitudes. Altogether, 130 posts concerned environmental education.

4.3. Elements of PGS

Out of the natural elements which form part of a park or a forest, plants are the most visible. This is reflected by the frequency of posts that referred to them. The popular subjects were planting activities, sometimes with attendance of the public, and phenological changes; seasonal flowers, flowerbed arrangements, and colours of autumn leaves were commented on. In total, plants were the subject of 190 posts. Animals were far less popular (67 posts). In winter, instructions on proper feeding of wild birds appeared on many profiles. The only abiotic natural element that appears in the analysed communication is water. Natural and artificial waterbodies (44 posts) are important recreational areas (e.g. Michałowice or Łomianki municipalities). They were, however, not promoted as bathing areas; to the contrary, the local authorities informed on the risks and dangers linked to water. In total, natural elements of green spaces were the subject of 301 posts. This is almost equal to the 306 posts dedicated to man-made elements of green spaces. However, when we took a closer look at detailed categories, the most prominent element were facilities (260 posts). For local authorities, managing green spaces is a constant competition of constructing, renovating, and making green spaces user-friendly. They are proud of their new achievements and happy to share them with the

public. Some of the most frequently mentioned green areas were newly created spaces (EkoPark, Ursus; Zachodni Park, Ochota) or ones which had undergone thorough revitalisation (Olszyna Park, Bielany).

4.4. How are the citizens engaged?

Local authorities use Facebook profiles as a digital information board. The content is not aimed at generating interactions. For example, reports from past events and completed activities outnumbered invitations to the planned ones (187 versus 132). 66% of the published posts were commented on by the readers and 78% were shared. News on changes taking place in local green areas had the highest response rate. The only 4 posts with more than 100 comments were those on new investments and works carried out in green spaces. Similarly, 9 posts that were the most shared (more than 50 times each) informed of new infrastructure projects aimed at bringing people closer to nature. The authorities responded to as little as 16% of the comments.

5. Discussion and conclusions

The results of the study confirm that local authorities are aware of the importance of urban greenery for recreation and environmental education. The analysed sample covered 2020, a very unique year due to the COVID-19 pandemic outbreak. Nevertheless, apart from announcements on formal closure of public green spaces in April 2020, the year seemed fairly usual when viewed through the lens of the local authorities' Facebook pages. It was namely a year of renovations, new initiatives, and public events. Through their Facebook profiles, local authorities promote their own actions in the field of management of green areas. However, rather than emphasising the value of urban greenery and benefits provided by nature, the social media communication focuses on planning, infrastructure changes, and organised events. Although some infrastructure (e.g. new benches or revitalised ponds) may support CES provision, this cannot be taken for granted. For example, a new modern playground might attract more visitors, but the noise generated by children using the facility might undermine the serenity of the place or even scare away birds and other animals. Similarly, concerts or sporting events may be enjoyed for purely cultural reasons, totally independent of the natural values of their venue. Taking into account the diversity of cultural approaches to nature in general and to urban greenery in particular, it is not surprising that the actions taken by the authorities are eagerly commented on by the public. Nevertheless, the former are reluctant to discuss their work and visions. The main function of their Facebook profiles is providing information and self-promotion. However, such a passive form of promotion has dubious effectiveness. Still, the official profiles analysed in this paper are just a few of the many channels connecting

the authorities and the citizens. Mayors and councilmen may be far more responsive on their individual profiles, which provide a platform for more direct interaction with the city residents.

Consequently, the green areas most frequently referenced on the analysed Facebook profiles are those managed by the local authorities. Although semi-rural municipalities surrounding Warsaw encompass large forest areas (including protected areas well-known for their cultural values), they do not have a large number of maintained public green spaces. As forests are not managed by the local government, they are rarely featured on the analysed Facebook profiles. The same applies to historical gardens that function as museums, the zoo, and botanical gardens – although very popular among citizens, these kinds of green spaces are almost completely absent from the analysed sample. On the other hand, many smaller areas are promoted. The reactions to information posted about such areas show that they are important to the local population and frequently used for many purposes. Still, one may ask if these activities are somehow connected to nature or rather take advantage of access to public space in general. To answer this question, a detailed content analysis of the Facebook profiles would be necessary.

To conclude, the Facebook profiles of local authorities provide information on which green spaces are their management goals but do not offer a comprehensive image of how cultural ecosystem services are formed and delivered in UGS. As the plans and, especially, actions taken by local governments are important drivers of CES formation and provision, such data should be included in CES assessments and combined with information on the preferences and behaviours of the people frequenting parks and forests.

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ABSTRACT

"Welcome to the park!" – Management and promotion of urban green spaces through the lens of local government social media

In this paper, we ask if the cultural ecosystem services provided by urban and suburban green spaces are noticed and managed by local governments. We respond to this question by analysing the content of the official Facebook profiles run by the local authorities of the Warsaw metropolitan zone. The number of posts focused on urban greenery was significantly smaller outside the city of Warsaw. Although none of the posts referred to cultural ecosystem services as such, recreation was a frequent topic. Local authorities actively promote environmental education and are aware of the importance of urban greenery in supporting the non-material needs of the citizens. However, they are reluctant to discuss their work and ideas. The main function of their Facebook profiles is to provide information and promote their own work. Green spaces that fall under the responsibility of local governments are subject to construction, renovation, and making green spaces user-friendly.

Keywords: urban green, cultural ecosystem services, social media, communication, management

DEVELOPMENT OF CITIES, THE RIGHT TO THE CITY, AND GOVERNANCE, AS EXEMPLIFIED BY VILLAVICENCIO, COLOMBIA

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1. Introduction

The cities of today tend to have a lens-like quality in that they focus all contemporary problems, be they political, policy-related, social, public, economic, environmental, or cultural. It is, then, any resolution of these problems through the appropriate use of administrative solutions (hopefully good governance) and the management of urban(ised) space that determines the directions development takes and the progress it makes. Given that more and more of the world's people reside in urban areas, we must acknowledge that governance can influence trends regarding population growth, processes of development, new technology, and the policy and politics pursued in a given city.

A core question thus arises as to how local authorities ought to manage their cities – and all the more so when we recall the diversity of priorities and needs among inhabitants, differing so very markedly in terms of income, labour, family, and cultural characteristics. Each would like to inhabit a space that matches their needs and expectations. Yet, the basic assumption that the urban environment ought to be an inhabitant-friendly place in which the space is a milieu for both life and work actually represents a huge challenge for those who must decide about the futures of cities and the programmes within and for them that are to be introduced and pursued (Mariño Becerra et al., 2020). For some inhabitants, what determines the quality of a city as a living space (or space for life) is the number of parks or theatres, or places of R&R, while for others it is more crucial that there be access to public transport of adequate quality, as well as a sense of security/safety and cleanliness.

There can be no doubt that none of these elements (or many others) are unimportant when it comes to assessing a city's "quality" and (hence) its capacity to meet the needs of inhabitants.

Currently the subject of a very popular and developing discussion in the Latin American literature, the concept of the 'right to the city' reflects a need for places to be built in the context of the wider space. For it is in places that people can spend time, develop, and draw up their life projects, making full

use of the rights they enjoy. This is the context in which it becomes important to build cities that favour social inclusion, ensuring full openness and effective exercise of rights in various conditions and circumstances. Also of core importance here is the responsibility, accountability, and answerability of city authorities for managing and leading activities undertaken in pursuit of the above goals – basically speaking, then, governance in and of the city which will favour social inclusion (Mariño Becerra et al., 2020).

This article seeks to answer the question of how far the modernisation of the decision-making process and governance in Villavicencio, Colombia, has been improving living conditions for inhabitants.

2. Governance – a new approach to the role of the community in a city's development

Governance is defined as a new form of public administration arising out of the search for equilibrium between public authorities, civil society, the private sector, and the government, with a view to the regulatory process and intervention from the authorities being simplified, even as decision-making by other entities in society and the economy operating in an urbanised area is made easier (Cerillo, 2005; Campos et al., 2012). Governance is thus a new style of management characterised by a greater degree of cooperation and interaction between the state and non-state entities within the framework of a mixed public/private decision-making network (Moyado, 2015).

The administration of a city is a multi-task process, participating in which are both local authorities and organisations who pursue defined goals postulated by inhabitants. Legal regulations laying down the means and tools applicable in the process are subject to change and associated with both a country's political system and the level of development of its civil society. Podgórnjak-Krzykacz (2016, p. 21) emphasises that “instruments used in governance must be adjusted to local issues and possibilities as regards funding, organisation, and human resources”. Forms of managing or administering a city based on the instruments and methods previously used in business enterprises made their appearance in the 1970s, though South America saw their introduction later, at the beginning of the twenty-first century. To this day, cities differ greatly in the intensity and degree to which this kind of method is used in organising, unblocking, and streamlining the functional and spatial structure.

Reform of public administration has been pursued above all in Colombia, that country now being particularly keen to bring in new solutions that have been contributing to far-reaching change in the functioning of administration and the effectiveness of implementing large infrastructural projects, including in the public sector. The best-known examples (which have since become subject of extensive discussion in the academic circles) naturally involve Medellín, as well as Bogotá (Biczyńska, 2020; Czerny, 2014). In each case,

the transformations in Colombia fall within the category and trend that is public governance. In this article, it is the city of Villavicencio in particular that is looked to in order to shed a light on the relationship between quality of governance and improved conditions for the functioning of housing estates, analysed in reference to the example provided.

It is worth noting how close the link is between generalised governance on the one hand and decision-making on the other. Previously, the focus was on an enterprise being managed and led in a manner maximising economic efficiency; however, the shift from the economy into political and administrative sciences has involved a move over to the search for and encouragement of more inclusive and jointly-responsible governance of public affairs that contrasts markedly with the traditional, more imposed, top-down, and bureaucratic model. This ensures a heuristic and open concept in terms of both interpretation and application (Campos et al., 2012).

It is possible to discern two basic models of public governance, i.e. the market-related and the modernising (Podgórnjak-Krzykacz, 2016, p. 22). The market model entails the generation of conditions for competition that go on to affect the markets for public services, sometimes denoting privatisation. The opportunity then arises for public services to be provided and rendered by private entities, or those out in the community. A model of this kind has been implemented in Colombia. Public services are supplied by private firms, even as the state – through the implementation and pursuit of solidarity policy – covers some of the costs borne in respect of the supply of services to the poorest sectors (Czerny, 2014). The countries of South America do incorporate public participation in a process of making co-decisions on directions of development, but as of yet, this practice is by no means well-grounded, so the second, modernising model has not yet been implemented. The latter is based around the modernisation of public administration through the application of selected governance and management solutions, not least a result-based orientation, and the aforesaid public participation (Podgórnjak-Krzykacz, 2016, p. 22).

One of the key tasks for public administration sees planning combined with strategic management. This involves longer-term planning of a city's development, with account taken of resources and surrounding conditions in which the community functions (Podgórnjak-Krzykacz, 2016, p. 23). It does not always emerge as successful or effective in developing countries. It is therefore much more common for us to see a system of governance introduced, with a core part of this being the sharing of responsibility. The body of literature here is a rich one, with R.A.W. Rhodes going far in invoking some kind of a self-organising and inter-organisational network (Rhodes, 1997, p. 53, as cited in Podgórnjak-Krzykacz, 2016, p. 25). Its features might comprise:

- organisations dependent on one another, and thus being taken account of as entities from outside the public sector, with there being a breaking-down of the barriers separating the public, private, and societal spheres;

- constant interactions between participants in the system or network, given the need for resources to be exchanged and objectives negotiated;
- interactions that bear some resemblance to game-playing, given a basis in trust as well as respect for the rules that are negotiated and agreed on by participants;
- a high degree of independence from the state that arises out of the fact that the networks are not answerable in that direction, while the latter does not assume a position of authority over the former, even as it may engage in indirect steering.

A city is understood here as a networked system or set of elements (irrespective of whether these are streets or squares, or elements of transport infrastructure like bus or railway stations, or areas of commercial premises, or buildings with cultural significance). This is to say that they constitute space subject to mass use in which gradual “appropriation” by people takes place. It is this that enables movement and encounters between people, who organise every part of the city and confer significance upon it. It is, then, the physical sphere in which collective expression is possible, even as social and cultural diversity makes its presence felt. In other words, public space is simultaneously the main space in which urban planning is pursued and urban culture and civic activity and pride are made manifest. There is thus a physical, symbolic, and political aspect to this space (Borja, Muxi, 2000, p. 8).

Governance operates on the assumption that collective (public) problems will only be solved where there is cooperation between different actors and stakeholders (including authorities and public administration, citizens, enterprises, NGOs, and the media). Consequently, partnerships and networks are forged in the form of formal and informal linkages between public and non-public institutions, which come to constitute the framework in which the decision-making and management processes take place. However, relations of this kind are built on mutual trust between the main players, resorting to mediation and arbitration if necessary, and with the implementation of self-regulation (John, 2001, p. 45, as cited in Podgórnjak-Krzykacz, 2016, p. 25).

As governance-based research makes use of the term ‘inclusive city’, there is a need to take account of what this inclusivity means – a lack of discrimination, of isolation, and of segregation. At the very least, an inclusive city should guarantee a reduction in poverty, gender equality on the labour market and in public life, equal access to the opportunities the city offers (irrespective of factors like ethnicity or age), promoted employment opportunities, individual freedom, and equal access to labour for people with disabilities (González et al., 2015).

Mariño Becerra, Rodríguez Buitrago, and Uribe Mariño distinguish between three main determinants of governance of the inclusive city, i.e. territory (or space), local authorities, and public participation (Mariño Becerra et al., 2020).

Territory is a determining element where city governance is concerned, including factors associated with the pursuit of strategies seeking the introduction of inclusivity. Its significance lies in the linking-up of aspects important

in the construction of scenarios for the lives of inhabitants. Territory is “the environment lived in, and community or public activity and thought associated with the processes by which identity is built” (Tizón, 1995, as cited in Murillo, 2007, p. 37). Territory is viewed as a limited and exceptional space used by people, owing to people, and for people. In this way, it is a space of integration of both individuals and groups in society (Mariño Becerra et al., 2020, p. 1352). Territory is also defined as part of geographical space appropriated by a group in society with a view to reproduction being assured and core life needs met (Capel, 2016, p. 8). Such a definition also implies that, in assessing the way in which citizens-inhabitants conceive of territory, account needs to be taken of variables defining the life needs of the human being – like a place to live, access to public services, transport, security/safety, and access to places of rest and recreation.

Through appropriate management and governance of a city, use is made of the capacity of a given society or group to adeptly cope with the challenges (and seize the opportunities) that it might be confronted with at any given time (Torres, 2013, p. 20). Government – as the accountable party, leader in defining public policies, and shaper of functions and means of managing territory – ought to guarantee inclusion of all inhabitants into decision-making *vis-à-vis* their city’s directions of development.

City governance favouring social inclusion ought to determine local development strategies that allow for dignity of lifestyle, not forcing citizens into constant migrations in search of better living conditions and empowering them to cope with potential problems linked to hunger, housing, and unemployment (Mariño Becerra et al., 2020). Indeed, it should be quite the opposite – people should be making use of the existing opportunities, diversity, and wealth gathered together in a city to generate further wealth, employment, and general wellbeing. In this scenario, livelihood strategies gain the support of local authorities (Czerny, Cordova, 2014).

Finally, we come to public participation as the third main element to effective governance. The existence of a civil society, but also multifaceted participation of representatives of business, the public sector, and local authorities in the discussions held by different groups in the community and in neighbourhoods – these are all key pillars of governance. Hernández (2018) identifies three main principles to effective democratic governance. The first of these entails proximity, which is to say that the administration can and does gather information from inhabitants regarding their demands, interests, and needs, in this way obtaining material necessary to generate development plans in line with the needs of citizens. The second principle is transparency of governance, whereby government assures (should assure) that all entities/actors operating within the city are provided with space in which they may acquaint themselves with plans that have been made ready. The last principle is public participation, whose core function is to found a permanent, cooperation-based

dialogue between authorities and citizens, with a view to both legitimising the actions of the administration and achieving effectiveness where public activity is concerned (Hernández, 2018, p. 148).

3. The socio-spatial structure of the city of Villavicencio

The city of Villavicencio, serving as the capital of the Colombian Department of Meta, had more than 500,000 inhabitants as of 2022, representing more than 66% of Meta's entire population. However, the urbanised zone present here also extends to settlement in adjacent municipalities; as a result, the total local population now exceeds 1.2 million (DANE, 2023). Urban built-up areas extend from the foot of the Eastern Andes in the direction of the plains of the Llanos. The city reaches the banks of the Guatiquía in the north and the Ocoa in the south (Fig. 1). Indeed, while at the beginning of the twenty-first century, these natural features and barriers delimited the built-up area rather distinctly, the mass influxes of migrants in the 2010s saw the construction sprawl beyond the rivers on to the lowland, which features islands of residential development in a wetland area that still retains bodies of water and marshes. Expansion has in fact taken place to the north-east, south, and south-west (Cortés Acuña, Castañeda-Pérez, 2020). Urban sprawl is the most characteristic feature of the contemporary development of large Colombian cities, Villavicencio included.

What is typical for the spatial and social development of Colombia's cities is a high degree of social fragmentation and spatial polarisation. Villavicencio nevertheless stands out in that its development has proceeded rather differently than in the case of the cities founded by the Spanish in the colonial era. For in truth, the place that now plays host to the city was back then just a collection of homes of settlers from the Andes, with an urban centre as such only coming into being in the nineteenth century, once Colombia had already achieved its independence. The founding took place on the right bank of the Gramalote stream, owing to the families of merchants E. Aguirre and Santos Reina. It was only in the twentieth century that its commercial and transport-hub functions developed. Indeed, the prevailing function of Villavicencio as a centre of commerce and services rendered along the road connecting the densely-populated Andes with the Llanos Orientales provided grounds for rapid growth from 1959 onwards, with the founding of the Department of Meta as a territorial administration unit and the appointment of Villavicencio as its capital (<http://historico.villavicencio.gov.co/MiMunicipio/Paginas/Pasado,-Presente-y-Futuro.aspx>). Similarly, it was not until 2003 that a very abrupt increase in population was first noted here, as the city began to attract investments in industry (first in the field of agriculture and food production, and then also in mining), tourism, and trade. The development was stimulated by its inclusion in the policy of combatting armed groups in Colombia

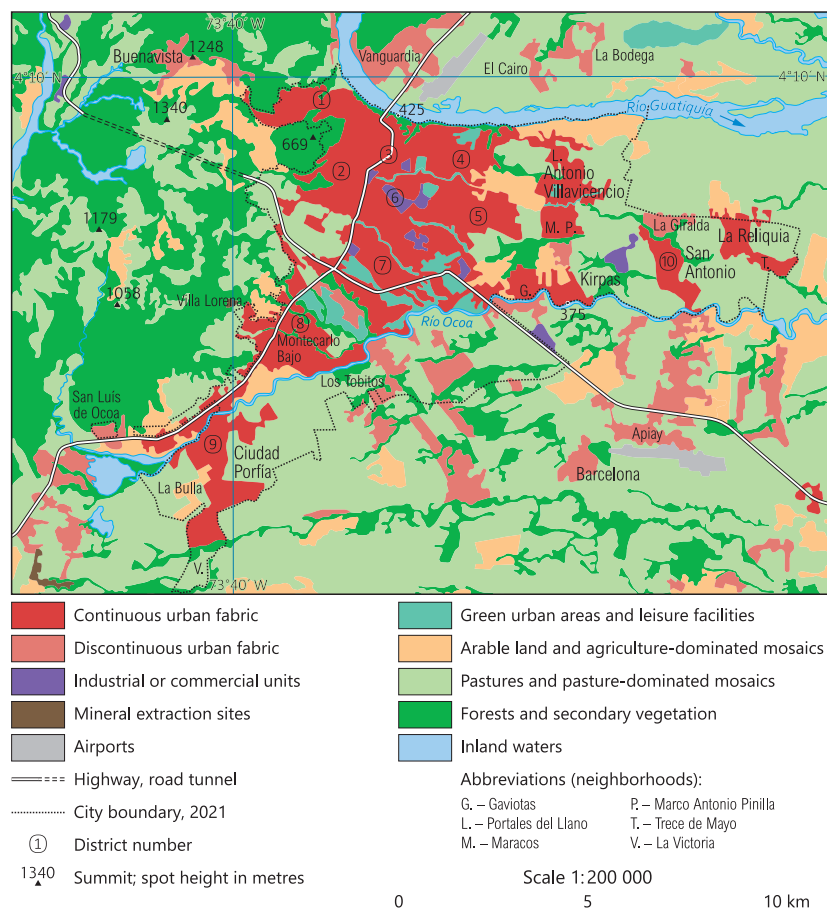


Figure 1. A Polish version of this map was published in *Prace i Studia Geograficzne*, 2023, in the article by M. Czerny entitled “Rozwój miasta w warunkach dominacji nieformalnej zabudowy mieszkaniowej”

Author: A. Czerny

(the so-called *Política de Seguridad Democrática*), which began under the presidency of Álvaro Uribe Vélez (2002–2010) and led to an increase in the rate of construction and expansion of the built-up area, both formal and informal. That spatial model of a dual nature has continued to be prevalent up to the present day (Escallon, 2008). Districts of poor people have been arising, not only in the inner-city area, but also (for two decades now) in the peripheral areas – which had previously been utilised in agriculture.

One-third of city inhabitants own a dwelling, while most (40%) rent flats, and the others live in single-family housing of very variable standard. Most of the homes in question belong to the lower classes. While inhabitants know that there exist apartment-building programmes addressed to the more

impoverished layers of society, few actually make use of them. Most inhabitants do have access to infrastructure, namely electricity and water, and in some cases also gas. The most limited infrastructure system in terms of the number of connected houses (especially on the peripheries) is sewerage (<https://www.msn.com/es-co/noticias/nacional/en-villavicencio...>).

In-depth interviews conducted with local leaders have dealt with governance structure in the city, as well as the introduction of programmes favouring social inclusion. It has been concluded that effective efforts that need to be applied in this domain are ones that generate employment and attract in migrants from other regions of the country. However, this is seen to require the introduction of new solutions as regards social inclusion, e.g. in terms of housing, the development of infrastructure, environmental protection, regulation to ensure the proper management and use of yet undeveloped land, further development of the road network, the pursuit of modern physical development plans, and the maintenance and updating of land registration. An inclusive city seeks to ensure that all inhabitants are guaranteed conditions in which they can live in dignity, which allows them to settle in the city for good and discourages them from engaging in further migrations.

In compliance with the binding government strategy aimed at supporting integrated planning and development of Colombian cities, the concept of the inclusive city is incorporated into the so-called *POT* plan of physical development, which also takes account of the outcomes of public consultations. Nevertheless, no account, or only sporadic account, is taken of information on districts and estates in which the housing is at high risk of being destroyed by natural disasters or on socially-excluded groups, minorities, and so on – all of which demand interventions on the part of the authorities if quality of life is to be raised. *POT* plans, which incorporate elements of governance into the process of managing and administering a city, assume that closer, broader, and more comprehensive cooperation with different organisations will make it possible to turn weaknesses and threats experienced by marginal(ised) groups into strengths and opportunities, based on unleashing means and mechanisms that will secure more of the resources capable of stimulating urban development. This can happen through the introduction of alternative forms of productivity that apply innovative solutions and new technologies, generating employment and supporting strengthened ties in society, as well as cooperation at the levels of the housing estate and district. The integration and inclusion of inhabitants is dependent on the plan in force at the given time. However, a preference is shown for programmes of a nationwide scope. Matters of integration are regarded as mandatory, given a set budget and precise targeting, but this is less because there is full awareness of their significance for society's just and even development, and more because there is a need to comply with requirements of national reach (<https://www.villavicencio.gov.co/micrositio/secretaria-de-planeacion>). Recent years have seen Colombia introduce regulations requiring administration to facilitate access to information,

not only in a public-consultation context, but also through the enactment of the right to access to public information under Act 1712 of 2014, as well as Regulatory Decree 103 of 2015 (Católico et al., 2018, p. 175).

The key task of the city authorities is to improve living conditions for the poorest inhabitants. Areas of housing for the poverty-stricken are distributed quite chaotically across the city. The dwellings in question are, of course, of very low quality and have impeded and limited access to urban infrastructure. And, as in all large Latin American cities, a major obstacle for resolving housing problems is legalisation, which concerns the right to land and tenure. This is a core priority for urban planning in Villavicencio. Though some progress has been made, the inhabitants of the non-formalised districts continue to suffer the consequences of unregulated property/ownership. And, for example, the inhabitants of the Los Cármbulos quarter of the city had to wait 27 years to gain the right in question before the sector of the city finally acquired a legal status and formal recognition. This is an area in the south-west of Villavicencio. Similar quarters came into existence on the peripheries in the late 1990s; they are most often home to immigrants from Andean areas of Colombia. They built their homes there, sometimes using more durable materials and usually delimiting a small area of surrounding land to serve as a vegetable garden. At regular intervals, these people would be promised that titles of ownership would be conferred on them, but the process became protracted and dragged on for years. This was the case for the whole informal “housing estate” at Los Cármbulos, which in fact stretches over 24 hectares (<https://www.msn.com/es-co/noticias/nacional/en-villavicencio...>). That area was once a single farm.

Los Cármbulos was not the only district where new housing was developed in this way, as by the time it appeared, Villa Juliana, Bosques de la Rivera, and Ciudad Porfía were already in existence. The problem lay in the fact that, despite the settlements in question having been established over 20 years earlier, the alleged owners of the land continued to make their presence known. They had sold the land to a firm dealing in real estate, but the company had not complied with the obligation to confer rights of ownership on the local inhabitants. In those circumstances, the alleged owners sought to take back the land and sell it to a developer on more favourable terms than before. The people already residing in these areas thus faced the risk of eviction and resettlement (<https://www.msn.com/es-co/noticias/nacional/en-villavicencio...>). However, the relevant lawsuit was dismissed by the court, whose assumption of care of the issue prevented the expulsion of 1,150 inhabitants of the estate in question.

Equally, in the city as a whole, a review of all property has shown that 70% of the entire area was developed “informally”. “The city had been generating economic expectations sufficient to attract migrants, who set in motion a process of occupying land to build on in a manner that led to the total dominance of informal estates and districts” (<https://www.msn.com/es-co/noticias/nacional/en-villavicencio...>).

Many estates which emerged later followed in the footsteps of Los Cármbulos in that they rather rapidly came to be areas of contiguous housing construction – at a distance far-removed from the city centre. This fragmented urban sprawl involved areas previously used to cultivate crops (above all rice) or to raise livestock. The growth was uneven, but certainly not unrecognised by law. Indeed, the urban planning office in the city, noting that three out of five housing estates across Villavicencio were illegal, had to take legalisation as a matter of fundamental significance if the space in the capital of the Colombian Department of Meta was to be shaped under any plan at all (<https://www.msn.com/es-co/noticias/nacional/en-villavicencio...>). “Villavicencio is a city growing and developing at a very fast rate. Unfortunately, it is doing that in an illegal way, contributing to informal development in different sectors of the city”, commented V. Sandoval, secretary of the office in question (<https://www.msn.com/es-co/noticias/nacional/en-villavicencio...>).

However, some fifteen housing areas have been legalised over the last three years, with a further fifteen scheduled for legalisation by the end of 2023. Besides the conferment of legal titles, the process requires contracts to be concluded with inhabitants with a view to potential subsequent investment in the construction and hard-surfacing of roads, the completion of water-pipeline systems, sewerage, and the initiation of procedures to supply estates with mains gas.

In December 2021, local press revealed that the informal housing settlement of El Recreo was joining four others – Portales de Covisán, Quintas de la Esperanza, Comuneros, and Caudales – with all changing their previous unregulated, illegal status, as deeds of ownership had been conferred upon inhabitants and formal status thereby granted in the process of legalisation (<https://www.alertallanonoticias.com/ya-son-cinco-los-barrios-legalizados-en-villavicencio-en-el-2021/>).

The legalisation of the estate was a matter taken up by the Gobierno Villavicencio Cambia Contigo organisation, which helped inhabitants meet the various requirements permitting informal housing estates to gain formal recognition (<https://www.alertallanonoticias.com/ya-son-cinco-los-barrios-legalizados-en-villavicencio-en-el-2021/>). “After 27 years, they have managed it. It is possible. The time for the people has come – people can come out to the streets and emerge victorious. People can win respect for themselves, going out and demanding things. This country can be better, this city must be better – but this is exactly what meeting that need entails – a very well-organised community; and an open, responsible, and hardworking government”¹

¹ “Lo lograron, llévense con cariño antes de dormir, antes de cerrar los ojos, después de 27 años lo lograron, si se puede, a la gente sí le toca, la gente puede ganar, la gente puede salir a la calle y tener victorias, la gente puede hacerse respetar, la gente puede salir a exigir cosas, este país honestamente puede ser mejor, esta ciudad debe ser mejor, pero de eso se trata la posibilidad que mejore, de comunidades muy organizadas y de gobiernos abiertos, responsables y trabajadores para suplir estas necesidades” – quote from Mayor Felipe Harman as he conferred titles of ownership legalising the settlement of El Recreo Tercer Sector. <https://www.alertallanonoticias.com/ya-son-cinco-los-barrios-legalizados-en-villavicencio-en-el-2021/>. Retrieved 27 May 2023.

(<https://www.alertallanonoticias.com/ya-son-cinco-los-barrios-legalizados-en-villavicencio-en-el-2021/>).

4. Conclusions

Governance seeking to favour processes of inclusion requires joint action from two sectors. The first is the public sector operating within a defined territory and via specific instruments, namely the local or regional government. After all, the foundations of these processes are laid by public policies which can contribute considerably to ensuring sustainable development. The second sector is what might be called the social/societal sector, the one that allows for the participation of citizens or even the whole society in consultations and other activities influencing the process by which the pertinent authorities actually take their decisions. Activity on the part of this sector requires a certain culture to have been developed within or across society; and indeed, the most successful groups therein are the ones whose participation in the shaping of a city is both active and responsible.

In the case of the Colombian city of Villavicencio, there are many inhabitants who fail to see any favourable aspects of the territorial and social conditioning pertaining to the areas in which they reside. At the same time, the analysis of social fora shows that the people are not satisfied with what authorities are doing either – as is attested to by the limited percentage of inhabitants who have a title of ownership to the plots of land on which they have built their homes. Neither is there any favourable evaluation when it comes to the provisioning of services, with quality of life in general being low, nor do people feel that they play an active part in any discussions of new urban projects that might be taking place.

Inhabitants also arrive at negative assessments of the efforts made by the city authorities to achieve better social inclusion and integration in the process of shaping the city. While it is true that there is an ongoing integration process, many claim that it is founded upon discrimination based on race, ethnicity, political views, religion, disability, place of origin, gender, and sexual orientation. Inhabitants are wont to link all of these matters with Colombia's political history, as well as its cultural diversity (<https://www.alertallanonoticias.com/ya-son-cinco-los-barrios-legalizados-en-villavicencio-en-el-2021/>).

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ABSTRACT**Development of cities, the right to the city, and governance, as exemplified by Villavicencio, Colombia**

In the fragmented, socially and spatially polarised cities of Latin America, there is an expectation that local authorities will engage in good governance – and appropriately distribute public services – and consequently improve the living conditions of all inhabitants, especially those in the poorest social strata. But it is the poor, marginalised districts marred by chronic underinvestment that in fact dominate urban space, which results in tangible disparities in levels of access to municipal services in certain areas. Equally, institutions responsible for planning had long failed to take account of the needs of inhabitants in poor districts, focusing their efforts rather on large new developments involving roads and power supply. This state of affairs was maintained and even entrenched by weak public participation. It only started to change for the better in the 2010s, as bottom-up initiatives began to emerge to promote change in large housing estates. Villavicencio, Colombia, can be taken as an example of cities in which influxes of migrants have engendered a rapid increase in population, to the point at which inadequate development of infrastructure started to generate many major problems. That said, the inclusion of local communities in the governance process can now be observed to be yielding steady improvements in the situation at hand.

Keywords: governance, marginalised districts and quarters of cities, Villavicencio, Colombia, spatial planning, physical development, rights of ownership of plots in cities, legal title

BUILDING SOCIAL CAPITAL THROUGH CLIMATE CHANGE MITIGATION BASED ON THE EXAMPLE OF WARSAW, POLAND

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1. Introduction. The definition of social capital

The most attractive places are those that create positive feelings and contribute in a significant way to building the community. This is how territorialism is formed and understood, as a set of attitudes and motivations of an individual or group of people related to the spatial context (Szarejko, 2008). Territory is a key factor in shaping social attitudes and contributes to building social capital. Links between individuals are formed through social networks, rules, and mutual trust. This builds up non-financial resources of local knowledge, talents, trust, and useful contacts, as well as exchange of goods based on mutual consent (Rose, 2019).

According to Putnam (2000), there are two types of social capital – bonding and bridging. Both are essential to the healthy functioning of a community and its members, and they differ in their relationship to strangers. Bonding social capital is characterised by connections between similar groups that are based on strong ties. Large amounts of bonding capital are held by families, neighbours, or immigrants with the same background. Because of this, they tend to focus only on their own needs and helping “people like us”. When bonding capital exceeds bridging capital in structure, so-called ‘structural gaps’ emerge, representing “empty” spaces between strongly bonded groups of people. This may result in social capital concentrating in exclusive or criminal groups and the occurrence of the phenomenon of ‘amoral familism’ (Banfield, 1958).

The second type of social capital is built on connections between groups or networks and is based on weaker social ties. It allows people to discover new ways of behaving, exchanging experiences, presenting opinions and views, finding investors or employment. Bridging capital is called ‘good social capital’ that strengthens “generalised” trust in the community. It should be stressed that it is not possible without well-formed bonding capital. The difference between the two can be presented in the different understanding of reciprocity. Bonding capital is based on the principle of: “I will do something for you, and

you will help me in the future”. Bridging capital, on the other hand, assumes generalised reciprocity: “I help you and expect someone else to do something for me in the future” (Bergier, Kronenberg, 2010).

In his research, Michael Woolock (1998) writes about a ‘third capital’, namely linking social capital. Unlike bridging capital, it creates vertical ties between people and institutions when the latter links them horizontally. Its function is to connect people of different social classes. The topic of linking capital is mainly addressed in political science because of the perceived relationship between different social strata in hierarchical power structures (Moody, Paxton, 2009).

Social capital can also be viewed from two perspectives: commitments and channels of information (Coleman, 1990; Theiss, Żukowski, 2008). By helping others, a person is enriched with the resource of potentially reciprocal help. Information channels in the social sense are the numerous contacts with others through which information about work or relevant connotations can be more easily acquired. Consequently, all social norms build social capital by increasing the likelihood of reciprocating kindness.

The benefits a city gains from its social capital are often underestimated. Engaging residents fosters solutions to social problems. This includes higher levels of education, better health, and public safety. Ties between urban residents have a positive impact on economic development, as well as social and economic security. Political gains, such as the development of local democracy or the smooth functioning of local institutions, are just some of the benefits that cities receive from developed social ties.

2. Increasing environmental awareness

Social capital is a key aspect in the implementation of sustainable development, as it regulates the impact of the economy on the environment and is the basis for future growth. The whole pyramid of sustainable development is based on natural capital, which leads to the creation of intermediate assets, namely man-made capital. Built on its basis are intermediate goals, which constitute social capital, and the final goal, well-being (Daly, 1980).

Sustainable development, according to the *Report of the World Commission on Environment and Development* (Brundtland, 1987), means “development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The expressed idea of urban resilience is important in sustainable urban development, embodied in the urban resilience model. It is the measurable capacity of an urban system and its inhabitants to maintain continuity of development during crises and climate shocks and to adapt positively towards sustainability (UN-Habitat, 2018). The urban resilience model empowers cities, takes care of jobs and the security of residents and their property (Tyburek, 2017). A systemic approach to urban

development in the era of global climate change should result in acting in a sustainable and friendly way. The aim is to repair the functioning of the biosphere, clean up water, increase the number and area of natural habitats, and enhance biodiversity (Gorgoń, Gocko-Gomoła, 2016).

The role of natural processes is increasingly being recognised in urban discourse. There is a growing awareness of the cities' contribution to the process of environmental degradation. There is also an increasing willingness on the part of residents to combat the negative effects of heavy urbanisation. Public awareness is closely connected with social control, which prevents corruption and decision-making that is not in line with sustainable development goals. In Poland, we see a need to increase public knowledge of the relationship between the state of the natural environment and the quality of life. In addition, educational activities should be carried out on the possibilities for people to take social action and participate in various types of public consultations.

According to Andrzej Sadowski (2000), four types of ecological consciousnesses can be distinguished, different in terms of the kind of cognition and the way in which nature is reflected. The first is colloquial ecological awareness based on the experience of nature in everyday life and the exchange of views about it in the closest surroundings. It is divided into diffuse consciousness (individual, impermanent, and changeable) and integrated consciousness (relating to the collective, holistic, and coherent). The second type of consciousness is religious consciousness based on a theological interpretation of the relationship between humans and nature. Another type, consciousness of an ideological nature, is based on beliefs, views, and actions taken for the implementation of pro-environmental goals. In addition to its cognitive nature, it also focuses on the practical dimension (e.g. education). According to the author, it is associated with the frequent overlooking or disregarding other social needs based on the belief of superior value of nature. The last type of environmental awareness – scientific awareness – is based on verified knowledge of natural, technical, and social sciences. Sadowski (2000) notes the evolutionary nature of the development of environmental consciousness, involving the expansion of knowledge in accordance with the developmental needs of society.

In cities, urban green spaces carry clear social and cultural connotations. Often, green spaces build the local identity of a place. This can be seen in the organisation of community groups fighting for the preservation of green spaces or protesting deforestation. On the other hand, nature in the city can reflect the historical background of the distribution of green space rights, i.e. opening it up (Rybicka, 2018). This is how the space of European cities and park settings was shaped in the nineteenth century. A major change was to be the American democratisation of access to green space in the form of Central Park. Unfortunately, the stated goal at the time was not achieved, and the park became an arena for class conflict.

3. The analogy between social and natural capital

I have noticed the analogy between social capital and natural capital. David Halpern (2009) described social capital as 'our hidden wealth'. The natural aspects in today's city can be described in the same way. What they have in common, above all and at first sight, is immeasurability, affectivity, transience, and long-term character. For these reasons, for many years nature and social capital were not taken into account in important planning decisions. Over time, the development of ecological economics, urban sociology, increased public awareness and forms of involving citizens in the urban management process have proven how important these aspects are in urban development.

The modern concept of ecological capital was formed in the 1990s as part of the emergence of ecological economics. It is constituted by renewable and non-renewable natural resources together with the natural processes associated with them (Throsby, 2010). Natural capital is also defined as the collective of ecological goods and services. This includes ecosystem services, which are the tangible and intangible benefits of the natural environment (Hewelke, Graczyk, 2016). They are divided into provisioning, regulating, supporting, and cultural services (Millennium Ecosystem Assessment, 2005). Provisioning services consist of products such as materials, food, or fibres. Regulating services maintain nature's processes, influencing air quality, climate change, or waste decomposition. Supporting services are a set of activities aimed at maintaining all other services. These include, for example, photosynthesis, nutrient cycling, or soil formation. The most important services from a social capital point of view are cultural services, which consist of recreation, aesthetics, and spirituality (Häyhä, Franzesea, 2014). What is important to me is the coexistence of the human and the natural world in urban space. It is time for strategies in which the paradigm of exploitation of nature is replaced by cooperation and partnership (Rybicka, 2018).

For a long time, the paradigm of the relationship between nature and society was neglected (Górnicki, 2012). Through the conflict between the real and the experiential space, the cognitive and the affective sphere, barriers have been created between the study of social and natural capital. The divergence of these fields and the lack of a hybrid approach slow down the building of scientific output. Natural capital, like other types of resources, can be an important factor in the development of the collective that benefits from them.

4. Civil society and climate change mitigation

Building civil society through participation, facilitating communication, and increasing the quality of education is essential. Civic engagement can be supported by NGOs and local leaders. Through them, more developed forms for environmental protection are created using contacts, willingness to cooperate, trust, and the possibility to see a common interest.

A case in point are the engagement measures taken by employers. An emerging trend is organising initiatives engaging employees in the development of environmentally friendly solutions, involving ideas and cooperation between company structures.

The differences between stakeholders' approaches to the shaping of the city space are problematic. Interest groups often have disparate goals and ideas about how to develop their surroundings. It is important to approach the implementation of plans harmoniously and in accordance with the general interest. It is not uncommon for conflicts to arise between property owners, municipal representatives, developers, external stakeholders, or local communities. An important element in building bridging social capital is the proper action of the local authority. It should be oriented towards consultations with experts, participation of all interested parties, and the search for compromise. At the same time, solutions that will minimise conflicts should be supported by building public awareness.

An important role is played by environmental policy, which involves the internalisation of external costs and education (Bergier, Kronenberg, 2010). Social capital often guarantees the success of an institution's public awareness activities. Features such as stakeholder interest, public engagement, and well-executed government interventions build bonds based on generalised trust. In Poland, we see a very low level of trust in public institutions, especially in the Polish parliament (Sejm and Senat) and the government. Local authorities in cities and municipalities are trusted by less than 50% of Poles. The highest level of trust among Poles relates to the respondents' closest family (97.9%) and the lowest to strangers (34.3%) (Główny Urząd Statystyczny, 2018).

According to Putnam (2000), volunteering promotes the growth of social capital. Its role is particularly important in societies where citizenship is not widespread. Equally important are urban movements or egalitarian forms of political activism undertaken by people without power, fame, or wealth (Zirakzadeh, 1997). The activities of civic movements are a demonstration of social commitment and have a positive impact on building social capital.

Most urban movements work to improve the microclimate of the city. Since 2011, the Kongres Ruchów Miejskich (Eng. Congress of Urban Movements) has been publishing "Urban Theses", which outline the most important values that guide urban development activities. In 2019, the Congress formulated its first "extraordinary" Urban Thesis: "The looming climate catastrophe is humanity's greatest contemporary challenge. It faces cities, which are responsible for most greenhouse gas emissions" (Congress of Urban Movements, 2019). This thesis was singled out as it warned of a global disaster threatening the entire human civilisation and the survival of other species. The Congress calls on government, global business, and international organisations to jointly commit to action to prevent climate catastrophe. Such action has a direct impact on building social capital, but also on transforming the energy sector, transport, urban planning, consumption, the organisation of social life, culture, and values.

The example of urban movements shows how action may be taken in line with the principle of ‘think globally, act locally’. By focusing on urban issues, they try to act according to the idea of sustainable development, which applies to the whole world. They contribute to the dissemination of environmental awareness, organising happenings and various projects related to the urban environment. Using their extensive networks, the organisations often comment on the actions of municipal authorities that stand contrary to the will of the inhabitants.

Action to fight climate change has concrete capital effects, such as the formation of an association, a partnership, or a streamlined dialogue with the authorities. Starting from bottom-up initiatives and expressing dissatisfaction with the status quo, a new public discourse is emerging, demanding more and more environmental action from local authorities.

Over time, there is a noticeable increase in the awareness and involvement of residents in shaping the spatial structure of the city. An example of grass-roots action is the critique of changes in the development of Polish squares, which have lost a large share of green areas and trees after revitalisations in the 2000s (Fig. 1). On the wave of publicising the problem, the expression ‘betonoza’ (Eng. “concretosis”) was born, popularised by Jan Mencwel (2020) and referring to excessive, ill-considered use of concrete in public space. The adoption of the new term in the discourse and the occurrence of a strong social media movement led to changes in the actions of local authorities. Tenders began to appear for the greening of squares (Fig. 2), which had often been de-greened a few years earlier.

The trend is also noticeable in the rules of contemporary architectural competitions for urban public spaces. The guidelines increasingly require development in line with sustainability, biodiversity, and small-scale retention. Architects pay attention to the needs of residents, green space, and functionality of newly designed spaces.

5. The example of Warsaw, Poland

Local governments play a major role in involving residents in various types of activities. In Warsaw, there is a growing number of initiatives, mainly by local authorities, aimed at activating residents to combat climate change. Examples include classes and workshops organised by the Zarząd Zieleni m.st. Warszawy (Eng. Warsaw Greenery Board), the introduction of ‘meadow machines’ enabling people to plant flower meadows themselves, and the *Przygarnij kwiatka* (Eng. “Adopt a Flower”) campaign. Local authorities are not the only ones animating residents to take ecological action. Examples include the campaign *Dry Canoeing on the Drna. Does a River Flow Beneath Us?* organised by the Wola Museum (Fig. 3), the Towarzystwo Krajoznawcze “Krajobraz” (Eng. “Krajobraz” Landscape Association), the *Miasto jest Nasze* (Eng. The City is Ours)



Figure 1. City square in Leżajsk: in the top photo a fragment of the square before, in the photo below the square after concreting

Source: Pracownia Dziejów Dokumentacji Miasta Leżajsk, PAP/Darek Delmanowicz



Figure 2. Before and after, an example of de-concreting a city square in Łódź, Poland

Source: mamArchitekci sp. z o.o. & A2P2 architecture&planning

organisation, and the Siostry Rzeki (Eng. Sisters of the River) collective. This form of building social capital requires local authorities and organisations to be active on social media, where potentially interested residents can be most effectively reached.



Figure 3. Campaign participants standing over the Drna riverbed, photo by Tomasz Kaczor

Source: <https://uslugiekosystemow.pl/o-projekcie/>

Education is one of the most important aspects in climate action. Warsaw's local government is organising an increasing number of educational events and introducing elements in the city space that shape environmental awareness. An important point on the map of Warsaw is the "Stone" educational pavilion managed by the Zarząd Zieleni m.st. Warszawy (Fig. 4), offering free classes and events for children and adults. The place combines green initiatives of residents, NGOs, and science institutions. The pavilion was built as part of the project *Protection of the Habitats of Key Bird Species of the Middle Vistula Valley under Intense Pressure from the Warsaw Agglomeration* in 2020 (Zarząd Zieleni m.st. Warszawy, 2020) and was the winner of many awards in architecture.



Figure 4. The “Stone” educational pavilion

Source: Rafał Motyl, UM Warszawa

It is important to mention the Otwarte Osiedle Jazdów (Eng. Jazdów Open Estate), built in 1945 as a temporary housing estate for employees of the Capital Reconstruction Office. Initially, the estate consisted of 90 so-called ‘Finnish houses’ [cottages made of prefabricated wooden elements – editor’s note], but in the aftermath of numerous demolitions, only 27 remained by 2012. For many years, heated discussions were held about the future of the estate. Residents and activists launched the Otwarty Jazdów (Eng. Open Jazdów) initiative, which has developed into a vibrant social, cultural, educational, and artistic event (Fig. 5). In 2017, the urban arrangement of the estate was entered into the national register of historic monuments. To this day, the Otwarte Osiedle Jazdów continues to be popular among Warsaw’s residents, attracting them with its grassroots events on environmental issues and community gardens (Stowarzyszenie Kulturotwórcze Miastodwa, 2017).

Also worth mentioning is building social capital through climate action among residential cooperatives. An important factor in developing bonding social capital among residents are community gardens and consultations with experts on new green spaces and innovative and integrated environmental solutions. This is also where capital of the bridging type can take shape through cooperation between residents, the cooperative, and the green space management.



Figure 5. Otwarte Osiedle Jazdów (Jazdów Open Estate)

Source: Otwarta Pracownia Jazdów

In 2019, the Warsaw City Hall organised a pilot workshop entitled *Co-Operatives for the Climate* at the Warsaw Zodiak Architecture Pavilion. The event was addressed to cooperatives and housing communities wishing to present the possibilities of introducing green and blue infrastructure in Warsaw housing estates as an element of adaptation to climate change. Such activities increase knowledge of different social groups and help establish contacts between them.

6. Conclusion

Future urban development depends on the level of social and natural capital. It is important to raise awareness of the pressure put on the environment through its exploitation. The level of engagement in solving the problems of environmental degradation needs to be raised at all levels and in all sectors of city administration. Nature's capacity to regenerate and continue to provide the services needed by economic and social systems is uncertain. It is social capital, understood as a more informed and active society, that faces the challenge of adapting to urban climate change, as it is a tool in the process of building the city's resilience and a measure of its sustainability. The more engaged citizens are, the greater the likelihood of rapid adaptation and longer-term city vitality.

Using the example of Warsaw, one can see the intermingling of sectors and stakeholders on many levels. It is crucial to involve city dwellers in activities organised by city entities. Also important is to leave them space for grassroots activities, reactions to the authorities' actions, and freedom of expression. By combining bottom-up and official activities, horizontal and vertical interpersonal ties can be strengthened.

Greenery in a city is not just the background of urbanised space. It is one of the main factors in building a shared commitment among residents. Identity is shaped around it; relationships and social networks are formed. Therefore, urban greenery and taking care of the microclimate is an important aspect in increasing social capital.

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ABSTRACT

Building social capital through climate change mitigation based on the example of Warsaw, Poland

Social capital is a key aspect in implementing sustainable development and plays a major role in the development of urban spaces. The analogy between social capital and natural capital is noticeable, but there are clear barriers complicating the study of the interaction between these fields. Natural capital, like other types of resources, can be an important factor in community development. Shaping civil society through participation, facilitating communication, and increasing the quality of education is significant, but the differences between stakeholders' approaches to shaping city space can be an issue. It is social capital, that is a more informed, cohesive, and active society, that faces the challenge of climate change mitigation.

Keywords: social capital, natural capital, climate change mitigation, urban space

NEW URBANISM IN ASSESSING SUSTAINABILITY OF POLISH AND AMERICAN SUBURBS

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1. Introduction

Sustainability is perceived as a constant that establishes a set of long-term aspirations described by the ‘three E’s’: Economic Opportunity, Environmental Quality, and Social Equity (Campbell, 1996; Gough, 2015; Stanislav, Chin, 2019). If we apply it to the built environment, sustainability is assessed through the prism of transportation and resource conservation relative to design and use. It can be considered on different spatial scales, from a single building (use of on-site resources, energy-efficient building materials, equipment, and construction practices) to the planning scale (density, mixed land use, public transportation, and the support of a pedestrian environment). On the planning scale, settlement is a proper unit for implementing comprehensive solutions. As a settlement becomes more place-oriented, its potential for liveability, health, community, and sustainability increases. This process is reinforced by various theories and concepts. One of the best-rooted frameworks is New Urbanism, established, inter alia, as a way of preventing the post-World War II sprawl (CNU, 1996). New Urbanism has become a popular planning and design approach fostering a greater sense of place and community by providing physical frameworks that encourage social interaction (Talen, 2002) and promote sustainable development (Garde, 2004). A sense of community is often used to describe the presence of social activities, interactions, networks, and relationships within a space (Francis et al., 2012; Lewicka 2005; Stanislav, Chin, 2019).

The *Charter of the New Urbanism* adopted in 1996 advocates for the following principles concerning the neighbourhood, the district, and the corridor scale.¹

- Neighbourhoods should be compact, pedestrian friendly, and mixed-use.
- Neighbourhoods should be diverse not only in use, but also in the population (a broad range of housing types and price levels can bring in people of diverse ages, races, and incomes).

¹ There are two other scales: the scale of a region and the scale of a city block, its streets and individual buildings.

- Many activities of daily living should occur within walking distance, allowing independence to those who do not drive, especially the elderly and the youth. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.
- Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile.
- Concentrations of civic, institutional, and commercial activity should be embedded in neighbourhoods and districts, not isolated in remote, single-use complexes. Schools should be appropriately sized and located within walking or biking distance, and a range of parks distributed all over the neighbourhoods (CNU, 1996).

As a result, New Urbanism advocates more liveable neighbourhoods, providing that liveability is “a set of physical conditions that integrate the natural and built environments, create safety and comfort, include engaging facades, and offer easy access to services and transit” (Aranoff et al., 2013, p. 153). This definition integrates not only the social aspects and amenities of the built environment but also its physical features that contribute to pro-social behaviour (bearing in mind that liveability changes according to the community’s values and context).

The design and development principles of New Urbanism can be applied to new housing estates, urban infill, revitalisation, retrofitting, and preservation, to the full range of places including rural main streets, booming suburban areas, urban neighbourhoods, dense city centres, and even entire regions. Despite potential limitations, New Urbanism has remained an important approach to new suburban spaces in the U.S., although currently, it is evolving towards more agriculture-related concepts. Considering the increasingly popular food-efficient sustainable communities, four concepts of Food Urbanism are worth mentioning: ‘Agricultural Retention’, ‘Urban Agriculture’, ‘Agricultural Urbanism’, and ‘Agrarian Urbanism’ (Duany, DPZ, 2010). ‘Agricultural Retention’ relates to the protection of farmland at a regional scale, ‘Urban Agriculture’ idea refers to local food production on any available land, ‘Agricultural Urbanism’ visualises a working agricultural farm on which residents and businesses are economically dependent, while ‘Agrarian Urbanism’ links food-efficient designs to New Urbanism principles and initiates community development with a complete food system such as production, distribution, and disposal (Duany, DPZ, 2010; Ghosh, 2016).

While in the U.S. there are numerous suburbs entirely following the concept of New Urbanism or Food Urbanism, in Poland, it is still difficult to find a good example of the implementation of these principles. This chapter aims to compare two sustainable suburban neighbourhoods: Serenbe in Georgia, U.S., which is an example of the implementation of new trends following the

New Urbanism principles, and Siewierz Jeziorna, considered one of the few projects based on New Urbanism in Poland. In order to compare these two suburban settlements, this paper intends to develop a protocol for sustainability assessment that is in line with the New Urbanism principles and recognised measurement tools.

2. Criteria of measuring sustainability

There are currently several tools worldwide to assess neighbourhoods', districts', or settlements' level of advancement in approaching sustainability goals. They can be divided into two main categories. The first category consists of tools that are 'spin-offs' of building assessment tools and assess the sustainability beyond a single building. The second one ('plan-embedded') includes tools that are embedded into neighbourhood-scale plans and sustainability initiatives to assess their sustainability performance (Sharifi, Murayama, 2013²).

One of the 'spin-off' tools for assessing sustainability is the Environmental Design for Neighborhood Development (LEED-ND) Rating System, which was created in 2007 by the Congress for New Urbanism (CNU) together with the U.S. Green Building Council (USGBC) and the Natural Resources Defense Council (NRDC) (USGBC, 2014). LEED-ND recognises new developments that achieve true sustainability and energy efficiency through building in a compact, walkable, accessible urban context. The LEED-ND system rates neighbourhood development according to four categories: smart location and linkage, neighbourhood pattern and design, green infrastructure and buildings, and innovation and design process.³ When it comes to the settlement unit scale, Neighbourhood Pattern & Design (NPD) (Table 1), Smart Location & Linkage (Table 2), and Green Infrastructure & Buildings (Table 3) assessment panels of the LEED-ND system seem to be of special importance. They itemise the general design criteria, the broader spatial context of the neighbourhood, and guidelines for green technologies used in sustainable housing. Participants of the evaluation process are supposed to rank certain items, effectively allowing respondents to provide a personal LEED-ND score for each study site. These individual scores are then averaged to reflect an overall LEED-ND score assigned to the respective neighbourhood. First, respondents decide if prerequisite conditions (prereq.) of the criteria are considered as met and then give credits to several criteria.

² Sharifi and Murayama (2013) review the most well-known Neighborhood Sustainability Assessment (NSA) tools divided into two categories: 'spin-off' and 'plan-embedded'.

³ Information retrieved from <https://www.cnu.org/our-projects/leed-neighborhood-development>.

Table 1. Neighbourhood Pattern & Design assessment tool (LEED-ND score system)

Yes	?	No			Maximum number of points
0	0	0	Neighbourhood Pattern & Design		41
Y			Prereq	Walkable Streets	Required
Y			Prereq	Compact Development	Required
Y			Prereq	Connected and Open Community	Required
			Credit	Walkable Streets	9
			Credit	Compact Development	6
			Credit	Mixed-Use Neighbourhoods	4
			Credit	Housing Types and Affordability	7
			Credit	Reduced Parking Footprint	1
			Credit	Connected and Open Community	2
			Credit	Transit Facilities	1
			Credit	Transportation Demand Management	2
			Credit	Access to Civic & Public Space	1
			Credit	Access to Recreation Facilities	1
			Credit	Visitability and Universal Design	1
			Credit	Community Outreach and Involvement	2
			Credit	Local Food Production	1
			Credit	Tree-Lined and Shaded Streetscapes	2
			Credit	Neighbourhood Schools	1

Source: USGBC, 2014

Table 2. Smart Location & Linkage assessment tool (LEED-ND score system)

Yes	?	No			Maximum number of points
0	0	0	Smart Location & Linkage		28
Y			Prereq	Smart Location	Required
Y			Prereq	Imperilled Species and Ecological Communities	Required
Y			Prereq	Wetlands and Water Body Conservation	Required
Y			Prereq	Agricultural Land Conservation	Required
Y			Prereq	Floodplain Avoidance	Required

Table 2. cont.

Yes	?	No			Maximum number of points
			Credit	Preferred Locations	10
			Credit	Brownfield Remediation	2
			Credit	Access to Quality Transit	7
			Credit	Bicycle Facilities	2
			Credit	Housing and Jobs Proximity	3
			Credit	Steep Slope Protection	1
			Credit	Site Design for Habitat or Wetland and Water Body Conservation	1
			Credit	Restoration of Habitat or Wetlands and Water Bodies	1
			Credit	Long-Term Conservation Management of Habitat or Wetlands and Water Bodies	1

Source: USGBC, 2014

Table 3. Green Infrastructure & Buildings assessment tool (LEED-ND score system)

Yes	?	No			Maximum number of points
0	0	0	Green Infrastructure & Buildings		31
Y			Prereq	Certified Green Building	Required
Y			Prereq	Minimum Building Energy Performance	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Construction Activity Pollution Prevention	Required
			Credit	Certified Green Buildings	5
			Credit	Optimised Building Energy Performance	2
			Credit	Indoor Water Use Reduction	1
			Credit	Outdoor Water Use Reduction	2
			Credit	Building Reuse	1
			Credit	Historic Resource Preservation and Adaptive Reuse	2
			Credit	Minimised Site Disturbance	1
			Credit	Rainwater Management	4
			Credit	Heat Island Reduction	1

Yes	?	No			Maximum number of points
			Credit	Solar Orientation	1
			Credit	Renewable Energy Production	3
			Credit	District Heating and Cooling	2
			Credit	Infrastructure Energy Efficiency	1
			Credit	Wastewater Management	2
			Credit	Recycled and Reused Infrastructure	1
			Credit	Solid Waste Management	1
			Credit	Light Pollution Reduction	1

Source: USGBC, 2014

Stanislav and Chin (2019) suggest complementing LEED-ND NPD with a 'plan-embedded' tool, namely the Charter of the New Urbanism (CNU) metrics, also developed by the Congress for the New Urbanism prior to LEED-ND. It can be used as a post-development evaluation tool to measure the level of attainment regarding New Urbanism design features. The Block, the Street, and the Building section of CNU⁴ consists of nine items (expressed in nine affirmative sentences), each of which can score a maximum of 2 points: (1) Urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use. (2) Building architecture compliments the community. (3) Street and building design create safe environments. (4) Automobile traffic is safe for pedestrians. (5) Streets and public squares are safe and comfortable. (6) Architecture and landscaping represent local culture. (7) Public buildings and gathering spaces are centrally located. (8) All buildings reflect a sense of place and identity. (9) Preservation and repurposing of buildings reflects resident needs (CNU, 1996; Stanislav, Chin, 2019).

Based on the four sets of criteria for assessing sustainability, namely LEED-ND Smart Location & Linkage, LEED-ND Neighbourhood Pattern & Design, LEED-ND Green Infrastructure & Buildings, and CNU, this chapter suggests a new tool for evaluating suburban settlements. The tool combines and modifies the most universal criteria from the above-mentioned sets. It includes 15 items describing various dimensions of the general design of sustainable suburbs and their broader spatial context. In the case of the Green Infrastructure & Buildings panel, only the most universal criteria and those that correspond to the conditions prevailing in the suburbia and do not duplicate the information contained in other panels were selected. As a result, the new tool is universal and can be used in various geographical contexts (Table 4).

⁴ The two other sections of CNU are: (1) The Region: Metropolis, City, and Town; and (2) The Neighborhood, The District, and The Corridor.

Table 4. Criteria for assessing sustainability of suburban settlements

	Criterion	Intent	How to meet the criterion
Location and Broader Spatial Context			
1	Access to Water and Wastewater Infrastructure	To encourage development within and near existing communities with water and wastewater infrastructure	Either (1) locate the project on a site served by existing water and wastewater infrastructure or (2) locate the project within a legally adopted, publicly owned, planned water and wastewater service area, and provide new water and wastewater infrastructure for the settlement
2	Restoration or Long-Term Conservation of Habitat or Wetlands and Water Bodies	To restore or conserve native plants, wildlife habitat, wetlands, and water bodies harmed by previous human activities	Using only native plants, restore predevelopment native ecological communities, water bodies, or wetlands on the project site or/and create and commit to implementing a long-term (at least 10-year) management plan for such areas
3	Agricultural Land Conservation and Food Production	To preserve irreplaceable agricultural resources by protecting prime and unique farmland from development and/or to promote the environmental, economic, and health benefits of individual and/or community-based food production	Locate the project's development footprint such that it does not disturb prime farmland, unique farmland, or farmland of state-wide or local importance, or establish conditions and restrictions stating that the growing of produce is not prohibited in settlement areas, including greenhouses, or organise community gardens
4	Access to Quality Transit	To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use	Locate the project on a site with existing or planned transit service such that at least 50% of dwelling units and non-residential use entrances are within a 400-metre walking distance to everyday transit service
5	Bicycle Facilities	To promote cycling and transportation efficiency and reduce vehicle distance travelled; to improve public health by encouraging utilitarian and recreational physical activity	Locate the settlement such that its boundary is within 400 metres' cycling distance of an existing bicycle network that connects to at least one of the following: • at least 10 diverse uses • a bus rapid transit stop, commuter rail station, or ferry terminal
6	Housing and Jobs Proximity	To encourage balanced communities with proximate housing and employment opportunities	Include a non-residential component equalling at least 30% of the settlement's total building floor area and locate it within an 800-metre walking distance of existing dwelling units

	Criterion	Intent	How to meet the criterion
General Design			
7	Compact Development	To conserve land, promote walkability, social and economic vitality, transportation efficiency, reduce vehicle distance travelled, and leverage transit investments	Based on Perry's (1929) neighbourhood unit concept, the settlement size suitable for the social community centre should be at least 5,000 people with a population density of 80 people/ha
8	Connected and Open Community	To promote settlements that have high levels of internal connectivity and are well connected to the larger community	Design or locate the project such that there are at least two through-connections (of the circulation network) that intersect or terminate at the settlement's boundary; no more than 10% of the settlement area is gated (except for education and health care campuses); connectivity is improved by trails and bike paths
9	Walkable Streets	To encourage walking and bicycling and discourage speeding; to promote transportation efficiency, reduce vehicle distance travelled, and improve public health by providing safe, appealing, and comfortable street environments	Design and build continuous pavements along both sides of main streets or equivalent all-weather routes for walking, introduce 30 km/h speed limit in 75% of the residential-only motorised parts of the settlement, and/or provide trees along at least 60% of the total existing and planned street length within the settlement or on its border
10	Mixed-Use Neighbourhoods	To reduce vehicle distance travelled and support car-free living by providing access to diverse land uses	Locate or design the project such that 50% of its dwelling units are within a 400-metre walking distance of at least 4 diverse non-residential uses ⁵
11	Local Centre	Civic buildings and public gathering places require important sites to reinforce community identity and the culture of democracy; they deserve a distinctive form because their role is different from that of other buildings and places that constitute the fabric of the city	Locate public buildings and main gathering spaces in the centre of the settlement where the majority of roads and walking and biking paths converge

⁵ No more than two uses in each use type may be counted (e.g. if five restaurants are within the required distance, only two may be counted).

Table 2. cont.

	Criterion	Intent	How to meet the criterion
12	The Value of Architecture	To promote the influence of architecture on urban space so that it fits into the surroundings, takes into account the local topography, history, and building tradition, and creates safe public space	The newly created squares and streets should be safe, buildings should reflect the character and atmosphere of a given place; streets encouraging pedestrian traffic will foster interpersonal contacts and stimulate social integration
13	Access to Recreation Facilities	To enhance community participation and improve public health by providing recreational facilities close to work and home that facilitate physical activity and social networking	Locate or design the settlement so that a publicly accessible outdoor or indoor recreation facility lies within an 800-metre walking distance of 90% of new and existing dwelling units and non-residential use entrances
14	Neighbourhood Schools	To promote community interaction and engagement by integrating schools into the neighbourhood and to improve students' health by encouraging walking and bicycling to school	Locate or design the settlement such that at least 50% of the dwelling units are within an 800-metre walking distance of an existing or planned elementary or middle school
15	Community Outreach and Involvement	To encourage responsiveness to community needs by involving the people who live or work in the community in project design and planning and in decisions about how the project should be improved or changed over time	Conduct a design charrette or interactive workshop that is open to the public in the preparation of conceptual settlement plans and drawings
Green Technologies			
16	Green Infrastructure & Buildings	To reduce the environmental consequences of the construction and operation of buildings and neighbourhood infrastructure	• Certified Green Building • Rainwater Reuse Solutions • Renewable Energy Production • District Heating and Cooling • Wastewater Retain Systems • Light Pollution Reduction

Source: Own elaboration based on USGBC, 2014 and CNU, 1996

3. Study area

3.1. Miasteczko Siewierz Jeziorna⁶

Miasteczko Siewierz Jeziorna, located about 30 km from Katowice on the Przeczycko-Siewierski Lagoon and designed by Maciej Mycielski, is a settlement planned for 10,000 people who will live on an area of about 120 ha, of which 17 ha are green areas and 25 ha are areas intended for business, trade, and services. The construction of the first part of the town is carried out by the ALTA company – the owner of the whole land, responsible for the development of infrastructure and preparation of detailed plans for the whole settlement. The remaining parts of the investment will be completed by different developers, therefore ALTA divides the land into construction plots and sells them to other investors. The masterplan of the settlement was preceded by international urban planning charrettes with the participation of investors, representatives of the City Hall, landowners, and an international group of specialists in the field of environment, architecture, and spatial planning (the first was conducted in October 2007). Since June 2008, an architectural code developed by Duany Plater-Zybert & Company, Town Planners and Architects (DPZ Europe) has been in force in the town. It is a set of architectural and urban planning principles defining the external appearance of Siewierz Jeziorna, so that the colours and materials refer to the architecture of the Silesia region. Additionally, in 2014, the Code of Good Neighbourhood of Sustainable Miasteczko Siewierz Jeziorna was adopted. It is a declaration of rights, obligations, recommendations, and rules for residents and persons or entities using real estate located in Siewierz Jeziorna. In the purchase contracts, new residents commit themselves to following these rules, e.g. to planting only native plants. The implementation of the Code of Good Neighbourhood is to be supervised by the Association of Residents, established especially for this purpose. When it comes to the development concept, an urban and architectural code (design code) has been prepared. In addition to detailed guidelines for the design of individual buildings, specifying the dimensions, form of the façade, and materials, as well as parameters regarding energy efficiency and ecological sanitary solutions, it also gives some range of flexibility in the development of further detailed projects. In 2021, architectural and urban workshops were held with the participation of residents and developers, the purpose of which was to complete the vision for the development of the whole settlement unit, visualised in the form of the Masterplan (Fig. 1).

Miasteczko Siewierz Jeziorna is planned to be a compact suburban settlement that includes various types of buildings: from single-family houses, through terraced houses, to multi-family multi-storey buildings (Fig. 2).

⁶ Information about the investment comes from the book by Stangel (2013) and the official website run by the investor at <https://siewierzjeziorna.pl/>.



Figure 1. Masterplan of the whole investment from 2023

Source: Materials obtained from the investor

A four-storey-high office section has been designed along the national road No. 1, which will constitute a buffer between the road and the housing development. The local plan specifies the minimum area of newly allocated building plots in residential and residential and service development areas as follows:

- a) for service and multi-family housing development – 600 m²,
- b) for detached single-family housing – 400 m²,
- c) for semi-detached single-family housing – 300 m²,
- d) for terraced single-family housing – 150 m².

Siewierz Jeziorna consists of four housing estates, each of which is concentrated around a square accessible to pedestrians. In the central part of the whole project, there is a park with a network of ponds, while a hotel and a large conference complex, a guest house, a marina, and a pier are planned to be built along the lagoon. The settlement offers a sandy beach, jogging paths, a large playground, a football field, a dog paddock, and natural meadows nearby. Although the inhabitants will probably mainly venture outside the town by car, the concentration of services is expected to reduce the need to travel significantly. So far, a private nursery, a bistro, a beauty shop, and a grocery store have been opened there. A town square has been designed in the centre of the settlement, next to the church – a spatial dominant.

The settlement aims to promote sustainable mobility of residents by privileging and ensuring comfort for pedestrian traffic (pavements, trails). The plan

was to limit car traffic by providing basic services locally, calming traffic, and hiding parking lots for residents deep in the quarters of buildings. Ultimately, it is also planned to connect the town with the centre of Siewierz and Katowice with a new bus line along the national road No. 1. Other pro-ecological solutions include a large share of interconnected green spaces, including a city park with a network of reservoirs that will enable the flow and treatment of rainwater. In single-family houses, rainwater is collected in tanks buried underground and used for watering gardens. The common space is irrigated with rainwater collected from the roofs of multi-family houses. It is also planned to use renewable energy sources such as a central heating plant, heat pumps, solar panels, recuperation, and heat recovery from sewage systems. Air quality is regularly monitored using suspended dust concentration meters, the so-called PM10 and PM2.5. There is also a ban on burning coal in heating stoves.



Figure 2. Different types of housing in Miasteczko Siewierz Jeziorna

Source: Materials obtained from the investor

In the city of Siewierz, which is on the other side of the lagoon, a completely new kindergarten for 300 children is being built. There is also a very good primary school there, which is a five-minute drive away from Siewierz Jeziorna. Another school is in the neighbouring village (three or four minutes by car).

Apart from the undoubted advantages, the town also has its drawbacks. The location of the investment in a green area, previously undeveloped, in isolation from the existing buildings (Fig. 3), may be debatable; however, as T. Jeleński (2010) notes, the density of the site, much higher than the average in Poland, combined with environmentally friendly functions and technologies,

justifies the construction in a green area. On the other hand, a suburban location, without existing bus stops, may mean in practice that in the first stages of implementation of the whole project, before reaching the so-called critical mass of inhabitants, transport will be based solely on individual cars.



Figure 3. Location of Miasteczko Siewierz Jeziorna

Source: Materials obtained from the investor

3.2. Serenbe⁷

Serenbe, located 48 km south-west of Atlanta, GA, is a community nestled in the heart of 40,000 acres (16,000 ha) of forest – now incorporated in the City of Chattahoochee Hills.⁸ It is planned for 1,200 homes and 3,500 residents who will live on an area of about 400 ha. The development plan preserves 70% of the area's green space. Homeowners don't actually own any of Serenbe's forests or green space. The open space land is deeded to a Serenbe land trust which was established separately from the homeowners' association.

In 1991, Serenbe's founders Steve and Marie Nygren purchased the first 24 ha of land, built their own house, and in 1996, they converted the 1930s stable into a guesthouse and opened the Inn at Serenbe. As Atlanta grew, the Nygrens wanted to buy more land to create a green buffer from the sprawling city. However, when they realised that urban sprawl was inescapable, they

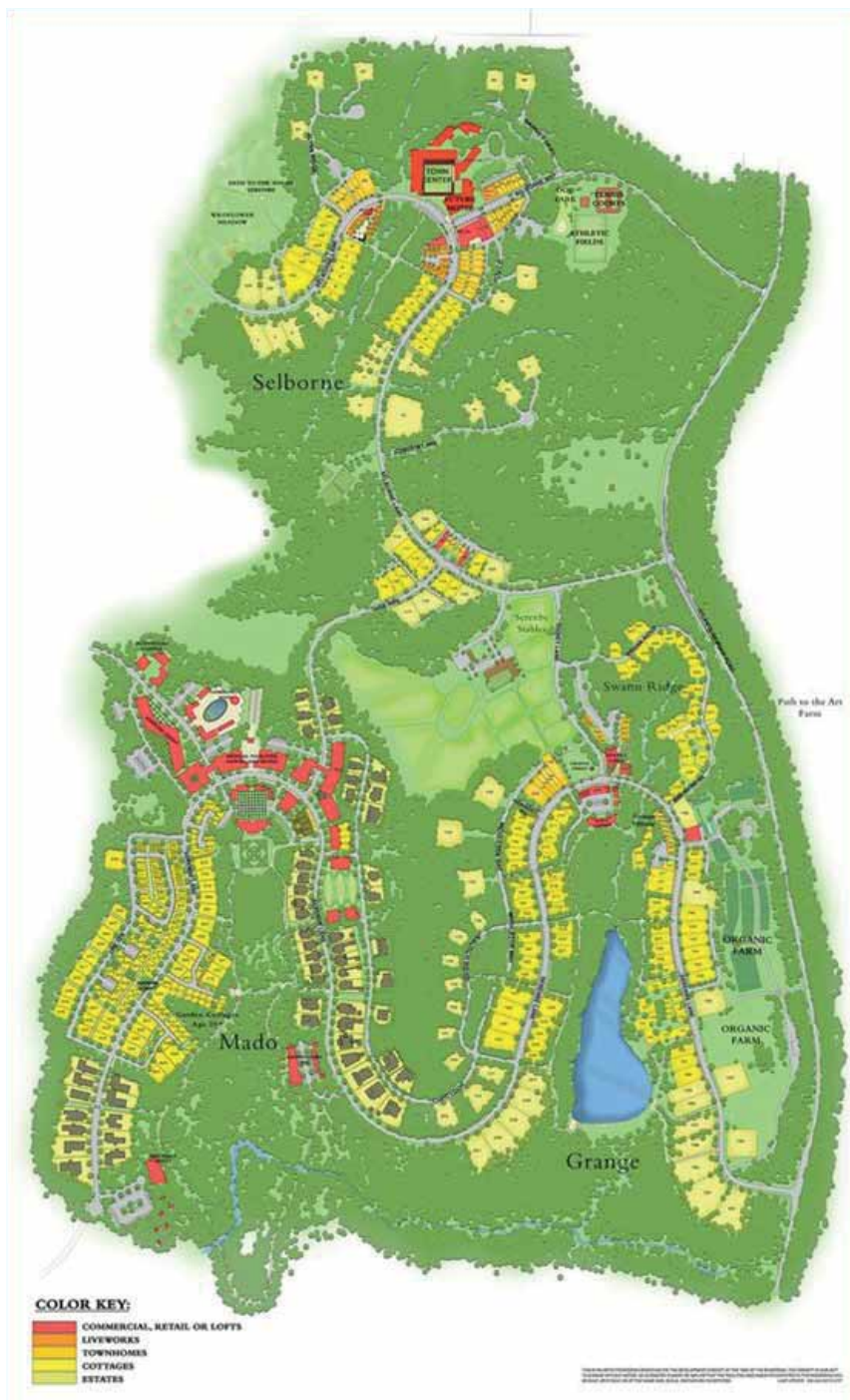
⁷ Information about the investment comes from the paper by Tabb (2013), unpublished Master's thesis by Gotherman (2013), and the official website of Serenbe community at <https://www.serenbe.com/>.

⁸ The recently formed municipality that includes Serenbe.

gathered other landowners in the area to discuss how to best preserve the natural landscape while also accommodating the inevitable need for housing and development. After a series of public meetings and discussions, they helped form the Chattahoochee Hill Country Alliance, which was tasked with creating a plan to develop the land. Landowners and planners from four counties throughout the hill country worked together to foster regional growth while ensuring that at least 70% of the 40,000 acres would remain green space (conventional zoning would have allowed 30,000 houses to be built on 80% of the 40,000 acres that were covered under the new land-use plan). In 2001, the Alliance hired a professional planning firm that established the Chattahoochee Hill Country Community Plan. The Plan called for a European-village model of high-density residential hamlets within walking distance of community centres and commerce combined with larger surrounding tracts of open space.

The Serenbe Community plan is composed of four omega-shaped hamlets connected by roads and trails, intended to foster a pedestrian-based lifestyle (Fig. 4). This method of arranging the community requires minimal land disturbances and makes it possible to reserve large areas of undeveloped green space. Each part of the settlement has its specific function. The Selborne hamlet is devoted to residential living and the visual and culinary arts, and currently contains Serenbe's retail shops. In the Grange hamlet, the focus is on residential living associated with the equestrian centre and the agricultural theme in the form of a 10-ha organic farm. The farm is owned by the Serenbe Institute for Art, Culture & the Environment (which is funded from fees paid by all incoming homeowners). Homeowners don't work on the farm. Keeping farm operations independent from individual homeowners or a homeowners' association helps to ensure its long-term viability. Organically grown produce and flowers are distributed to the residents subscribed to the community-supported agriculture programme or sold at the Saturday farmers' market and to other restaurants and vendors in Atlanta. The last two hamlets have not been constructed yet. The Mado hamlet is planned for health and wellness, and Hill Hamlet for education, commerce, and a greater variety of non-residential uses.

While some residents build their own dream homes, the community also offers architectural floor plans as well as move-in homes ready to occupy. Buildings of a more rustic aesthetic are located at the ends of the hamlet, while the houses near the centre are more densely arranged and are closer to the road, thereby creating a pedestrian public space. At the centre of each serpentine road there is a concentration of higher-density housing (townhouses, live/work spaces), commercial, and other non-residential mixes of activities (Fig. 5). The hamlet sizes vary from 120 to 240 dwelling units. Serenbe land planning protects the wetlands, and historic zoning preserves the majority of the land as green space, with respect for the agricultural history of Chattahoochee Hill Country.



Source: <https://pl.pinterest.com/pin/548805904571471184/>



Figure 5. Concentration of higher-density housing in the centre of the hamlet

Source: D. Mantey

The community has incorporated a number of rules and regulations that seek to maintain the unique, ecological character of Serenbe. For starters, the community specifically prohibits green lawns dependent on large input of agrochemicals and irrigation. Rather, there is a focus on water-smart landscapes with native and edible vegetation options. Serenbe conserves energy by facilitating geothermal, solar, and net zero homes. 100% of homes and commercial buildings must be built to EarthCraft standards. EarthCraft is one of the nation's most successful regional green building programmes. Some homes at Serenbe are going well beyond even EarthCraft Platinum requirements, such as the Blue Eyed Daisy restaurant which is the smallest Silver LEED-certified building in the United States. In terms of water management, the vast majority of homes in the Serenbe community use greywater recycling systems, while blackwater treatment is based on a unique vegetated wetland ecosystem. Water conservation practices include water-smart appliances like dual-flush toilets and stormwater treatment using natural barriers. Underground trashcans sort garbage, and outdoor lighting regulations that eliminate accidental uplighting ensure clear starry skies.

Pedestrians' safety is ensured by wide pavements, traffic-calming features, and extensive pathways in the whole settlement (Fig. 6). Dozens of miles of nature trails connect the homes, restaurants, art and entertainment options, and other businesses. Serenbe is also 4.5 miles (7.2 km) from Palmetto, GA, where there is a plan to use the existing rail line to provide passenger rail service into Atlanta. The development of rail service connecting Serenbe and



Figure 6. Pathways between buildings

Source: D. Mantey

other towns with Atlanta could help to dramatically reduce energy use and carbon footprint.

The Serenbe settlement so far includes three restaurants, all of which use produce from Serenbe Farms and help in forming social networks. There is also an inn where guests can rent rooms or stay in a variety of cottages. The range of cultural and social events is very extensive for such a small community due to an effective management system. All home or dwelling buyers pay a transfer fee to the Serenbe Institute for Art, Culture & the Environment, which is used for the creation of community events and programmes, the land trust, and other community initiatives. There are three public primary schools approximately ten minutes away from Serenbe and several private schools within and near the community, including Acton at Serenbe (a learner-driven community school, comprising “studios” that serve children from 18 months to 14 years of age) and the Children’s House at Serenbe for children aged 3–10.

The most common critique of Serenbe is that as a place to live, it is a niche, luxury product. The things that make it fascinating, community-centric, and healthy are things that do not come cheap. “It’s a Disneyland for those who can afford to live in a curated fantasia of idyllic country life” (Herriges, 2019).

3.3. Results

Serenbe and Siewierz Jeziorna have been compared in terms of the level of sustainability measured by New Urbanism principles. In this procedure, a new set of criteria has been used. In the case of the Location and Broader Spatial Context

and the General Design criteria, a scoring system based on a three-point scale has been applied. In this system, 0 means that the given criterion is not met, 1 – it is partially met, and 2 – it is fully met. For the Green Technologies panel, the number of points corresponds to the number of criteria that a given settlement meets. Table 5 presents the results of the assessment of all 16 criteria for both suburbs, and Table 6 shows total scores for particular groups of criteria.

Table 5. Assessment of sustainability for Siewierz Jeziorna – S-J (PL) and Serenbe – Se (USA)

	Criterion	Settlement	0	1	2	Comments
Location and Broader Spatial Context						
1	Access to Water and Wastewater Infrastructure	S-J(PL)		1		new public water and wastewater infrastructure provided by the municipality
		Se(USA)	0			no existing or planned public water and wastewater infrastructure
2	Restoration or Long-Term Conservation of Habitat or Wetlands and Water Bodies	S-J(PL)		1		new residents are committed to planting only native plants, no other forms of habitat protection
		Se(USA)			2	70% of the total area is protected; instead of green lawns, water-smart landscapes with native and edible vegetation options are recommended
3	Agricultural Land Conservation and Food Production	S-J(PL)	0			no community gardens, farmland conservation, or food production
		Se(USA)			2	10-ha organic farm, community-supported agriculture programme, Saturday farmers' market
4	Access to Quality Transit	S-J(PL)		1		there is a bus to a nearby town, but it runs very rarely, and the route is long (it takes 40 minutes to drive 3 km)
		Se(USA)	0			no public transport
5	Bicycle Facilities	S-J(PL)	0			not included in the bike path network, no internal paths for bicycles only
		Se(USA)	0			not included in the bike path network, no internal paths for bicycles only
6	Housing and Jobs Proximity	S-J(PL)			2	an office section along the national road No. 1 is planned on the outskirts of the suburb
		Se(USA)		1		there is no significant concentration of workplaces, except for the farm and local businesses within the community

Table 5. cont.

	Criterion	Settlement	0	1	2	Comments
General Design						
7	Compact Development	S-J(PL)			2	83 people/ha
		Se(USA)		1		8.75 people/ha but they are highly concentrated in a few hamlets rather than spread out throughout the whole area
8	Connected and Open Community	S-J(PL)		1		access by only one road (national road No. 1), away from the network of bicycle paths, based on a grid-like internal street network, no gated spaces
		Se(USA)	0			community "hidden" in the forest, access by only one local road, away from the network of bicycle paths, serpentine-like internal streets, no gated spaces
9	Walkable Streets	S-J(PL)		1		pavements only along main streets, many internal routes for pedestrians only, not enough trees and shade along the streets
		Se(USA)			2	pavements in all hamlets, tree-lined and shaded streets, pathways, and dozens of miles of nature trails that connect different uses
10	Mixed-Use Neighbourhoods	S-J(PL)			2	there are already two shops, a bistro, a private nursery, and a few open recreational objects; other facilities, including public, are planned
		Se(USA)			2	many non-residential facilities belonging to the following domains: commerce, health, education, art (including culinary art), agriculture, recreation, civic and community facilities
11	Local Centre	S-J(PL)			2	each phase is concentrated around a square, one of which (the most centrally located) will serve as the town centre with the church as the dominant
		Se(USA)		1		there is no main town centre, each hamlet has its own concentration of higher density housing and non-residential uses
12	The Value of Architecture	S-J(PL)			2	architectural code applied to define the external appearance of the settlement, which should refer to the Silesian regional style

	Criterion	Settlement	0	1	2	Comments
		Se(USA)			2	biophilic design – a concept rooted in building relationships between humans and nature, and experiencing nature and community; there are five architectural styles, whether in the form of private residences or community buildings: Classic Farmhouse, Victorian, Modern, European, sp. Scandinavian, French Colonial / Chateau, All-Brick Lofts; each home has eco-friendly features (EarthCraft standards)
13	Access to Recreation Facilities	S-J(PL)			2	recreational areas by the lagoon, jogging paths, a large playground, a football field, a dog paddock as well as a city park with a network of reservoirs, natural meadows nearby
		Se(USA)			2	roofed facilities and open recreational areas: stables, playgrounds, dog park, swimming pool, and athletic fields, and the surrounding nature (mainly forests)
14	Neighbourhood Schools	S-J(PL)		1		the nearest public school is a 3–4-minute drive away; in the local plan adopted in 2010, a plot of land intended for a school was reserved within the suburb and, if necessary, local authorities are ready to build it
		Se(USA)		1		three public primary schools about 10-minute drive away and several private schools within and around the suburb
15	Community Outreach and Involvement	S-J(PL)			2	the first masterplan of the suburb was preceded by an international urban planning charrette; in 2021, city workshops were held with the participation of residents and developers to prepare the second masterplan (Masterplan 2.0)
		Se(USA)		1		the whole suburb is mainly a vision of its founders – the Nygrens; public meetings and discussions were held with other landowners, planners, and local authorities on how to develop the wider area and protect nature

Table 5. cont.

	Criterion	Settlement	0	1	2	Comments
Green Technologies						
16	Green Infrastructure & Buildings	S-J(PL)	4			• Rainwater Reuse Solutions • Renewable Energy Production • District Heating and Cooling • Light Pollution Reduction
		Se(USA)	6			• Certified Green Building • Rainwater Reuse Solutions • Renewable Energy Production • District Heating and Cooling • Wastewater Retain Systems • Light Pollution Reduction

S-J(PL) – Siewierz Jeziorna; Se(USA) – Serenbe

Source: Own elaboration

Table 6. Total assessment scores

Group of criteria	Maximum score	Number of points	
		Siewierz Jeziorna (PL)	Serenbe (USA)
Location and Broader Spatial Context	12	5	5
General Design	18	15	12
Green Technologies	6	4	6
Total Score	36	24	23

Source: Own elaboration

The comparison of both suburbs shows that Siewierz Jeziorna has achieved a slightly better total score, mainly due to a design that better meets New Urbanism principles (Table 6). In Serenbe, on the other hand, more advanced green technologies have been used. In both cases, a long distance from compact development and the lack of public transport seem to be the greatest transgressions of the principles of sustainability. New suburbs are often isolated from urbanised areas, and their inhabitants depend on car transportation. Moreover, when advertising the investment, developers usually ignore its wider spatial context and focus mainly on the advantages of the settlement itself within its borders.

4. Conclusions

As a response to the modernist vision of cities, since the 1970s, the principles of New Urbanism have set new trends in the design of housing estates, districts, or entire settlements. The concept has become the basis of many

other trends. It has seriously directed Western planning and architectural ideas towards creating a more human-friendly environment. While in Poland we are still discovering principles that are already well-rooted in American reality, Americans seem to be evolving towards Biophilic Design, Agrarian Urbanism, and the process of restoring human scale to cities and their suburbs based on culture and art. Food- and nature-responsive design is characteristic of new residential neighbourhoods mainly in peri-urban areas. In residential projects based on the New Urbanism approach, in addition to compact and dense development, vital public spaces, walkability, and social and functional mix, American designers opt for natural environment protection, local food production, and opportunities for the development of cultural services for residents and visitors. Serenbe is a good illustration of the latest trends. It is a model of how developers can build wellness-oriented suburban neighbourhoods respecting biophilic principles and resilient communities in the future (Ghosh, 2016). Serenbe connects people to nature and to each other through locally produced food, acres of preserved natural land, the arts, and seemingly insignificant social initiatives such as central mail pick-up stations giving people a place to meet and chat. It is open to visitors who come here for fresh air and a connection to nature, arts, and culture. The Serenbe example shows that American New Urbanism promotes projects with greater openness to visitors. Suburbs offer not only shops and basic services but increasingly frequently also cultural facilities and events that attract a wider audience, including urbanites. According to the founder of Serenbe, art is one of the pillars of a balanced community, so he emphasises community building by creating a space that gives social and cultural opportunities. In Poland, openness to visitors increases almost exclusively when recreation is one of the leading functions of the area in which the suburb is located. Location over a larger water reservoir contributes to the increase in the number of one-day or weekend tourists, which in turn translates into the development of tourist infrastructure and local eateries.

Polish proponents of New Urbanism associate the idea of urbanity mainly with dense and accessible settlements that generate walking and neighbourly activities (Jabareen, 2006). They believe that the liveability of a place results mostly from high-quality architecture and urban planning. Agriculture, which is a popular element of the Polish peri-urban landscape, is not an effective incentive to follow Agrarian Urbanism principles that integrate food production with the current urban planning policy. The lack of interest in linking food-efficient designs to New Urbanism principles may come from the fact that in Poland, suburban housing estates are much smaller than American ones. Consequently, residential investments are expected to generate profits rather than contribute to the protection of the natural environment and agricultural land. Even larger suburbs, such as Siewierz Jeziorna, are usually densely built-up. Farmland does not constitute a part of such projects, and for people working in large cities, community gardens are not an option for leisure. Edible vegetation is also not planted along roads and in public spaces.

The comparison of the two New Urbanism projects shows that regardless of the scheduled functions and applied ecological solutions, spatially isolated suburban settlements in both geographical contexts do not provide access to jobs and public transport, thus violating sustainability principles. The broader spatial context, linkages, and location are the most neglected sustainable development elements, while the trend of combining urban design with nature is steadily gaining importance. D. Farr (2008) suggests that Sustainable Urbanism, which enriches New Urbanism with elements of eco-development, should become a leading model of urban development and designing new building complexes. He established a list of environmental criteria for new development complexes which also became the basis for the LEED for Neighborhood Development assessment system. Sustainable Urbanism combines New Urbanism principles with smart growth. Farr (2008) organised the determinants of the premises behind the “friendliness” of urban planning into five groups: density, transport corridors, sustainable surroundings, biophilia, i.e. contact between people and nature, and the energy efficiency of buildings and infrastructure. Importantly, at least two determinants directly relate to the linkages between settlements and their wider environment, which in the case of suburbs are the lowest-rated aspect of sustainability.

Creating a sustainable living environment requires greater awareness of new trends among the participants of interactive workshops preceding the development of the conceptual settlement plan. Therefore, collective planning is one of the criteria for assessing sustainability. It may help in disseminating green, energy-efficient, pro-social, and space-preserving solutions.

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ABSTRACT**New Urbanism in assessing sustainability of Polish and American suburbs**

While in the U.S. there are numerous suburbs entirely following the concept of New Urbanism or Food Urbanism, in Poland it is still challenging to find examples of such estates. The article is aimed at comparing two sustainable suburban neighbourhoods: Serenbe in Georgia, U.S., and Siewierz Jeziorna, Poland. It presents a new tool for evaluating suburban settlements based on LEED-ND and CNU. While in Poland we still mainly build the idea of urbanity on dense and accessible settlements that generate walking and neighbouring activities, Americans seem to be evolving towards Biophilic Design, Agrarian Urbanism, and the process of restoring human scale to cities and their suburbs based on culture and art. The broader spatial context, linkages, and location are the most neglected sustainable development elements, while the trend of urban design harmonious with nature is steadily gaining importance.

Keywords: New Urbanism, Biophilic Design, Agrarian Urbanism, suburbs, LEED-ND, Siewierz Jeziorna, Serenbe

POSSIBILITY OF IMPLEMENTING THE BARCELONA SUPERBLOCKS MODEL IN THE POST-COVID-19 CITY. REFLECTIONS ON LATIN AMERICA

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1. Introduction

Cities already concentrate more than half of the world's population and 80% of the global GDP (United Nations, 2019). They play the role of the main centres generating technology, wealth, and social interactions. On the other hand, they are hotspots of socio-economic inequality, air pollution, heat, disease, and noise (Nieuwenhuijsen, 2020). They lack green spaces that benefit the physical and mental health of citizens, decontaminate the air, mitigate the urban heat island effect, reduce rainfall runoff, or simply improve the aesthetics of public spaces (Marconi et al., 2022). These negative aspects of urban functioning are primarily the result of twentieth-century urban planning and design focused on meeting the needs of motorised residents.

The effects of urban mismanagement became even more visible during the COVID-19 pandemic, which began in early 2020. Among others, the situation proved that cities exposed to higher levels of air pollution, especially NO₂ and PM_{2.5}, were more susceptible to infection and mortality from the new virus (Ali, Islam, 2020). Thus, the health crisis has led to a rethinking of public spaces and their role in life quality in cities (Cobbinah et al., 2021).

Under recent reduced-mobility circumstances and social isolation, many city leaders implemented innovative projects focusing on, for example, displacing cars, increasing space for active transportation, and extending bike lanes (Weis, 2020; Vandy, 2020). Cities such as Vienna and Boston closed many streets to give more space to pedestrians and cyclists (Laker, 2020; Berentschaft, Scheller, 2020). These temporary road closures and other short-term measures serve as a testing ground for changes that may eventually become permanent (Bliss, 2020). Many of these types of initiatives started before the COVID-19 pandemic but have intensified over its course.

According to R.S. Kunzmann (2020) and M.J. Nieuwenhuijsen (2021), the COVID-19 pandemic accelerated the implementation of new urban concept such as the Superblocks, the low traffic neighbourhood, 15-minute city, Car-Free City, Smart City, or a mixture of these. It is estimated that the

above-mentioned planning developments go some way in reducing health-related, social, and environmental burdens.

This publication deals with just one urban model that has recently attracted considerable media and scientific interest, the Superblocks concept (Staricco, Brovarone, 2022). This idea – originally from Spain – is increasingly being embraced internationally. It is the subject of academic and public debate in, for example, the United States (Roberts, 2019), China (Kan et al., 2017), and Panama (Caballero et al., 2022). It seems, however, that the topic is still relatively unknown in Latin America. Therefore, this text reflects on the possibilities of implementing the aforementioned concept in the Spanish and Portuguese-speaking region.

2. Methods

It is worth asking the question: Is the Superblocks model viable to apply in Latin America? In order to answer it, it is necessary to identify the factors that negatively and positively influence these urban projects and relate them to the specificities of Latin American cities. This goal is to be achieved through PESTE analysis (an acronym for ‘Political, Economic, Social, Technological and Environmental’). It is a variant of the PEST method that “can be applied to other fields of study rather than limiting it to marketing and business organizations only” (Saburi, 2012, p. 265). Thus, PESTE analysis has been selected as the main tool to guide reflection on the application of the Superblocks concept in the Latin American context.

3. Barcelona Superblocks model

In the shortest terms, the goal of the so-called *Supermanzana* (i.e. ‘Superblock’ in Spanish; hereinafter also SM) model is to make the city more liveable and sustainable. More specifically, this idea is implemented to:

- create healthy, green, equitable, and safe public spaces in which social relationships and local economies are strong;
- reduce the use of private cars while increasing the role of public and active transport, i.e. walking and cycling (Nieuwenhuijsen, 2021).

An SM is a grouping of nine (usually) blocks of buildings. It is a new basic urban cell measuring 400 by 400 metres, which is inhabited by 5,000 to 6,000 people (Rueda, 2019) (Fig. 1).

SMs can be designed for new neighbourhoods, but they are most often created by remodelling the existing urban fabric. In the latter case, the concept is based primarily on traffic reorganisation. First of all, four central junctions in a grid of nine are almost entirely closed to motorised vehicles. They are transformed into squares. In addition, new traffic rules take effect. Before the

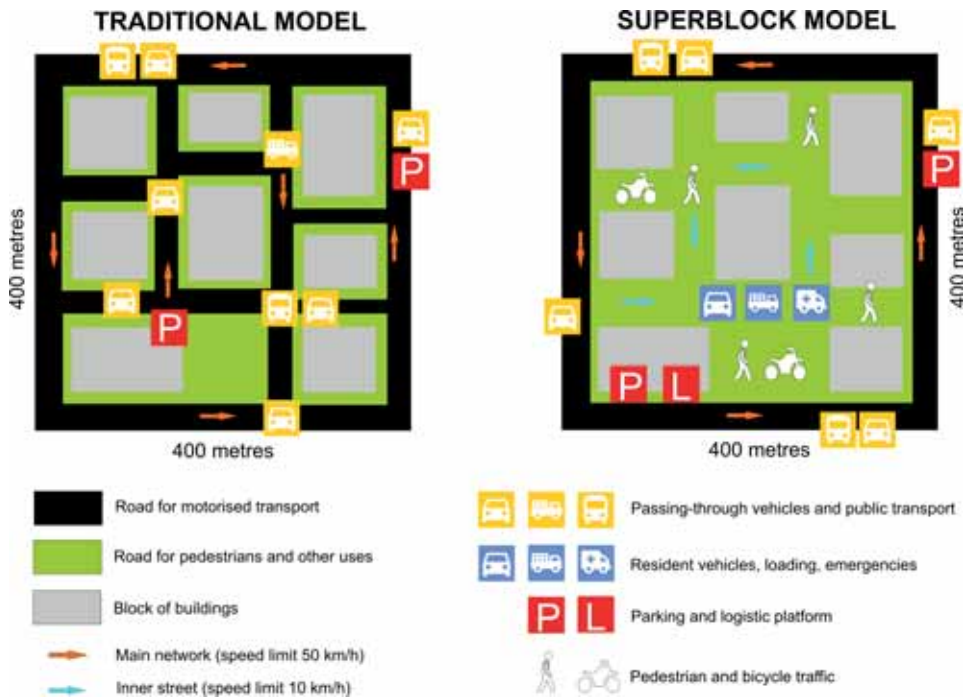


Figure 1. The SM model at the neighbourhood level

Source: Own elaboration based on Rueda, 2014

changes, cars travel at a speed of no more than 50 km/h on all streets. After the transformation, such speed is permissible only on the routes surrounding the SM. These streets connect with their counterparts in the neighbouring Superblocks, creating a *de facto* transport network that enables the fastest possible passage from one side of the city to the other. Inside a single SM, in turn, vehicles move very slowly, i.e. up to 10 km/h. In this area, inner streets are reserved for pedestrians and cyclists and, under specific conditions, for certain types of vehicles serving the residents (e.g. ambulance, police car) and local businesses (delivery services) (Fig. 1). Traffic on these roads flows in opposite directions. Thus, the driver has to turn instead of going straight after reaching the square (Szumigala, Urbański, 2017). Considering the above, it can be concluded that the Superblocks model provides a paradigm shift from car-centred city planning towards people-centred city planning (Mueller et al., 2020).

The SM concept is the brainchild of urban planner Salvador Rueda, director of the Barcelona Urban Ecology Agency. It is therefore not surprising that the Catalan capital has been a pioneer in implementing this concept. What is more, the city is facing serious challenges to which the described model is precisely the answer. These problems revolve around environmental and transportation issues. Barcelona is the second most polluted city in the European Union. Smog is responsible for around 3,000 premature deaths per year (Mueller

et al., 2017). The main source of contamination is private transport – there are 7,000 cars per 1 km², compared to 1,500 in Paris and 1,200 in London. As much as 60% of public space (i.e. roads and parking) is used by cars, even though the latter are only used for 20% of the city's trips, and the average number of people per car is 1.2 (Bravo, 2019). Moreover, for several years the city has been governed by a political group that favours innovative urban models such as the Superblocks concept. Since 2015, the mayor of Barcelona has been the left-wing progressive Ada Colau, who has a background in activist movements.

In addition to Tactical Urbanism,¹ decision-makers in Barcelona like to refer to New Urbanism approaches. The SM model also includes references to Feminist Urbanism. It does not denote urban design specifically for women but a municipal policy responding to the demands of the entire population, especially the most vulnerable groups such as women, seniors, children, people with functional diversities, etc. (Falú et al., 2022). However, most of all, the Superblocks concept was created as part of the Ecosystemic Urbanism which takes into account the many restrictions (constraints and indicators) that urban development imposes on the environment. The degree of adjustment made to urban design for the benefit of the environment is reflected in each stage of planning (Barcelona Urban Ecology Agency, 2022).

Based on the case of the Poblenou Superblock, the process of implementing this urban concept can be briefly described as follows. Originally, the streets were 25 metres wide, with 5 metres on both sides dedicated to pavements and 10 metres for a three-lane street and parking spaces for cars. After the changes, only one lane remained for car traffic, and cars must now make a 90-degree turn at each intersection. This means that on each section of the street, 75% of the space previously used by cars has been dedicated to non-motorised persons, and 2,000 m² of roadway space has been reclaimed for residents at each intersection (Kubicki, 2021). New development opportunities have arisen that previously did not exist due to the primacy of the automobile. Finally, after the gradual, long-lasting, and participatory implementation, the neighbourhood has changed dramatically. According to the Feminist Urbanism approach, this area is no longer designed by heterosexual, white, mostly wealthy men for men like them, with mobility from work to home and from home to work hinging solely on the use of private vehicles. The pedestrians have become the main users/protagonists of the public space. Tree pots have appeared on streets and intersections. Benches, chairs, child seats, bicycle racks, picnic tables, an 80-metre athletic treadmill, table tennis tables, various games painted on the ground, a basketball hoop, and children's playgrounds were installed on roads (Scudellari et al., 2020).

¹ Tactical Urbanism is a range of small and low-resource measures that make urban space accessible to pedestrians. This takes the form, for example, of closing certain streets to car traffic on weekends.

In Barcelona, several smaller SM projects were launched to implement in the neighbourhoods of Hortafrancs, Horta, La Maternitat, Poblenou, Sant Antoni, and Sant Ramon. The latest investment – announced in late 2020, i.e. during the COVID-19 pandemic – has already gone beyond the pilot framework and concerns practically the entire Eixample district (area of 7.5 km², 250,000 inhabitants). The project – so-called *Superilles* in Catalan – aims to create 21 Superblocks with 21 green axes instead of streets and 21 small squares instead of intersections by 2030, generating 33.4 hectares of pedestrian space and almost 7 hectares of urban greenery. The first phase of implementation began in June 2022 (Ajuntament de Barcelona, 2022).

A meaningful evaluation of the impact of Barcelona's Superblocks on quality of life is difficult, if not impossible, for two reasons. Firstly, the neighbourhoods in which the Superblocks are implemented are very different from each other, so it is difficult to draw general conclusions. Secondly, their implementation is at different stages (Kubicki, 2021). Nevertheless, one may be tempted to evaluate the already mentioned Poblenou Superblock, which started to function as the first one already in mid-summer 2016. Initially, the project was met with considerable resistance from the local population and entrepreneurs. Most of all, technical and organisational implementation shortcomings and lack of citizen participation during the planning and design process were criticised. Many people felt uninformed and disregarded. For example, the owners of nearby car repair shops argued that there was insufficient protection for their trade in a situation when the traffic volume in the neighbourhood would decrease. Learning from these mistakes, the SM was transformed to meet local needs identified through public consultations. Over time, public acceptance grew along with the tangible benefits of the transformation, especially in the context of playground development and urban green space (Zografos et al., 2020).

Of course, there are many obstacles and drawbacks to the development of Superblocks, such as the necessity to redesign the collective transport network, the lack of visible advantages if they are not implemented in the entire city, or the risk of gentrification and tourism massification in the areas of implementation. Significant socio-political barriers also derive from the ideological differences in the vision of city development between various individuals and social and professional groups (López et al., 2020). In the context of these challenges, it is necessary to build a coalition that will allow for arriving at a consensus as to what the future of the city will be and what final form Superblock will take. After all, every idea can be adapted to specific circumstances.

4. Results

Table 1 summarising the PESTE analysis shows the following results. Generally speaking, Latin American cities – just like Barcelona – need the concept of Superblocks, which paves a path towards a sustainable and friendly living

environment. However, implementing this model will not be easy, as there are many obstacles that need to be overcome.

Latin American urban settlements are characterised by, among other things, high concentrations of air pollution. The indices of PM_{10} and $PM_{2.5}$ in most of the cities exceed the WHO air quality standards (Zakirul, 2019). Admittedly, many urban centres in the region meet the WHO (2010) recommendation that there should be a minimum of 9 m² of green space per capita. For example, the average for 32 Mexican cities is as high as 285 m² per capita (own calculation based on The Humanitarian Data Exchange, 2018). However, these areas are often unevenly distributed, fail to meet the expectations of residents, and lack safety. In Mexico City, as many as 72% of neighbourhoods do not have access to urban green spaces within 300 metres, and 71% of them lack children's parks or green areas covering 200–400 m² (Huerta, 2022). It seems that the SM model is the right tool to address the problems identified above.

Table 1. PESTE analysis on the application of the Superblocks concept in Latin American cities

	FACTOR	OBSTACLE	DRIVER / NEED
POLITICAL	1. High level of corruption 2. Widespread use of various forms of direct democracy (consultations, participatory budgeting)	×	×
ECONOMIC	3. Limited public budget	×	
SOCIAL	4. Limited social participation in urban planning and management 5. Relatively high use of public transport 6. Low confidence in authority and people	×	×
TECHNOLOGICAL	7. Unsatisfactory level of development in Intelligent Transport Systems (ITS)	×	
ENVIRONMENTAL	8. General lack of green spaces 9. High population and building density 10. Spaces without control and regulations (slums, etc.) 11. Unsatisfactory air quality 12. Poor quality of public transport	×	×

Source: Own elaboration

The morphological characteristics of Latin American cities predestine them to apply the SM concept. They often have a preserved urban layout from colonial times, which is characterised by a regular checkerboard pattern of streets and clearly distinguishable building blocks. They are also densely populated (about 6,000 people per km²), which makes them most similar to urban centres located in two regions of the world: in North Africa with the Middle East and in Europe with Central Asia, where most of the Superblock projects have been implemented so far (OECD, 2020). The indicated regularity also applies to the percentage of the population with access to open public spaces (Table 2). In such conditions, it is easier to introduce the described concept, because the Latin American authorities do not have to radically change the European prototypes. On the other hand, Latin American cities have more heterogeneous spatial structures than Barcelona and other European cities. Their urban fabric is fragmented by slums and gated communities. This feature hinders the scalability of SM projects to a larger area in the city.

Table 2. Share of the urban population in access to selected areas and services by world region

	Region / City	Access to a public transport stop ¹	Access to an open public space ²
1.	Latin America and the Caribbean	43	59
2.	Central and Southern Asia	34	46
3.	Western Asia and Northern Africa	36	56
4.	Northern America and Europe	91	66
5.	Australia and New Zealand	86	82
6.	Sub-Saharan Africa	31	45
7.	Eastern and South-Eastern Asia	41	46
8.	Oceania excluding Australia and New Zealand	19	46

Explanation:

¹ Access within a walking distance of 500 metres (for low-capacity public transport systems) and/or 1,000 metres (for high-capacity public transport systems) along the street network.

² Access within 400 metres of walking distance along the street network to open public space.

Source: Own elaboration based on UN-Habitat, 2021

Limited financial resources constitute a significant obstacle in the implementation of SM projects in Latin American cities. As shown by the Spanish example, this type of urban transformation requires a large capital investment. The total cost of Superblock projects in Vitoria-Gasteiz from 2008 through 2016 was €56.6 million (Enzinna, 2019). Barcelona's *Superilles* plan

is estimated to cost €37.8 million (Carey, 2020). In the former city, the biggest expenses came from creating cycling and pedestrian lanes and public bicycle storage and rerouting bus lines around the perimeter. Building underground garages for stowing parked cars was another relevant cost, as was educating the public on the entire SM concept (Enzinna, 2019). Moreover, A. Nanda (2019) claims that even if the inner Superblock streets are refreshed with street furniture and greenery, roads surrounding each SM will likely have to be adapted to accommodate more traffic. High-cost investments in infrastructure and technology, such as the installation of an intelligent traffic management system, are necessary to avoid major traffic jams and cases of isolation of the resident population.

Most likely, SM project costs will be much higher in Latin America than in Europe. This assumption comes from the following reasoning. In order to implement such urban programmes, Latin American cities will need funds – as do the European ones – to reorganise existing public transport networks, such as the particularly popular Bus Rapid Transit system, BRT for short (Yañez-Pagans et al., 2019). Nevertheless, significant expenditures must be added to increase the supply of quality public transport, which has not been the case in the Spanish context. Although it has been clearly improved in the last two decades as a result of the financial commitment of the authorities through public-private partnerships (Infralatam, 2018; Vassallo Magro, 2015), there is an urgent need for its development in the region, as it is not keeping up with demand (Inter-American Development Bank, 2013). Still, too few people live close to any transport stop (Table 2).

The question arises: From what sources should SM projects be financed? The COVID-19 financial stimulus packages such as the Biden Administration's Infrastructure Plan and the EU Green Deal as well as the Next Generation funding can facilitate and accelerate the implementation of the Superblocks concept in the Global North (Nieuwenhuijsen, 2021). For Latin American countries – mostly with limited financial resources for urban investment – finding such permanent funding is much more difficult. Nonetheless, it is in the post-COVID period that it is more possible than ever to create national funds in Latin American countries to support the implementation of new urban models, and at a time when national budgets are strained by expenditures related to fighting the effects of pandemic and repaying foreign debt (Debt-Justice, 2022). Reports indicate that the health crisis was like a catharsis for Latin Americans; it exposed inequalities in society and forced citizens confined to their homes to critically reflect on their lives. Determined as never before, the region's populations now want to improve their quality of life (Latino-barómetro Corporation, 2021). The societies of the continent expressed the need for fundamental change during the last round of presidential elections, among others. In countries with traditionally right-wing or centrist authority – such as Chile, Peru, or Colombia – left-wing politicians have come to power, declaring support for a radical green transformation in cities.

Social participation – which is a guarantee of the success of SM projects – has been developed in Latin America for many years. It is in that very region, for example, that the idea of participatory budget was born. However, in practice, the priorities and perspectives of politicians and bureaucrats very often take precedence over the needs and demands of residents, especially marginalised groups. As a result, those communities have learnt not to trust formal authority and to rely on internal leaders – whether peaceful or violent – to survive (Hilgers, 2020). Ultimately, civic participation is superficial and does not include the entire community.

Widespread lack of trust seems to be one of the main obstacles in the planning and implementation of the Superblocks concept in Latin America. It is a region with the lowest level of trust in the world. On average, less than 3 in 10 people trust their governments, and only 1 in 10 considers other people trustworthy (Keefer, Scartascini, 2022). Therefore, residents, authorities, entrepreneurs, bankers, and other actors do not want to cooperate in SM projects. Moreover, there is really no entity that could be entrusted with the money to make this type of investment. In all likelihood, the idea of raising taxes to fund these projects would be opposed by many people convinced that the funds would ultimately be misappropriated. There are many reasons for the dysfunction of the countries in the analysed region, but the most important are corruption, crime, and inequality.

5. Conclusion

Taking into account the considerations based on the PESTE analysis presented earlier, the Superblocks model is a contemporary solution for many of the central neighbourhoods of medium-sized Latin American cities, such as Montevideo or Asunción. The basic principles of the SM concept, which prioritises pedestrians, cyclists, and high-quality public spaces over motorised vehicles, are viable in the Latin American context. Nevertheless, the example of Barcelona cannot be “copy-and-pasted” to this region. The local projects should be modified to meet the limitations of a given area.

The concept of SM addresses the long-neglected needs of Latin America’s urban population. It seems to be not only a tool for combating climate change, but also a way to improve the quality of life of various groups of inhabitants, including those marginalised. Thus, it contributes to environmental and social justice. A significant advantage of the Superblocks model is that it creates a radical change in the urban living environment but does not generate conspicuous negative effects, such as mass displacement and demolition of buildings.

It is worth mentioning some ideas that may make the implementation of Superblocks more effective in Latin America. First of all, SM projects should be complementary with urban programmes aimed at reducing corruption, crime,

inequality, etc. These activities must be carried out simultaneously or even precede the creation of new neighbourhood units. There is also a need to develop a mechanism to prevent gentrification and over-tourism. Furthermore, it is necessary to arrange a transparent financing and management model to build greater trust. Additionally, it is obvious that residents should be involved early in the design of Superblocks to reduce social conflicts. It is also worth developing an adequate strategy to communicate with the public about Superblocks. The support of journalists seems to be very important. They may serve as spokespeople for the contractors of *Superilles* projects and warm society up to this concept by using accessible and emotional language that scientists do not have.

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ABSTRACT**Possibility of implementing the Barcelona Superblocks model in the post-COVID-19 city. Reflections on Latin America**

Many cities have seen the COVID-19 crisis as an opportunity to realise, or rather a warning, that accelerated and equality-based transformation towards sustainability is a necessity. At the end of 2020, the mayor of Barcelona announced a large-scale plan to remodel the Eixample district according to the Superblocks model. The neighbourhood, which covers a large area, is planned to become a place where greenery and pedestrians are the protagonists. The project was preceded by intensive social consultations and takes into account the needs of children, elderly people, and women, that is, the groups whose voice was not heard in traditional city planning. Cities in Latin America are considering adopting the Barcelona Superblocks model. This text discusses the possibilities of implementing the aforementioned concept in Latin America. The conclusions are drawn on the basis of PESTE analysis, which is a variant of PEST analysis.

Keywords: Superblocks model, Barcelona, Latin America, COVID-19

III. CONTEMPORARY URBAN PROCESSES

FRAGMENTATION, SEGREGATION, AND GOVERNANCE IN RURAL URBANISATION THROUGH HOUSING DEVELOPMENTS IN CALIMAYA, MEXICO

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1. Introduction

This paper is based on two research projects. The first, already completed, was called *Sustainability of the Territory: The Participation of the State, Private Initiative, and Society in the Production of Formal Housing*, for which I received funding from the National Council of Science and Technology (CONACyT). The second one, which is under works, is titled *Strategic Plan for the Management of Land, Adequate Housing, and Access to Habitat: Co-Participatory Laboratory in the UAEMéx*, also carried out with funding from CONACyT as part of the National Strategic Programmes (ProNacEs) in the field of housing. The objective of the research is to present some reflections on the consequences of the urbanisation of the countryside in Calimaya, as well as on how governance at the municipal level has resulted in fragmentation and segregation in the area.

The municipality of Calimaya de Díaz González, geographically located at longitude 99°37'02" west and at latitude 19°10'22" north (INAFED, 2022, as cited in PDMC, 2022), is one of the 125 municipalities that belong to the administrative political territory of the State of Mexico, as well as part of the 22 municipalities that make up the Metropolitan Area of the Toluca Valley (ZMVT), based on the Planning Law of the State of Mexico and Municipalities, and part of Region XIII Tenancingo 2017–2023 of the State of Mexico.

The process of urbanisation of agricultural lands in Calimaya through developing housing projects has begun in the year 2000, when a condominium comprising some 18 homes was authorised to be developed. By the beginning

of 2007, a total of 3,205 homes were developed in one of the first urban complexes of mixed type (medium and residential housing). The project had a great impact on the process of urbanisation in the territory of the municipality, since the real estate developer in charge of it was required to present the municipality and the state with a plan taking into account donation areas, urbanisation works, and equipment corresponding to the urban complex: I) Donation areas. II) Urbanisation works. III) Primary infrastructure works. IV) Equipment works.

Processes of urbanisation of the countryside through housing projects are a common phenomenon in most of the Mexican territory. They exert influence on the environment, society, as well as on the public administration. One of the consequences of their authorisation and implementation is fragmentation and segregation, in most cases linked to problems with governance by public administration at the municipal, state, and federal level.

In this context, fragmentation, more precisely urban fragmentation, is understood as a spatial phenomenon that is characterised by obstructions in the process of expansion of the urban fabric in the form of material and immaterial barriers, which in turn generates social segregation (Guzmán Ramírez et al., 2021). The latter, namely socio-spatial or territorial segregation, can be defined as a social phenomenon in which the state intervenes to facilitate the reproduction of private capital and in doing so detaches itself from its social obligations (Guzmán Ramírez, Hernández Sainz, 2013).

On the other hand, a major contributor to problems in the context of housing development and the phenomenon of social segregation, caused in part by public institutions, is the issue of governance. Urban governance by local governments responsible for managing urban development has the ability to transform social demands and needs into concrete solutions (Vásquez Avellaneda, Navarrete Peñuela, 2014).

2. Methodology

The methodology used in the research consists of direct and participatory observation to identify the impacts and consequences of the authorisation of the development of urban complexes and condominiums in Calimaya, as well as to study urban fragmentation, social segregation, and governance. The work has been carried out on the basis of references to secondary sources that allow to contextualise and understand the relationship between these aspects in physical space.

Likewise, through the analysis and conceptualisation of both issues, it has been possible to identify some governance problems associated with urban fragmentation and social segregation that affect public administrations and governance itself.

The advances in the research have provided a basis for identifying the processes of urbanisation of the countryside through housing projects and

urban complexes as modalities in the execution of urban development, which has been done through the analysis of the context of their authorisation and corresponding legislation.

Subsequently, the geographical location of the study subject has been identified and necessary cartographic material has been developed to represent the characteristics of urban fragmentation associated with walling, as well as its consequences in the form of social segregation linked to physical and immaterial barriers, as referred to by Guzmán Ramírez et al. (2021).

The next step has been field research carried out at the offices of the City Council of Calimaya. It has consisted in conversations with decision-makers in the field of administration of urban development and provision of public services associated with the maintenance of public infrastructure. This has allowed us to observe and confirm the existence of problems with governance associated with fragmentation and segregation.

The field research has also included contacting bodies involved in the authorisation of urban complexes and condominiums, as well as state agencies which have information on the actions of public servants and their omissions in performing their functions, such as the Human Rights Commission of the State of Mexico (CODHEM).

Finally, the results, discussion, and pertinent conclusions have been developed, identifying certain determinants and evidence of the outcome of the urbanisation process in Calimaya, as well as the consequences of the fragmentation and existing segregation resulting from poor governance in different spheres of public administration.

3. Results

The process of urbanisation through housing developments in the municipality of Calimaya, State of Mexico, is recorded to have started in the year 2000 and has had a disadvantageous impact on the area, bringing perceptible results in the form of urban fragmentation and social segregation which we owe to problems with governance and inadequate urban planning.

In this context, it has been essential to reflect on and analyse the effects of the authorisation of various urban complex and condominium projects in the State of Mexico, with particular focus paid to whether these public policies were congruent with or respectful of human rights as provided for in the General Law of Human Settlements, Territorial Planning and Urban Development and in the corresponding regulations concerning the planning and regulation of human settlements and urban development.

The present state of affairs is due to the fact that state-promoted housing policies and programmes are marred by inadequate urban planning and authorisation of popular forms of urban housing lacking sufficient attention, evaluation, or foresight which would promote social welfare and full respect

for human rights. This has had a considerable impact on the Mexican territory and society, fragmenting urban spaces and socially segregating the inhabitants of such developments, at the same time exacerbating the problems with governance in the sphere of public administration.

In addition, when decisions are made to authorise forms – or rather modalities – of urban development intended, among other things, to satisfy the demand for housing and services, and when such projects are carried out in collaboration with private initiative or real estate developers for the benefit of the general population, it is always necessary to guarantee their constant and strict supervision. Such a requirement has rarely been fulfilled.

On the one hand, as a modality in the execution of urban development, urban complexes must be integrated into the local municipality administration and consequently municipalised in line with the corresponding legislation. On the other hand, they are real estate projects developed by the private initiative looking to obtain the highest possible profitability. This results in the social segregation of the inhabitants of such complexes through urban fragmentation, a process which takes place with the consent of the government.

Therefore, it has been essential to expound on and analyse the conceptualisation of the figures of the urban complex and condominium. They are defined in a similar way in the legislation pertinent to their authorisation, considered as two modalities in the execution of urban development, but as specific objects, they require taking actions of a greater or lesser impact on the urban environment.

For example, the development of an urban complex requires actions of greater impact for urban development. They may be considered actions of the first order, since they involve marking out public roads or constructing buildings, facilities, and industrial plants aimed at providing the population with public services to meet its needs for education, culture, recreation, sport, commerce, transportation, health, welfare, and more.

Conversely, the urban actions necessary to develop a condominium have a much smaller scale. This is due to the nature of this form of development, which has a lesser impact on the urban fabric and different characteristics in terms of property regime, dynamics of coexistence, benefits, and habitability.

Likewise, an urban complex as a modality of urban development has certain physical characteristics and notable legal differences that set it apart from a condominium. In some cases, the size of urban complexes has a strong impact on the population and the urban development of municipalities. This is also the case of the municipality of Calimaya, in which the Ministry of Urban Development and Work registered ten housing complexes authorised for development, with a total of 12,154 homes that will service an approximate population of 54,696 inhabitants (Table 1).

However, the process of developing urban complexes in Calimaya has been degraded to the construction of housing exclusively through private participation, which results in lack of congruence with the policies in force and the

Table 1. Authorised urban complexes in Calimaya 2000–2021

No	Name of the urban complex	Company / Promoter	Authorisation date	Type of housing	Number of houses	Served population
1	“Villas del Campo”	GEO Edificaciones, S.A. de C.V.	02.01.2007	Mixed (Medium [3,112] and Residential [93])	3,205	14,423
2	“Sail Andrés”	Inmobiliaria HEMAJO de Atlacomulco, S.A. de C.V.	07.12.2007	Medium	121	545
3	“Villas del Campo II”	GEO Edificaciones, S.A. de C.V.	28.08.2009	Medium	1,892	8,514
4	“Valle del Nevado”	Proyectos Inmobiliarios de Culiacán, S.A. de C.V.	02.10.2009	Social Interest	2,783	12,524
5	“Rancho la Providencia I”	Proyectos Inmobiliarios de Culiacán, S.A. de C.V.	23.02.2010	Medium	310	1,395
6	“TJRBI Hacienda Lomas”	Promoción y Desarrollos URBI, S.A. de C.V.	10.09.2010	Medium	325	1,463
7	“Bosque de las Fuentes”	Inmobiliaria HATTIE, S.A. de C.V.	14.10.2010	Mixed (Residential, Trade, and Services)	987	4,442
8	“Hacienda de las Fuentes”	GEO Edificaciones, S.A. de C.V.	22.10.2010	Medium	1,750	7,875
9	“Valle de las Fuentes”	Consorcio Inmobiliario ZERO, S.A. de C.V.	21.12.2010	Mixed (Residential, Trade, and Services)	464	2,088
10	“Lomas Virreyes I”	ARQ. Sergio Zenneño Ocha	24.08.2016	Medium and Residential	317	1,427
Total					12,154	54,696

Source: Own elaboration based on data obtained from the Ministry of Urban Development and Work of the State of Mexico

Table 2. Authorised condominiums in Calimaya 2000–2021

No	Location	Authorisation date	Type of housing	Number of houses	Serviced population
1	Camino a la Hacienda de Zacango s.n, Santa María Nativitas Tarimoro	10.02.2000	Housing	18	81
2	Carretera Toluca – Tenango km. 13, San Andrés Ocotlán	16.02.2007	Residential complex	56	252
3	Camino Viejo a San Bartolo, Santa María Nativitas Tarimoro	28.06.2012	Residential complex	7	32
4	Prolongación Emiliano Zapata, lote 19, Santa María Nativitas Tarimoro	14.05.2019	Housing	17	77
5	Prolongación Emiliano Zapata, lote 22, Santa María Nativitas Tarimoro	14.06.2019	Housing	3	14
6	Prolongación Emiliano Zapata, lote 25, Santa María Nativitas Tarimoro	27.08.2019	Housing	16	72
7	Calle camino de terracería a la Conchita s.n, San Andrés Ocotlán	06.11.2019	Housing	44	198
8	Calle camino de terracería a la Conchita s.n, San Andrés Ocotlán	06.11.2019	Housing	54	243
9	Prolongación Emiliano Zapata, lote 31, Santa María Nativitas Tarimoro	22.11.2019	Housing	13	59
10	Prolongación Emiliano Zapata, lote 31, Santa María Nativitas Tarimoro	22.11.2019	Housing	8	36
Total				236	1,062

Source: Own elaboration based on data obtained from the Ministry of Urban Development and Work of the State of Mexico

planned public objectives. This in turn has led to pre-emptive fragmentation of urban space and brought with itself various facets of segregation of inhabitants. Also, the private investors have used this form of development as a pretext to build a greater number of condominiums and wall off the entire estate.

In contrast, the number of homes registered through condominium authorisation totals 236, which will service an approximate population of 1,062 inhabitants (Table 2).

It is also important to add that the above forms or modalities of urban development start to concentrate a greater number of inhabitants compared to Calimaya's traditional centres or communities. This is, for example, the case of the municipality seat, which had a population of 13,038 inhabitants in 2020, a number lower than the projected population of 22,937 inhabitants in the housing development of Villas del Campo I and II, which is equivalent to 64% of the sum of both populations.

The process of creating housing estates in Calimaya through the construction of urban complexes with internal condominiums is carried out by developers without the involvement of the authorities, which results in the construction of fences around public facilities and blocking primary communication routes. This leads to urban fragmentation and subsequent social segregation. By authorising similar projects and failing to fulfil their obligations, the public institutions tend to promote the privatisation of public space and allow for housing, urban space, and public equipment and infrastructure to be commercialised as an exclusive product, giving only secondary importance to the objectives standing behind the execution of such forms in urban development. The case is similar for other regions of Mexico, where the model of closed housing estates is implemented based on the arguments of security concerns, social status, and differentiation, and leads to public space being privatised (Alvarado Rosas, Di Castro Stringher, 2011).

Figure 1 shows the ten urban complexes authorised to be developed in the municipality of Calimaya from 2000 to 2021, as well as the evident process of urbanisation of the countryside. The map also includes some previous subdivisions which, although bearing similar physical characteristics, are not considered urban complexes in the sources consulted, since the State of Mexico previously used different legal terminology in defining housing developments.

In the context of developing housing which privileges the private at the expense of the public through closed estates, an important aspect are the modifications made to the legal instruments concerning planning and regulating the territorial arrangement of human settlements and urban development. These documents, called Municipal Urban Development Plans, are changed as to convert previously agricultural areas into land for development. This is a common practice through which real estate developers increase the profitability of their investments – they acquire agricultural areas at a low cost, build them up with homes, and wall off the new estates to then advertise their product as exclusive and offering increased surplus real estate value.

Concomitantly, social segregation is deepened by acts of omission on the part of the authorities responsible for ensuring compliance with the corresponding legislation, normative instruments, or legal agreements in the process of authorisation of urban complexes. Even the residents of the new estates and the public in general are relegated to secondary position in this process.

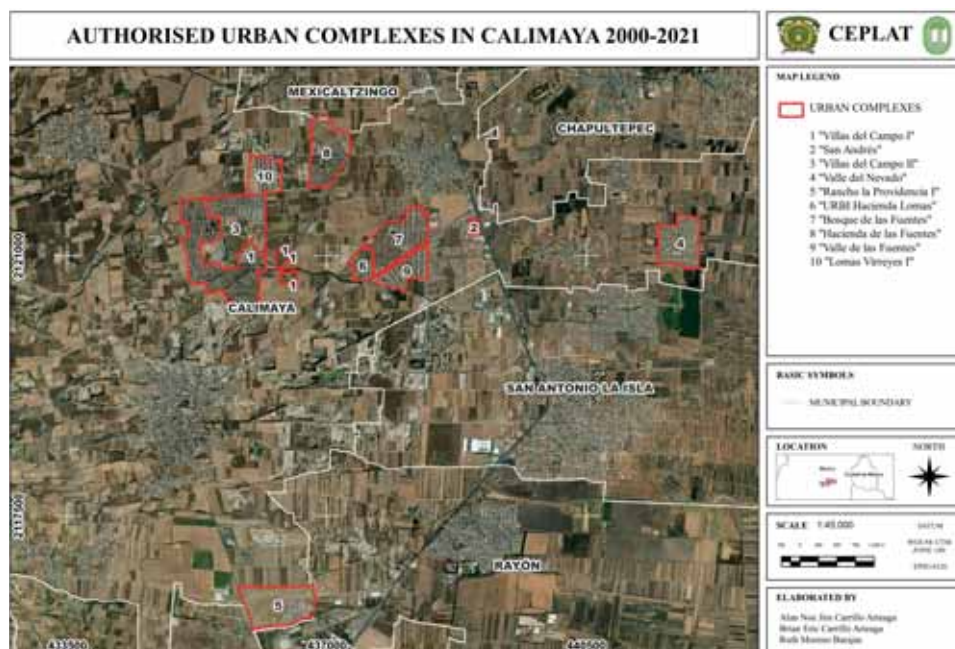


Figure 1. Authorised urban complexes in Calimaya 2000–2021

Source: Own elaboration

Likewise, real estate developers frequently adopt a questionable business model in which, after walling off urban complexes, they offer private security services to their residents and restrict or monopolise the use of public roads, despite the fact that doing so is prohibited by the legislation of the State of Mexico and the Municipality of Calimaya, as shown in Figure 2.

In other cases, developers establish neighbourhood groups with questionable social objectives, promoting anomalous behaviours which tend to transgress the human rights of the local residents, who then fall victim to discrimination and are subject to coercion and illicit acts. This issue is overwhelming even for the public institutions responsible for administering urban development or dealing with such transgressions, as they do not have the capacity to organise public consultations or give the problem timely attention.

Problems with governance become acutely apparent in the face of these practices, in which some urban complexes in Calimaya are fenced off, with their barriers reinforced for commercial purposes, and at the same time public communication roads are monopolised and restricted, as shown in Figure 3. The authorities do not know how to meet the initial social demand to formulate concrete public policies which help prevent or resolve the adverse effects of inadequate urban planning, an issue which is later exacerbated by the high rate of population growth in the developers' completed projects.

CAPÍTULO VII DE LAS PROHIBICIONES DE APLICACIÓN GENERAL

Artículo 206.- En la totalidad del territorio municipal, queda prohibido:

- I.** El uso exclusivo, parcial o total de las áreas de uso común, de los conjuntos habitacionales, comerciales y de servicios sujetos al régimen del condominio, por parte de particulares o agrupaciones de cualquier tipo;
- II.** Bloquear, restringir, condicionar o monopolizar en cualquier forma el uso de las vías públicas;
- III.** El establecimiento y operación de cualquier tipo de estructura para el almacenamiento, manipulación y eliminación de la totalidad de residuos peligrosos;
- IV.** La ganadería extensiva en zonas de reforestación;

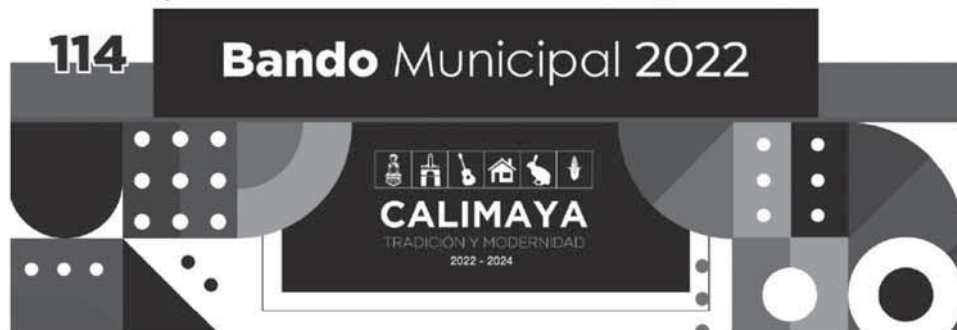


Figure 2. Prohibition published in Bando Municipal de Calimaya

Source: Bando Municipal de Calimaya 2022–2024

In this way, in the production of housing, as in any other industry, external factors also influence the speed with which projects are developed. Therefore, the legislation pertinent to the authorisation of urban complexes development provides for partial or total municipalisation of public infrastructure, allowing the developers to transfer their obligations to the municipal authorities. The latter then become responsible for providing the public services required by the inhabitants as primary infrastructure works are carried out and urban development is administered accordingly.

Thus, the lack of capacity of the state to ensure that this form of urban development meets the objectives set out in public policies reveals not just problems with governance but perhaps an entire state at the service of private capital, with lax policies and tendency to favour the neoliberal model. This is exemplified by the privatisation of urban infrastructure by real estate developers, which is a recurring issue in cases where urban complexes are constructed without adequate supervision of local governments.

Likewise, the emerging social segregation in Calimaya is not only physical and a product of urban fragmentation resulting from walling off urban complexes, but also the result of social inequality reinforced by immaterial



Figure 3. Public road access to the 'Villas del Campo' urban complex

Source: Own photo

barriers determined by inadequate or deficient urban planning, separating the population into social groups (Guzmán Ramírez et al., 2021).

Consequently, this type of social segregation and urban fragmentation should be discussed in the context of poor urban governance. Local governments should make sure that they have the capacities necessary to attend to the administration of urban development or implement a governance model based on the New Public Management which does not threaten or put at risk the principles of public administration (Vásquez Avellaneda, Navarrete Peñuela, 2014).

Another important aspect is that problems with governance related to the low standards of public service have an impact on municipal autonomy. The very same municipality authorities which out of ignorance promote social segregation by excluding the population of urban complexes or condominiums from the reach of public administration consequently fail to be recognised as public representation by the residents of these estates.

4. Discussion

We shall now return to the conceptualisation and contextualisation of urban fragmentation as a phenomenon generating social segregation with the implication of public institutions. The latter privilege the private at the expense of the public and consequently ignore or shirk their responsibilities. It is necessary to study whether the urban complex as a form of urban development contributes to this state-promoted urban fragmentation.

In any case, public policies, laws, and instruments should be analysed and reconsidered to provide a more detailed view of how the aforementioned forms of urban development may fare better in terms of the observance and full respect for human rights, which would undoubtedly lead to an improvement in the quality of life of local residents.

To this effect, having identified problems with governance which, through poor urban planning, result in social segregation and urban fragmentation, the local governments should adopt a model based on the New Public Management concept, as proposed by Vásquez Avellaneda and Navarrete Peñuela (2014).

The results of the present research show that urban development in the Municipality of Calimaya carried out through the analysed modalities is a process marred by considerable deficiencies. These are linked to the newly developed urban governance which fails to successfully enforce the existing legal instruments in urban planning or implement the technologies indispensable for adequate administration of urban development and territorial planning.

Another point of discussion which has emerged from the field research carried out and the contextualisation of social segregation is the commercialisation of housing development projects, which highlights the overall privatisation of the public sphere. In this respect, it seems necessary to discuss the role of public institutions and their commitment to fostering social welfare as well as their power to make decisions reducing the negative effects of social segregation.

5. Conclusions

Calimaya struggles with obvious problems with governance, made apparent by the passivity of the public institutions responsible for managing urban development and provision of public services. This inertia is particularly visible when observing the state of the local networks and systems of organising and distributing goods and services, which include the infrastructure and equipment necessary to support the development and maintenance of human activities – namely urban infrastructure.

Another manifestation of the local problems with governance in terms of urban fragmentation is the popular phenomenon in which social groups

lacking necessary information or guidance usurp public functions to forcibly remedy the shortcomings of public services, in most cases resorting to a strategy based on disinformation and social coercion which puts minorities and the rights of third parties at risk.

This state of affairs suggests that the problems with governance faced by Calimaya undermine and complicate the position of public authority, at the same time generating various types of social damage of an incalculable scope, most of which have hardly been addressed by the pertinent institutions. In addition, the lack of trained staff in public institutions leads to the exacerbation or persistence of issues associated with social segregation, as a consequence of which the inhabitants of the forms of urban development discussed in this paper are stripped of their individual rights and guarantees.

There are also cases in which certain local residents are jealous of the newly created urban infrastructure and, due to lack of guidance and information on the part of public institutions, hinder the public administration from organising public infrastructure in a way which would guarantee its proper servicing, support, and operation.

It is here where issues such as inadequate urban planning or non-observance of existing regulations and legislation begin to bring repercussions and consequences affecting the general population. Not having proper understanding of the specific causes or some determinants shaping the urban fabric, people begin to experience extended travel times and increased transport costs, saturation of communication routes, lack of road connectivity, and other inconveniences which result from, among others, poor public administration.

The problems with governance are additionally exacerbated by the low standards or requirements for occupying public posts in the municipal administration. This has a bearing on the process of urban fragmentation and segregation, because unqualified personnel tend to have an erroneous understanding of the nature of certain recently developed housing projects or urban complexes, perceiving them the same way as traditional housing estates or condominiums without understanding the individual context and characteristics of each form of urban development. With this, they tend to deprive the inhabitants of the former of access to public services, ignoring their needs and in the process committing administrative transgressions which usually go unsanctioned.

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ABSTRACT

Fragmentation, segregation, and governance in rural urbanisation through housing developments in Calimaya, Mexico

The article is based on two research projects and presents reflections on the consequences of the urbanisation of the countryside in Calimaya, as well as the results of poor governance in the municipal government in the form of fragmentation and segregation. Calimaya is a municipality that belongs to the State of Mexico and is a part of the Metropolitan Area of the Toluca Valley. The construction of housing projects in the area has been progressing rapidly since 2000, most of them taking the form of mixed-type urban complexes as well as condominiums. These urban projects have had an impact on the territory, environment, society, and public administration. The urbanisation of the countryside brings with itself fragmentation and segregation, which in most cases are linked to problems with governance by public administration at the municipal, state, and federal level.

Keywords: urbanisation, housing, fragmentation, segregation, governance

SOCIAL REPRESENTATIONS, PUBLIC SPACE, AND CONSUMPTION IN THE CITY OF METEPEC, STATE OF MEXICO, MEXICO

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1. Introduction

To conduct studies on a city implies facing opposing views. Some of them have brought into question the very concept of a city, or, more precisely, its currency in relation to the spatial and social complexity of the conurbations of large cities, constituting what is currently referred to as megalopolises. This physical growth of large cities brings with it a series of social, economic, structural, and territorial planning challenges; provision of educational equipment, health, services, insecurity, poverty, aging of the population and therefore the demand for specialised equipment focused on the care of the elderly are just some of the most obvious problems present in this space.

In the body of research on the problems of the city, there are some publications which emphasise the study of its structural components, like Unikel (1976), Garza (2003), Capel (2002). Others have taken urban spatiality as their object of analysis, for example Cabrales (2005), Duhau and Giglia (2004a, 2004b), Indovina (2004), Janoschka and Glasze (2003), Ramírez (2003), Roitman (2004). There are also some which focus on problems such as housing, like Duhau (1998), Mollá (2006), Rodríguez (2006), Maya (1999), Ziccardi (2015); others have highlighted the new processes of exclusion taking place in historic centres: Nieto (2005), Melé et al. (2003), Sabatini and Cáceres (2001), Ziccardi (2008), Lindón (2003). Others still analyse the subjective expressions of individual cities, such as López (2005), Reguillo (2000), Lindón (2003), Lowenthal (1977), Peñalva (1997). In other words, the latter group of publications studies the construction of situations and scenarios through social consciousness and language, giving shape to social phenomena that are the product of beliefs, customs, the intervention of economic actors, urban policy initiatives, consumers with high economic capacity, each with their particular

way of understanding how space should be organised when creating a city, that is, a way of establishing a social environment correspondent to their reality.

The present work is part of the conceptualisation through which we have sought to interpret and analyse the subjective complexity of the city. It should be clarified that this study of the city of Metepec does not conceive of this urban centre as a totality, since there are different groups that cohabit in it, thus forming a population which is not homogenous but in fact highly diverse. In this sense, we do not share the position held by some scholars studying urban centres, according to whom thinking about the city from any perspective implies doing so in terms of a totality.

For this reason, we take as our object of analysis the social representations produced by the inhabitants of the neighbourhoods and urban centres in the Municipality of Metepec in terms of consumption, putting emphasis on the residents as well as the users – producers – of the urban fabric, since they are the ones who appropriate urban spaces and give them meaning by assigning them their qualities and attributes.

From this perspective, the objective is to analyse the changes in the social representations of consumers of urban production in the Municipality of Metepec by taking a closer look at streets and commercial plazas, public spaces in which the symbolic production of consumption takes place in this urban society.

2. Methodology

The research conducted is qualitative in nature; in order to gather information supporting the argument in terms of the presence of gated communities, public spaces, and consumption, as well as their manifestations in the analysed territory, qualitative variables have been observed. The methodological process was twofold. The first part was carried out with the use of documentation techniques which made it possible to identify the categories of analysis, the theoretical principles, as well as the definitions of concepts around the phenomenon of gated communities and the urban image.

Identified based on the theoretical principles were the variables and indicators which would best reflect the sense of isolation, among which the following stand out: the presence of security measures such as perimeter fences, guardhouses, security guards, electrified fences, barrier arms, video cameras, dogs, among others. The field visits empirically confirmed the presence of streets that had been closed and given a private character, limiting access to these spaces through different security devices, thus accentuating the restricted nature of the property.

The second part of the research was carried out with the use of field techniques. The initial stage consisted in observation through which we identified physical trends in the urban image imposed in the Municipality of Metepec as

a result of the construction of consumption-oriented spaces, such as plazas and shopping malls, as well as housing in gated communities.

Employing semi-structured interviews with key informants made it possible to obtain qualitative information and data that would otherwise have been unlikely to be collected, such as the reasons that prompt the inhabitants of the municipality to adopt cultural values different from traditional ones and the changes in the modes of consumption in new commercial spaces and services. The analysis and interpretation of this information has given us a greater understanding of the transformation process in the meaning of public space.

Twenty interviews were conducted with residents of gated residential communities. The information obtained has allowed us to identify in general terms the subjective perceptions of these actors regarding the areas in question, such as the sense of security and feelings of exclusion and segregation in relation to the areas of the city that they do not believe to be part of their group.

3. Origin of the concept of social representations

In the theoretical conceptualisations of social representation, authors such as León (2002), Ibarra (2000), Jodelet (1984), Rizo (2012), and others unanimously pinpoint the origins of the idea to the work by Moscovici (1979) called *Psychoanalysis, Its Image and Its Public*. In it, the author establishes the theoretical and analytical bases with which, coming from the psychoanalytic perspective, he intends to study the meaning of social representations, understood not only as manifestations or mental products serving to understand everyday actions and common sense, but also, according to Moscovici himself (1979), as symbolic constructs that are created and recreated over the course of social interactions. With this logic, common sense can be understood as the language between the reciprocal influence exerted by the subject-object relationship and vice versa.

According to Rizo (2012), the immediate precedent to social representation can be found in the term 'collective representation', coined by Durkheim (1986). For the latter, collective representations are forms of knowledge or socially constructed ideation which cannot be explained as individual life events or by resorting to individual psychology but should rather be studied from the collective point of view.

"Durkheim was the first to propose the term 'collective representation'. He wanted to define the specificity of social thought in relation to individual thought. For him, individual representation is a purely mental phenomenon irreducible to the cerebral activity that makes it possible; collective representation is not reduced to the sum of the representations of the individuals who make up a society. In fact, it is one of the signs of the primacy of the social over the individual, one spills over the other" (Moscovici, 1979, p. 16).

Based on the concept of ‘collective representation’, Durkheim lays the epistemological foundations that differentiate the object of study of sociology from the one pursued by psychology. As pointed out by Mora (2002, p. 6), “Durkheim dares to make the difference between sociology and Psychology: the former was to analyse everything which regards collective representations and the latter what pertains to individual representations. Consequently, Durkheim (1895) defined the field of Social Psychology by arguing that it should study how social representations are called and excluded, how they merge or become distinct from each other”.

Decades later, this differentiation between both disciplines was embraced by Serge Moscovici, who “took up these approaches and developed a theory within Social Psychology with a marked sociological bent at a time when the common denominator of research in Psychology was the individual, due to North American influence. With his theory of social representations, Moscovici integrates the contributions of various disciplines in Social Psychology within the rapidly expanding European context” (Mora, 2002, p. 6).

4. Social representations

Social representations have been incorporated into the study of social sciences as a relatively recent theory that provides a theoretical foundation for social psychology and sociology. Therefore, the concept of representation, by itself, is defined in many disparate ways. Moreover, the goal of its application “is not simply to isolate and group a set of characteristics common to a certain number of objects; it is to subsume the variable in the permanent, the individual in the social” (Moscovici, 1979, p. 28).

Moscovici (1979) sees representations as dynamic; they are not only mental products, but symbolic constructs that are created and recreated over the course of social interactions. They are linked to the ways of understanding and communicating reality; these “are not only ways of acquiring and reproducing knowledge, but also of providing meaning to social reality. Their basic function is to transform the unknown into something natural, taken for granted, common” (Rizo, 2012, p. 61).

According to Moscovici (1979, p. 28), the notion of social representation requires closer analysis. Every representation is composed of socialised figures and expressions. Altogether, social representation is a means of organising images and language, because it cuts out and symbolises acts and situations that are or become common. Passively adopted, it is accepted as the reflection, in the individual or collective consciousness, of an object – a bundle of ideas external to it.

In this sense, “social representation is a particular modality of knowledge whose function is the elaboration of behaviours and communication between individuals” (Moscovici, 1979, p. 17), “presenting to the members

of a community as a means for their exchanges and as a code to clearly name and classify the parts of the world, of their individual or collective history” (Moscovici, 1979, p. 18). “Social representation is an organised corpus of knowledge and one of the mental activities through which people make physical and social reality intelligible, integrate themselves in a group or in daily relations of exchange, release the powers of their imagination” (Moscovici, 1979, pp. 17–18).

According to Moscovici (1979, p. 32), “a social representation is a ‘preparation for action’, not only insofar as it guides behaviour, but especially insofar as it reshapes and reconstitutes the elements of the environment in which the behaviour must take place. It comes to give meaning to behaviour, to integrate it into a network of relationships where it is linked to its object”. “To represent something, a state, is not simply to unfold it, to repeat it, or reproduce it; it is to reconstitute it, to retouch it, to change its text – the communication that is established between concept and perception, through the piercing of one into the other, transforming the common concrete substance, gives the impression of ‘realism’, of the materiality of abstractions, because we can act with them, and of the abstraction of materialities, because they express a precise order” (Moscovici, 1979, p. 39).

Individual or social representations make the world what we think it is or what it should be. They show us that at every instant, an absent object is added and a present object is modified. But this dialectical game has a greater meaning. If something that is absent shocks us and triggers a whole elaboration of thought and of the group, it does not happen because of the nature of the object, but first of all because of its strangeness, and then because of the fact that it lies outside our usual universe (Moscovici, 1979, p. 39).

According to Moscovici (1979), these social representations manage to make the unusual familiar and the familiar unusual, to change the whole universe while ensuring it remains our own. All this is made possible by the narrative element, that is to say, the meta-narratives imposed in the societies of the twenty-first century have made it possible to weaken the common sense and straightforward representation and have given way to the image, to the sensation, pleasure, and enjoyment caused by the new visual digital culture, which is materialised in new lifestyles based on purely hedonistic consumption.

5. Approach to the notion of public spaces

The difference between the public and the private is one of Greek society’s contributions to the European political thought of the seventeenth and eighteenth centuries. The Greeks developed a distinction between the *oikos* and the *polis*; the former was linked to the private sphere, equivalent to the term ‘house’, the sphere in which the morality of society is organised and instituted. It was understood as the basic unit of society.

Aristotle (Aristóteles, 1988) referred to the *oikos* as a naturally organised community for the development of daily activities, while the *polis* was understood in a more complex manner by conceptualising it as the city-state. The city symbolised the place where the political and cultural centre of Greek society was situated. The public was represented by the agora, the squares, the public assemblies, the debates on citizens' public problems as well as the functioning of institutions.

The Romans established the legal, social, and institutional bases for separating the public from the private; they formalised the legal channels for the population to accept the domination of a small group that concentrated economic, political, military, and ideological power over the entire population. The members of the elite led the general public in their thinking, behaviour, moral values, and would be in charge of imparting justice, of reaching consensus to legitimise decision-making. All this linked what is public with the exercise of government power.

Public space is one of the key elements of cities, which, in addition to giving it shape through its spatial organisation, also makes social interrelationships possible, gives the city its character, its attractiveness, identity, sense of its existence, allows us to perceive its morphology, its social, cultural, and economic functionality, channels its growth, and is understood as a public asset of which everyone can make use, as well as the place of social relations *par excellence*.

The current discussion on public space revolves around the progressive disappearance and transformation of the qualities that socially legitimised its common use as a commodity that could be enjoyed by citizens as equals. The importance of urban public spaces as sites for social coexistence is fading from collective consciousness, to be replaced, gradually, by "pseudo-public spaces" where the traditional exchange of goods, ideas, and social experiences has given way to exclusive focus on maximising consumption, as is the case of the mall (Judd, 1995, as cited in Salcedo, 2002, pp. 5–6).

"Some urban theoreticians (Roitman, 2004; Bauman, 2003; Janoschka, Glasze, 2003; Rodríguez, 2006) have referred to the privatisation of public space, such as the streets, gardens, parks, understood as a common good, which results from new forms of urbanisation in which a sense of isolation has been prioritised" (Becerril et al., 2021, p. 66).

"Just as the Fordist-Keynesian mass city involved a redefinition of urban public space and the appearance of new physical components in its structuring, in relation to the city of the mercantile capitalism phase (Soja, 2008, pp. 118–123 and Asher, 2005, pp. 19–27), the post-Fordist-neoliberal city develops its own components of urban space, refunctionalises the 'traditional' public spaces, and even creates new virtual public spaces" (Becerril et al., 2021, p. 66).

In this new international scenario, nationalism becomes more flexible, localism is diluted, national cultures are intermixed and start adopting foreign practices in their customs and traditions. Identities are redefined under

the principles of individualism and the pressing influence of information and communication technologies which are becoming new spaces for coexistence, meeting, and social interaction. This has given way to the formation of new social identities which move the boundaries between various social groups, leading to a high degree of social fragmentation.

“We have reached a moment in which the commercialisation of ways of life no longer meets with structural, cultural, or ideological resistance, and in which the spheres of social and individual life are reorganised according to the logic of consumption” (Lipovetsky, 2006, p. 32).

Under these conditions, the city of the masses has become the city of groups homogenised by consumption who believe themselves to have their own distinctive identities and needs and gather in the public and ‘public-private’ spaces of the city around shared interests, convictions, ways of life, phobias, and fears.

6. General context of the Municipality of Metepec

Since the 1990s, the municipality of Metepec has experienced excessive construction of gated estates aimed at the provision of commercial, recreational, educational, health, and housing services; most housing has been sold as subdivisions and urban complexes marketed to consumers belonging to the middle and upper social strata; commerce and services have been concentrated in large plazas and shopping malls.

Consequently, large amounts of agricultural land in the municipality have been designated for investments in the tertiary sector, as well as for the construction of medium- and high-rise residential housing, ignoring the land management provisions included in various municipal planning instruments, such as the Municipal Urban Development Plan, Land Management Plans, Partial Plans.

Among other factors, the strategic location of Metepec has made it attractive to investors: it has easy connectivity to Mexico City, located thirty minutes away; the network of toll highways guarantees good access to the cities of Morelia, Guadalajara, Queretaro, Morelos, Hidalgo, Puebla; and the local road infrastructure makes it possible to easily reach the municipalities that make up the Metropolitan Zone of the Toluca Valley. Taking into account these comparative advantages, Metepec has been perceived by domestic and foreign investors as the ideal place to invest in different areas of social life.

6.1. Location of the municipality

According to the Municipal Urban Development Plan of Metepec 2010–2013 and the Bando Municipal de Metepec 2007, the municipality is part of region I Toluca of the State of Mexico (Fig. 1). It is bordered to the north and west

by the Municipality of Toluca, to the south by the municipalities of Calimaya, Mexicaltzingo, and Chapultepec, to the east by the municipalities of Santiago Tianguistenco and San Mateo Atenco. It has an area of 70.43 square kilometres, representing 0.31% of the state surface.

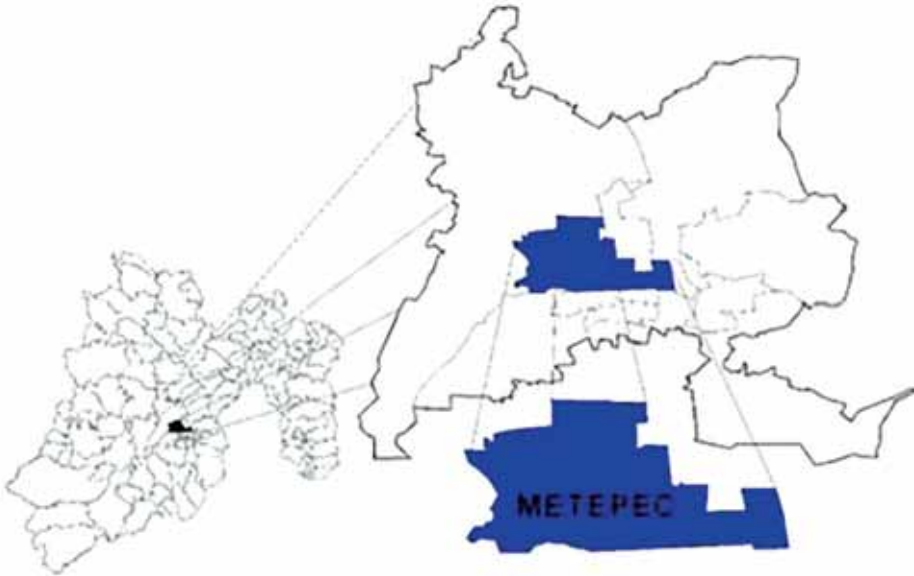


Figure 1. Geographical location

Source: Own elaboration based on the Municipal Urban Development Plan of Metepec, 2010–2013 (H. Ayuntamiento Constitucional de Metepec, 2003)

6.2. Demographic growth of the municipality

Metepec is one of the municipalities that has experienced an accelerated population growth, mainly due to the migratory flows to which it was exposed in the 1980s. According to INEGI, in 1980 the municipality presented its highest annual growth rate with 9.74%, surpassing the rate in the entire state (6.78%); over the decade, Metepec went from 83,030 inhabitants in 1980 to 140,268 in 1990. By the year 2000, the municipal population increased to 194,463 inhabitants, with a growth rate of 2.08%. For the first time since the 1970s, the municipality would note a population growth rate lower than that of the state, with the latter increasing by 2.65% in the same period. During these years, 97.36% of the total municipal population resided in urban centres and only 2.64% in rural areas (H. Ayuntamiento Constitucional de Metepec, 2003).

The year 2010 saw a diminishing trend in the population growth rate, with 214,162 inhabitants registered; in 2015, the number increased to 227,827 and in 2020 – to 242,307.

As shown in Figure 2, Metepec's accelerated population growth lasted until 2000, mainly because it was one of the municipalities which received the greatest migratory flows in the State of Mexico and the entire country. Consequently, it became the municipality offering the largest amount of housing at the regional level, although most of the housing supply was aimed at middle and upper social strata.

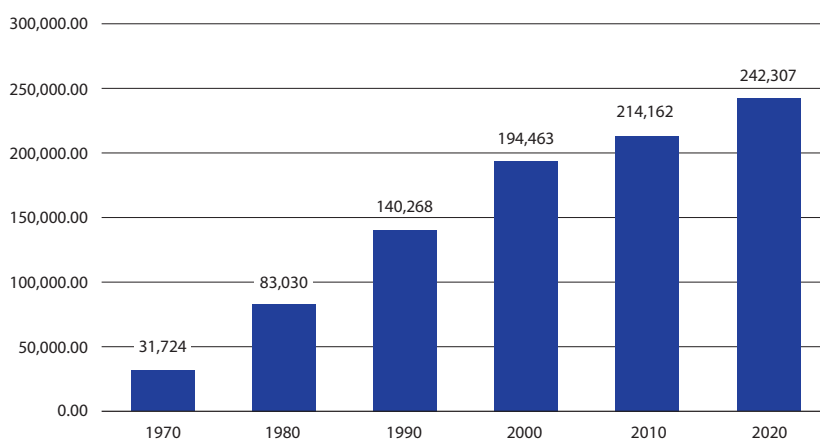


Figure 2. Demographic growth of Metepec, 1970–2020

Source: Own elaboration based on INEGI, 1970, 1980, 1990, 2000, 2010, 2020

In this demographic context, Becerril et al. (2013) have observed that the prevailing trend in housing development in the municipality was the construction of subdivisions, condominiums, and urban complexes. In 2009, there were about 108 horizontal condominiums and eight urban complexes, which encompassed about 4,407 medium- and high-rise residential houses; this is without counting the large areas occupied by shopping centres and shopping malls that have been built in the municipality.

The common characteristic of these buildings is that they are enclosed, with a strong presence of security devices such as the increasingly common perimeter fences, which not only serve to enforce exclusivity through physical limits but are now also implemented as a means of separating the inside from the outside; in addition, the barriers are becoming components of a new urban image that breaks with the traditional character of the municipality.

Gradually, the urban structure has been changed, “the old buildings are perverted, modified, converted into cultural centres, museums, hotels, theatres, or offices; the historic urban centres are made up, embellished, transformed into products of cultural and tourist consumption. There is a proliferation of parking lots, cafés, souvenir stores, folk entertainment shows everywhere” (Lipovetsky, 2006, p. 92).

In his text *The New Principles of Urbanism*, Ascher (2004, p. 72) expresses his concern over the lot of collective facilities and urban services in a society with increasingly varied and individualised customs and needs. How to make decisions and act for the good of the community in a changing and diversified society? How to design and make cities that function well and are attractive and fair when the prevailing realities encourage exclusion, segregation, an inside and an outside, a multiplicity of collective identities and strengthening of consumption and individualism?

7. Transformation of physical and symbolic representations in Metepec

Portal and Bodil (2007) as well as Duhau (2003) argue that the first discussions on the changing conceptualisations of what was traditionally understood as public space emerged in Mexico at the end of the second quarter of the twentieth century, specifically with the initial appearance of urban constructs which prominently blurred the distinction between the public and the private, that is to say private spaces which have a public use and public spaces designated for private use.

An example of the former case can be the range of interventions in historic centres or agricultural areas when building shopping malls and plazas, sports clubs, spaces with innovative forms of providing services, to mention just a few. The latter, on the other hand, can be exemplified by the recurring phenomenon of the privatisation of streets with the use of devices that limit and prevent the transit of all persons and vehicles that are “outsiders” from certain housing complexes, which breaks with the principle of what is public. This representation of the public sphere in contemporary societies tends to blur the notion of what was traditionally understood as public and makes it less clear in this new urban configuration.

This transformation of what is public can be associated with the new rhythms of production and consumption in postmodern societies, which not only find their expression in the aforementioned housing projects or the privatisation of streets by restricting traffic, but have gone much beyond them and now entail the emergence of a brand new culture based on consumption and hedonistic lifestyle – a culture which economic actors, as well as new residents of the municipality, have established as a new synergy and way of life.

In the case of the Municipality of Metepec, it is a trend that has altered the culture and identity of the majority of the native population who are imitating and adopting these lifestyles, a process manifested in the reproduction of native architectural styles in the construction of new homes, of course in a more minimalist manner, as well as the adoption of commercial plazas as new places of consumption and the appropriation of many local cultural and religious practices as part of a scenography falling in line with this synergy.

If the forms of consumption have changed, it is not difficult to deduce that so did identities, through the formation of new scenarios in which to reproduce

the new social representations constituted by a diversity of commercial and service offerings. In this way, the consciousness of some native inhabitants of Metepec has transformed: where the park, the garden, the plaza, the small square were previously conceived of as meeting points and socialisation spots, this function has now been installed in the new social representation: the mall and the commercial plaza have become the public space where people interact, socialise, and create links with others, in addition to satisfying their needs in terms of alimentation, leisure, and recreation.

Consumption establishes new social representations in the city not only in terms of morphology, but also in the social consciousness that shapes other ways of life, which are influenced by the principles of new identities and cultural transformations of the inhabitants of the city.

A relevant aspect that should be highlighted is that consumers consider these places as safe spaces for anyone using them. The same happens with the streets that are part of closed urban complexes; these are for the exclusive use of the residents of the estates. This new conception of the street breaks with the traditional notion that it is an asset that everyone can use and benefit from. In this new representation of the street, the inhabitants avoid risk and the probability of suffering from a physical or moral acts of violence, which are daily occurrences in traditional public spaces.

The aforementioned physical and symbolic representations exemplified by the economic actors and new residents of Metepec contrast with those that have traditionally prevailed in the municipality. For example, the new commercial and service spaces deviate from how the natives conceived of them. Such spaces were originally understood as the traditional market or the so-called *tianguis* or 'market on wheels'. They were social expressions that constituted a public space *par excellence* in which the locals not only acquired the merchandise for their daily lives, but also developed and consolidated diverse social relations and even social differentiation.

With the arrival of new residents to the Municipality of Metepec, all the social relations that had been developing organically in the so-called public spaces started to undergo transformations. The growth of the city brought with itself a shift in the meaning of public space in which the native inhabitants had grown up, that is, the street, parks and gardens, spaces that were more inclusive and less restrictive in their use, places perceived as meeting points for citizens to exchange ideas, thoughts, engage in cultural, artistic, sports activities, or just to coexist or converse.

This can be linked to what Portal and Bodil (2007) point out about the notion of the street. Beyond performing the function of transit, it is a place of neighbourly coexistence, a space for street commerce, providing fundamental access necessary to shape its surroundings and axes of transformation and urban development. The street, however, now begins to be the object of a new connotation, a space that is no longer public and that, depending on the type of development in an area, can be privatised to definitively exclude those who do

not belong to the newly erected estate. In this way, the local inhabitants have to internalise a new social representation of the space that had traditionally been understood as a public good.

Portal and Bodil (2007) argue that interest in the street is associated with the concept of history, of local identity which serves as the background for the new daily and commercial uses that are developed in such spaces, as well as citizen practices and forms of social interaction. This is why it is considered the 'classic' public space, although it also includes dynamics of transformation generated by the new conceptions of the public forged by citizen practices that give it meaning and generate forms of appropriation.

The plaza is characterised by offering an environment for meeting and recreation, unlike the street, which is defined more by its mobility function. Both spaces, however, are the site of commercial activity and linkage points in the urban structure. A characteristic feature of Metepec is the fact that most of the urban space is divided into closed estates that include gardens or small parks, the use of which is exclusive for those who live within the area; there is a profound absence of open squares, small plazas, avenues, public parks, and public gardens. The nature of such spaces in Metepec is somewhat contrary to how they are described by Aravena (2005).

"The most important part of collective life has always taken place in the squares, the place where the streets converged. From the Greek agora and the Roman forum, through the Middle Ages and the Renaissance to the present day, the square has always been the place of contact, dialogue, confrontation, recreation, rest, and sharing news. It has been the most participatory space in the city, the one with the richest community life, the most representative of man's social condition. Within their enormous variety, in different times and places, what plazas have in common is being a meeting place" (Aravena, 2005, p. 20).

The main square of the Municipality of Metepec only becomes relevant when it is the venue of civic events of national character or cultural and political activities carried out on the municipal scale. It is presently a place where the native inhabitants are fully anonymous, since during any festivities they are scattered among the vast crowds of participants. Additionally, the site is losing its importance as a space of coexistence and interaction to the commercial square, which has become the new meeting place of choice.

In the traditional understanding, public space is that which is not private (destined for the exclusive use of its inhabitants or occupants), and, according to Duhau and Giglia (2004), it is the physical medium that connects different private spaces and serves as a place where people meet, carry out activities such as walking, strolling, shopping; it is a space for meeting and participating in the social and communal life of a city. Public space belongs to the community and should not be subject to the influence of any private interest. It is used for leisure, recreation, meeting, and social gathering, so it should be kept in a state that allows its accessibility, comfort, and free exploration – elements

that, without having been specifically designed to fulfil this purpose, are present in 'pseudo-public spaces'.

It is also important to mention the emergence of new digital phenomena which are defined as virtual public spaces. Offering another way of interacting and forming networks and connections, they are a product of scientific and technological development as well as of new forms of consumption prevalent among the world's population.

Nonetheless, the way in which public space is conceived of in contemporary urban society has brought with itself new, non-traditional ways of life which reflect how individuals relate to productive, commercial, and consumption practices and which directly or indirectly affect transformations of the city. These processes implicitly involve cultural, economic, urban, political, and social phenomena which impose new visions and value codes on social and spatial relationships, and with them new forms of social representation that are adopted and reproduced as a new conditioning factor for interacting in the globalised world.

8. Conclusions

This study has demonstrated that new social representations have been adopted in the Municipality of Metepec as a result of a number of interventions on the part of the private and public sector. With the development of housing, services, and commerce, new symbolic constructs have been instituted to define new social interactions; a new language loaded with images, meanings, and signifiers has been produced, modelling the thinking and behaviour of the inhabitants of the municipality.

The new way of shaping the city implies a redefinition of what was traditionally understood as public space, its function in the social fabric, and its reconfiguration towards new expressions of what is urban in the form of 'pseudo-public spaces'. An example are commercial plazas, which are taking over the role of traditional public spaces such as the street, the park, the garden, the square, the plaza as sites of coexistence, recreation, and even formation and strengthening of social ties and networks.

The shift in the meaning of public space and its new representation in the form of 'pseudo-public space' has induced new forms of consumption among the population. It has also strengthened the appropriation of space, which stems from the sense of security given to customers by physical barriers – it gives them a sense of safety from risk and potential violence, a feeling which they no longer experience in traditional public spaces.

The very economic development of Metepec has created urban and social conditions which have consolidated not only these forms of 'pseudo-public spaces' through the development of appropriate infrastructure and closed housing, but also the active participation of the population in digital public spaces, a form of social interaction which is steadily growing in popularity.

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ABSTRACT**Social representations, public space, and consumption in the city of Metepec, State of Mexico, Mexico**

The article discusses changes in the social representations of the consumers of urban production in the Municipality of Metepec, Mexico. It focuses on streets and commercial plazas, public spaces in which the symbolic production of consumption takes place. In its methodology, the paper makes use of documentary techniques to identify the categories of analysis and the theoretical principles. In addition, it uses field techniques (mainly observation). The transformation in the meaning of public space and its new representation in 'pseudo-public space' has induced new forms of consumption among the population. It has also strengthened the appropriation of space due to the sense of security which consumers feel in these new 'pseudo-public' places – they perceive them as safe from risks and aggression, something that they no longer experience in traditional public spaces.

Keywords: social representations, public space, symbolic production of consumption

UNDERSTANDING 'OUTSTANDING': AN URBAN-RURAL CULTURAL LANDSCAPE FACING TOURISM DEVELOPMENT. CASE STUDY OF SALENTA, COLOMBIA

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Just before 7:00 on a Sunday morning, I, Sonia, arise to the pleasant sound of roosters crowing. I am ready to explore Salento, a mountain town nestled in the heart of the Colombian Andes. The morning air is brisk, and the mist makes it seem as if a thick bank of clouds is touching the earth. This chilliness I feel, however, melts as I receive greetings from the neighbours I pass on the street; I feel the engaging warmth of the people of Salento in my heart. At a street corner I pass la 'señora de las arepas', who is selling arepas, small corn pancakes which in the 1800s, according to Édouard André, were kneaded with milk, nowadays with water as well. I greet la 'señora', and although I do not recall her name, her presence brings vividly into my mind warm memories of conversations from my previous stay in Salento in 2010, as we had gathered around the stand to buy freshly roasted corn arepas. After many years of living away from my native country, I realised that these memories still lived in 'mi corazón' (my heart), and I had been longing for the cosy intimacy of this life in a small Colombian 'pueblito' (small town). This fine morning in Salento, I walked happily past the colourful houses constructed in the traditional style of bahareque, and took in the majestic background of the mountains, the smell of coffee and arepas, and noticed also the sharp odour of 'caca de caballos' (horse poop), earthy and pungent. Best of all, of course, was the cheerful chatter of the wonderful boisterous 'Salentinos' (people from Salento). I let my imagination fly, relieved to have finally returned to my idea of paradise. In the main square I came upon several Willys. A Willys is a delightfully antiquated jeep that the 'campesinos' use to travel between their rural homes and the pueblo where they sell their produce, buy groceries, and, after a hard week of work, share a few beers with friends. On this occasion, however, instead of the 'campesinos' who used to crowd around the vehicles, I saw clusters

of foreigners of various nationalities. They were all quite eager to visit the breathtaking Valle de Cocora, one of the most popular tourist destinations in the Coffee Cultural Landscape of Colombia. As my day continued, I treated myself to a 'tinto', small cup of coffee, at the traditional 'Café Danubio', a typical house of colonial architecture open to the public before 1900, traditionally a meeting place for the locals, now also for foreigners who want to enjoy a coffee, beer, and – why not? – play billiards. Here again there was no shortage of animated conversation, in this case with some of the customers. Adding to the hubbub, a group of tourists was excitedly planning their travels. Walking along, I was surprised to find in the midst of the picturesque architecture a large number of souvenir stores, hotels, hostels, and coffee shops. These establishments were lining the 'Calle Real', a major thoroughfare of Salento that in the 1980s served as a commercial space for artisans from across Colombia. I spent some time weaving in and out of the alleyways. It was soon lunchtime, and there was no shortage of options to eat. I even saw signs in English advertising food from countries which most of the local population had probably never visited, such as Israel, India, and Italy. At noon, the street became quite crowded with pedestrians jostling for space. These visitors were from different parts of Colombia and all over the world. I felt as if I were floating in a frothy 'salpicón' – mixed diced fruits soaked in juice: a wild mix of colours, flavours, smells, and in this case, accents; the latter helped me to identify the provenance of some of the visitors gathered in the streets. This town seemed much smaller and more crowded than when I had last visited it years before, but there was a new vibrant energy crackling as well.

1. Introduction

In this chapter, we will delve into some of the changes Salento has experienced in the last decades. We will investigate the intriguing relationship between the establishing of the Coffee Cultural Landscape of Colombia (CCLC) as a World Heritage Site (WHS) and the recent influx of tourism, using Salento as a case study. We will examine the links between the effects of increased tourism on the recently registered WHS, and how it has led to an onslaught of gentrification which threatens to disrupt the carefully calibrated balance of the urban–rural nexus. We will highlight some of the blessings and the curses that have accompanied these changes in the very structure of a traditional Andean society.

Outstanding Universal Value is defined by UNESCO as “cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity” (UNESCO, 2009c). The chapter aims to help the reader understand what makes the CCLC ‘outstanding’.

2. Tourism as a driver of gentrification in cultural landscapes

The importance of the interrelations between tourism, ecosystems, and local communities has been recognised worldwide. Attractive landscapes and community are crucial for the economic success of tourism (Buckley, 2011). Tourism development is also perceived as an opportunity to improve understanding of both natural and cultural heritage, to strengthen local communities, and gain public support for conservation activities (Heslinga et al., 2020; Abellán, Martínez, 2021). Paradoxically, tourism is also named as a major threat both for the natural environment and the wellbeing of local residents (Gössling, 2002; Dodds, Butler, 2019). To disentangle the complexity of the interrelation between tourism and landscape, it is necessary to take a systemic approach (Kulczyk, 2014). Embracing a social-ecological perspective provides a dynamic methodology that allows us to deal with change and uncertainty (Heslinga et al., 2017). This systemic approach should also cover spatial diversity and, instead of studying urban and rural systems separately, seek out links between them (Scott et al., 2007).

2.1. World Heritage cultural landscapes

The concept of ‘landscape’ was originally a geographical one, but it is currently used in a more holistic sense and includes disciplines such as sociology, psychology, ethnology, landscape ecology, and philosophy of nature (Palang et al., 2007). The first geographer to academically define the concept of ‘cultural landscape’ (*Kulturlandschaft*) was Otto Schlüter, in 1908; he contrasted it with its opposite, the ‘original landscape’ (*Urlandschaft*), in the context of developing the field of Landscape Science (*Landschaftskunde*) (Sauer, 1925). According to Sauer, a cultural landscape “forms part of a natural landscape for a cultural group. Culture is the agent; the natural area is the medium and the Cultural Landscape is the result”. In operational terms, landscape alludes to and groups together the goods and the cultural manifestations, both material and intangible, emanating from the actions of human beings. They comprise the attributes which a society has historically inherited and which play a role in forming the social identity of the members (Llull Peñalba, 2005). Material heritage is characterised by having a physical form that can be measured and perceived with the senses. Intangible heritage includes, among other things, oral traditions and expressions, social practices, rituals, and festive events, as well as knowledge and practices concerning nature, the universe, and artistic output (Minicultura, 2005). A landscape is seen from two closely related dimensions, the inside and the outside. The outside dimension refers to the perspective of the outsider, generally the visitor/tourist (Daugstad, 2008). There is a growing trend for tourists to seek out, in addition to the traditional superficial perspective of walking through a landscape and experiencing it through their eyes, opportunities to experience, taste, feel, and listen to stories

about the landscape, exploring it deeply first-hand and sharing in the experiences of locals (Daugstad, 2008, p. 413). This is the inside perspective. Thus, cultural landscapes are becoming more popular: visitors are now seeking out an authentic interaction with the culture of the locals.

In 1992, the UNESCO World Heritage Committee adopted the category of cultural landscapes defined as “combined works of nature and of man”. A cultural landscape, as its name implies, is a landscape that has cultural significance, as it reflects the culture of the people who have lived there. The Committee distinguished three categories of cultural landscapes (UNESCO, 2008, Annex 3), namely:

- a) landscapes designed and created intentionally by humankind;
- b) landscapes which have evolved organically and could be ‘relict (or fossil) landscapes’ in which an evolutionary process has come to its final stage, or ‘continuing landscapes’ that retain “an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress”; and
- c) associative cultural landscapes which provide immaterial information about how the people of a particular culture live, what they value, and how they interact with the land.

Globally, UNESCO has entered a number of cultural landscapes onto the WHS list in order to “reveal and sustain the great diversity of the interactions between humans and their environment, to protect living traditional cultures and preserve the traces of those which have disappeared” (UNESCO World Heritage Centre, 1992–2022). Such efforts have achieved much, but in some cases, they have inadvertently created new threats or exacerbated existing ones (Dharmiasih, 2020). Despite UNESCO’s intentions to protect these sites, assigning them WHS status is likely to increase the amount of tourism in these areas (Bandarin in the preface to Harrison, Hitchcock, 2005).

A WHS “may provide a platform to develop and test new approaches that demonstrate the relevance of heritage for sustainable development” (UNESCO, n.d.).

Globally, the practice of designating sites as cultural landscapes has intensified considerably over the past 15 years, from 25 entries between 1986 and 2000 to 70 between 2001 and 2015 (UNESCO, 2016). To date, 121 items have been included in the World Heritage List as cultural landscapes (UNESCO World Heritage Centre, 1992–2022).

2.2. Cultural and heritage tourism

The study of cultural tourism can be subdivided into the following topics: cultural heritage tourism (Timothy, 2011); festivals (Picard, Robinson, 2006); heritage tourism (Park, 2013; Gravari-Barbas, 2020); indigenous tourism (Butler, Hinch, 1996); and World Heritage Sites (Leask, Fyall, 2006). In a tourist destination within the CCLC, such as our case study of Salento,

tourists generate demands for goods and services. Cultural tourism is “a type of tourism activity in which the visitor’s essential motivation is to learn, discover, experience and consume the tangible and intangible cultural attractions/products in a tourism destination” (UNWTO, 2018). Tourism supply refers to the provision of a variety of goods and services related to tourism by the host destination, whereas tourism refers to the visitors. The concept of ‘heritage’, according to ICOMOS (1999), includes the natural as well as the cultural environment. “Heritage tourism is predominately concerned with exploring both material (tangible) and immaterial (intangible) remnants of the past” (Park, 2013, Introduction). The type of tourism present in the area of the CCLC is heritage tourism, understood as the relationship between visitors and heritage as a tourist scenario.

2.3. Gentrification

The term ‘gentrification’ was coined in 1964 by Ruth Glass to “describe and classify the transformation of the economic, demographic, commercial, cultural, and physical character of many central London neighbourhoods”. Glass noted that “the social status of many residential areas is being ‘uplifted’ as the middle class – or the ‘gentry’ – moves into working-class space, taking up residence, opening businesses, and lobbying for infrastructure improvements” (Glass, 1964, as cited in Brown-Saracino, 2010). It could be argued that the term ‘gentrification’ conveys contradictory connotations, since it refers to both revitalisation and displacement.

The term has been used in the context of World Heritage Sites (Evans, 2002; Herzfeld, 2009; Shaw, 2005). For instance, it has been argued that gentrification is one of the main risks of introducing tourism into such sites, and that it may modify or eradicate the pre-existing social structure of the area and irreparably alter forms of coexistence, customs, values placed on traditions, and sense of belonging (UNESCO, 2009a, 2009b). In the following section, we describe some impacts of urban, rural, and tourism-related gentrification on the World Heritage Sites within the CCLC, using the town of Salento as our case study. We also investigate the relationship between these factors as linked phenomena.

2.3.1. Urban gentrification

Even though the gentrification process has been studied most closely in Europe and North America, the phenomenon is global. “Urban spaces around the world are increasingly subject to global and domestic capital (re)investment to be transformed into new uses that cater to the needs of wealthier inhabitants”, and this has led to growing inequality worldwide (Lees et al., 2015; López-Morales et al., 2016). It is important to note that Lees et al. focus solely on urban areas.

A large body of literature explores gentrification affecting city centres. For instance, Smith (1979) linked gentrification to a “back to the city movement”, but also to capital returning from the suburbs to the inner-city. A study conducted by UNESCO (2016) in Latin America affirmed that “addressing the issue of housing in historic areas remains fundamental, especially as many areas have faced gentrification processes or a loss of residential functions”. In Colombia, relevant examples are the cases of Getsemani in Cartagena (Alberty, 2015; Rius-Ulldemolins, Posso, 2016) and Candelaria in Bogotá (Urbina González, 2012; Herrera-Medina et al., 2017).

2.3.2. Rural gentrification

Even though the term ‘gentrification’ has been used mainly in the context of urban settlements, it can also encompass rural localities. Rural gentrification has been studied for many years outside of Latin America (Phillips, 1993, 2005). It deals with changes in land use patterns and refers to “processes whereby middle or service class households are moving into villages and displacing local, working-class groups, and often in the process also refurbishing, extending and converting properties” (Phillips, 2008). “Back-to-the-land movements” usually refer to agrarian movements and urban-rural migration, which in some cases are described as “the transition from depopulation to repopulation in [...] remote rural areas” (Hall, 1918). Gentrification of properties in rural areas frequently involves re-landscaping through change, damage, or destruction of existing vegetation and habitats (Paquette, Domon, 2001). Rural in-migration may “accelerate rural landscape transformation, or conversely help to maintain their current attributes” (Paquette, Domon, 2003).

2.3.3. Tourism gentrification

The term ‘tourism gentrification’ as defined by Gotham (2005) refers to “the transformation of a middle-class neighbourhood into a relatively affluent and exclusive enclave marked by a proliferation of corporate entertainment and tourism venues”. Gotham focused on the connection between tourism and gentrification and discussed “the motivation for using tourism as a strategy of urban regeneration”. The term has also been used in the context of cultural heritage sites. In our case, the negative effects of gentrification threaten to compromise not only the traditions, culture, and livelihood of farmers and other locals, but also the very status of the CCLC as a WHS.

The population influx resulting from city-dwellers settling in the Salento area, people buying homes or farms for recreational purposes, and the onslaught of tourists and tourism operators has had the effect of not only changing land use patterns from farming to tourism, but also displacing farmers from their land and discouraging them from practicing their traditional subsistence

activities (thus leading to rural gentrification, as described above). It should be mentioned, however, that at times the locals have been able to stabilise and even increase their incomes by working for tourism operators or, in a few cases, by becoming entrepreneurs themselves; thus, this kind of gentrification is not always perceived by the locals as a negative phenomenon. Nevertheless, although tourism enterprises and other new industries may provide some money to the community, if the goal is to safeguard precious cultural heritage, they cannot replace centuries of wisdom. Tourism may also encourage appreciation of local traditions.

Tourist gentrification has been studied in Latin America since roughly 2015 (Hayes, 2018; Janoschka et al., 2014). There is, among other things, a strong relationship between tourism and urban-rural migration, as well as between tourism and transnational migrations from the Global North to the Global South (Hayes, 2018). ‘Lifestyle migration’ as opposed to migration to find work can be considered a kind of hybrid between migration and permanent or residential tourism (Janoschka, Haas, 2014; Hayes, 2018). The difference between visitors and locals in their capacity for consumption stems, above all, from advanced economies which have stimulated an appetite for tourism that often ends up excluding the local population from the benefits. The disparity between the buying power of tourists and local residents means that in the context of real estate capital, the production of spaces serving tourists is more profitable than of spaces for local use (Cócola, 2019).

3. The study area

The CCLC, which was included in the UNESCO list of WHSs in 2011, has been defined as “an exceptional example of a sustainable and productive cultural landscape that is unique and representative of a tradition that is a strong symbol for coffee growing areas worldwide” (UNESCO, 2013; Fig. 1). It is located in the western and central chain of the Andean Cordillera and is famous both nationally and internationally for its over-100-years-old coffee culture. Juan Valdez, the fictional farmer who represents this coffee-harvesting tradition and is generally depicted leading his mule laden with coffee bags, is an iconic character not only in Colombia but around the world. The area continues to be a productive landscape which reflects the local culture and values of the people who live there.

The CCLC has the following exceptional values: a) the creative energy of human families which have been passed down from generation to generation to produce high-quality coffee; b) a prominent place in the global coffee culture; c) strategic social capital; and d) conservation and equilibrium between tradition and technology to guarantee quality and sustainability (UNESCO, 2011). These values, part of the social, environmental, cultural, and economic dynamics of the region, permit us to understand the transformation of this

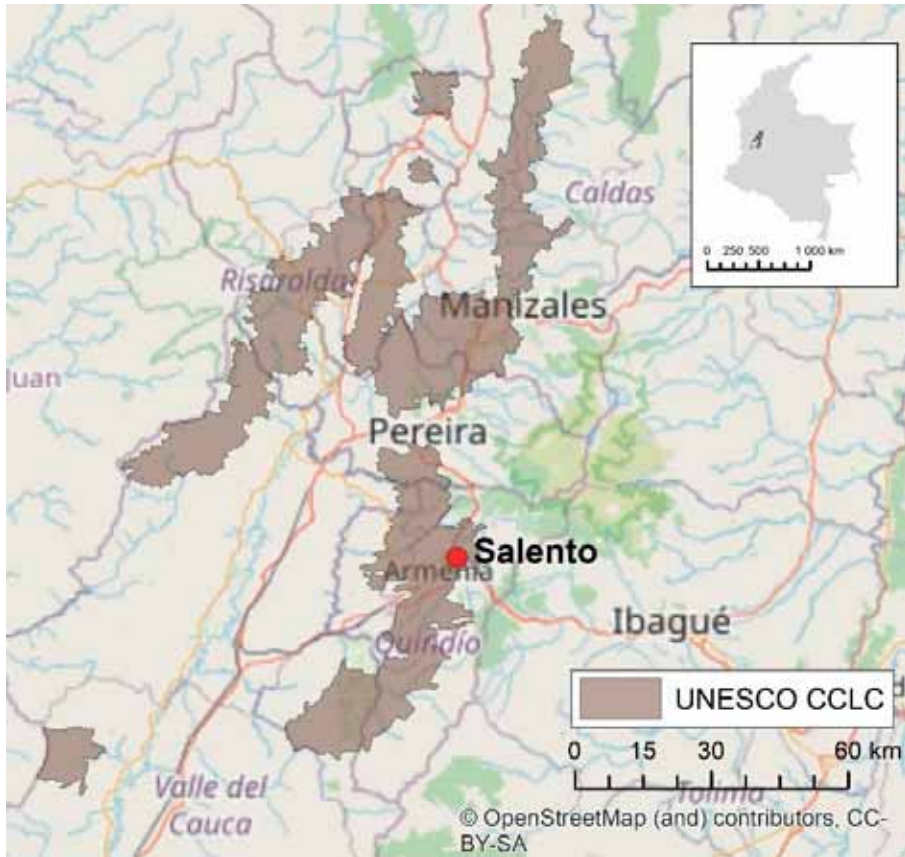


Figure 1. Location of the Coffee Cultural Landscape of Colombia and Salento

Source: Own elaboration by Sylwia Kulczyk

piece of cultural heritage by taking into account the intrinsic relationship between the urban and rural areas of this cultural landscape.

The local coffee farmers, or *caficultores*, have developed a generations-long coffee-growing tradition adapted to the abrupt geological contours of mountain and slope. They pick and process the beans by hand, then transport the finished product to markets on the backs of mules or in jeeps (Mincultura-FNC, 2011, pp. 37–42). The WHS also harbours an important and unique style of traditional architecture: *bahareque* (Osorio, 2008). Finally, the region is known for its immaterial cultural values such as festivals, music, dance, and cuisine.

This human cultural richness is accompanied by substantial biodiversity, lush and heterogeneous vegetation, and rich water systems. The area's breathtaking vistas, natural beauty, and cultural richness attract much tourism. Prior to the COVID-19 pandemic, tourism in Colombia, Quindío, and Salento had been increasing yearly as shown in Table 1, which provides the number of active tourism service providers from 2005 to 2020.

Table 1. Tourism service providers, Salento, Quindío, and Colombia

Year	Salento	Quindío	Colombia
2005	12	475	6,940
2006	17	600	8,745
2007	26	712	10,513
2008	28	687	11,101
2009	49	774	13,426
2010	67	837	15,883
2011	64	774	15,665
2012	83	960	19,282
2013	86	892	17,961
2014	104	992	20,333
2015	136	1,086	22,000
2016	182	1,291	24,906
2017	179	1,184	27,206
2018	212	1,465	31,279
2019	272	1,987	43,209
2020	257	1,942	41,294

Source: Own elaboration based on data from MINCIT, n.d.

4. Tourism development in Salento: a double-edged sword

4.1. Salento as an urban-rural system: historical perspective

Salento is a town located in the Andean Cordillera. It is known as the ‘Father Municipality of Quindío’ for being the oldest settlement in this region. To help understand Salento’s transition from a rural outpost to a trade centre and then to an urban-rural hub, we provide here a timeline of the town’s history (Fig. 2, Fig. 3, and Fig. 4). Initially, the area was settled by the Quindos and Quimbaya indigenous groups, whose principal trades were traditional agriculture and mining. The post-colonial history of Salento dates back to 1840–1851, when it was established as Boquía. It was also referred to as Barcinales or Barcinal (1851–1865) and Villa de Nueva Salento (1865–1908). In 1908, the town was given the status of a municipality, and its name was shortened to Salento (IGAC, 2019). According to Jaramillo (2022), the colonial settlers of what would eventually become the current urban centre of Salento farmed subsistence crops such as corn, wheat, beans, potatoes, and sugar cane, in addition to raising livestock. The new settlers transported their merchandise and trade

goods on horseback along the *trochas* (mountain roads). After the arrival of the conquistadors, the commercialisation of products increased, especially during the boom period following the construction of the Camino Nacional [National Road] and the subsequent colonisation of the Antioqueños. Over this period, many of the traditional native crops disappeared to give way to cattle, other livestock, and aquaculture. Other important industries were fruit orchards and the cultivation of timber trees, exploitation of precious metals, and, in recent years, tourism (IGAC, 2019; Jaramillo, 2022; Salento's Official Website, 2022). Coffee arrived at the end of the nineteenth century, although in Salento it is not a major commercial crop as it is throughout the CCLC. Tourism increased substantially in 1990, as the beauty of the area and its local traditions became more appreciated by outsiders. The primary industry of the town shifted from agriculture and livestock to focus on diversity and consumption.

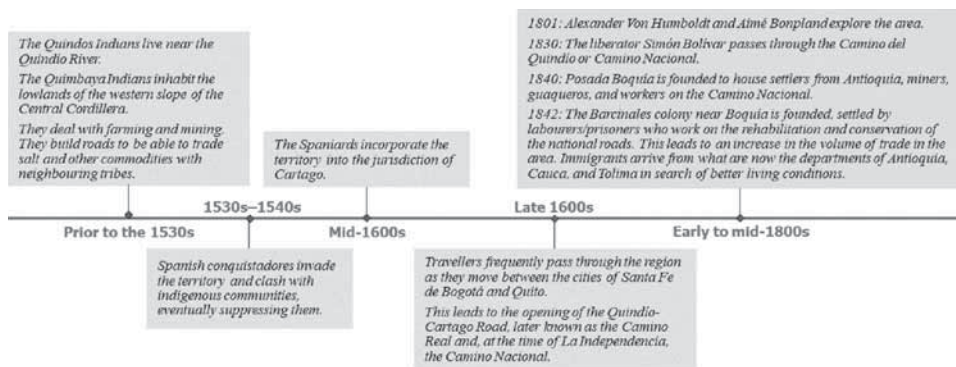


Figure 2. A timeline of the history of Salento (prior to the 1530s to the early to mid-1800s)

Source: Own elaboration based on Camargo Bonilla, 2018; El Quindiano, 2021; IGAC, 2019; Ramirez, 2019

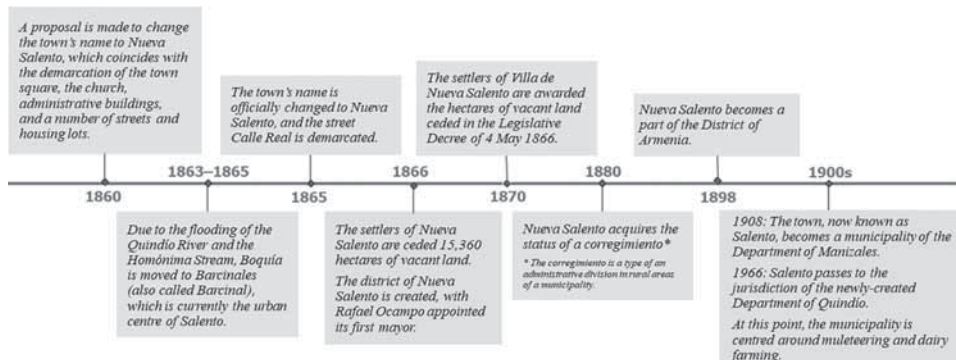


Figure 3. A timeline of the history of Salento (1860 to the 1900s)

Source: Own elaboration based on Camargo Bonilla, 2018; El Quindiano, 2021; IGAC, 2019; Ramirez, 2019

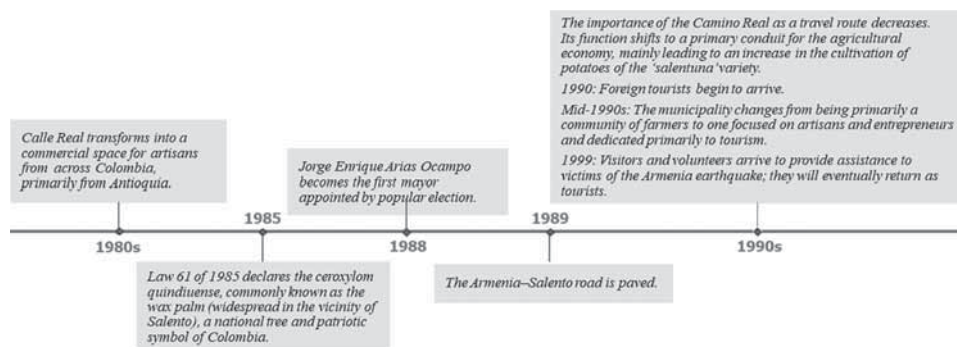


Figure 4. A timeline of the history of Salento (1980s to 1990s)

Source: Own elaboration based on Camargo Bonilla, 2018; El Quindiano, 2021; IGAC, 2019; Ramirez, 2019

The history of Salento shows a clear transition from rural to commercial and then rural-urban character (Fig. 5).

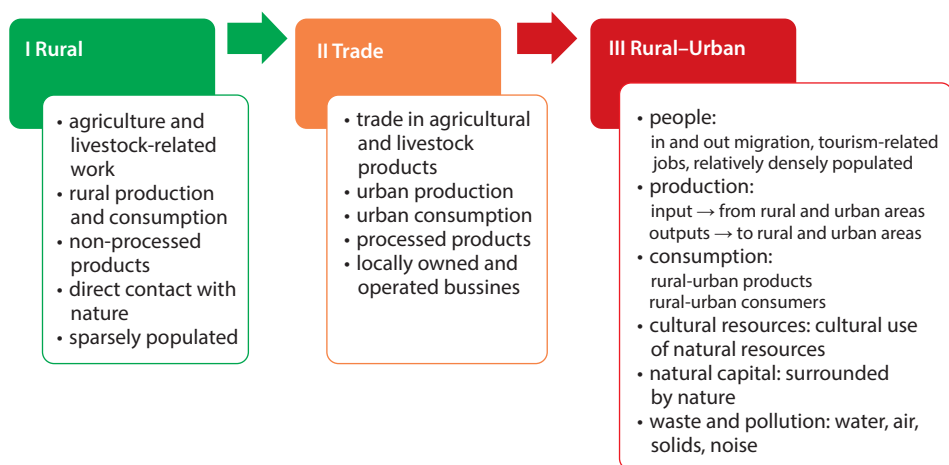


Figure 5. Transition of the character of Salento

Source: Own elaboration by Sonia Uribe based on Tacoli, 1998, 2003

4.2. Salento as a tourist attraction

4.2.1. Urban Salento: architecture

Salento is mentioned several times in the Mincultura-FNC (2010) Nomination Dossier, even though the town's urban area is not included in the main perimeter nor in the buffer zone of the WHS (some of the rural parts are inside the WHS). For instance, the cultural institution of Salento is showcased as an impressive example of architecture: although "some of the buildings and public spaces are now being put to different uses, most constructions in the

CCLC areas preserve the style originally established in the region, particularly in terms of domestic structures" (UNESCO, 2011, p. 272).

Figure 6 shows the church in Salento in the nineteenth century, while Figure 7 depicts a newer Classicist temple and a group of 'Willys' jeeps. As mentioned above, Salento and its surrounding regions, including those in the CCLC, are famous for their unique *bahareque* style of architecture (Fig. 8). Figure 9 shows the interior of the traditional house of the late Cielo Arbelaez of Salento. This tradition combines some of the construction techniques of colonial Spain with rural-style architecture of local origin. "Traditional *Caldense* architecture tried to make with wood and earth what in the developed world was made with stone, brick, glass, iron, and cement, and what in this region was made with metallic and cemented *bahareque*" (Robledo, 1993, pp. 84–85, as cited in Osorio, 2008). As for religious architecture, the buildings in Salento inspired by Classicism were also mentioned in the Nomination Dossier (Min-cultura-FNC, 2010, p. 81).

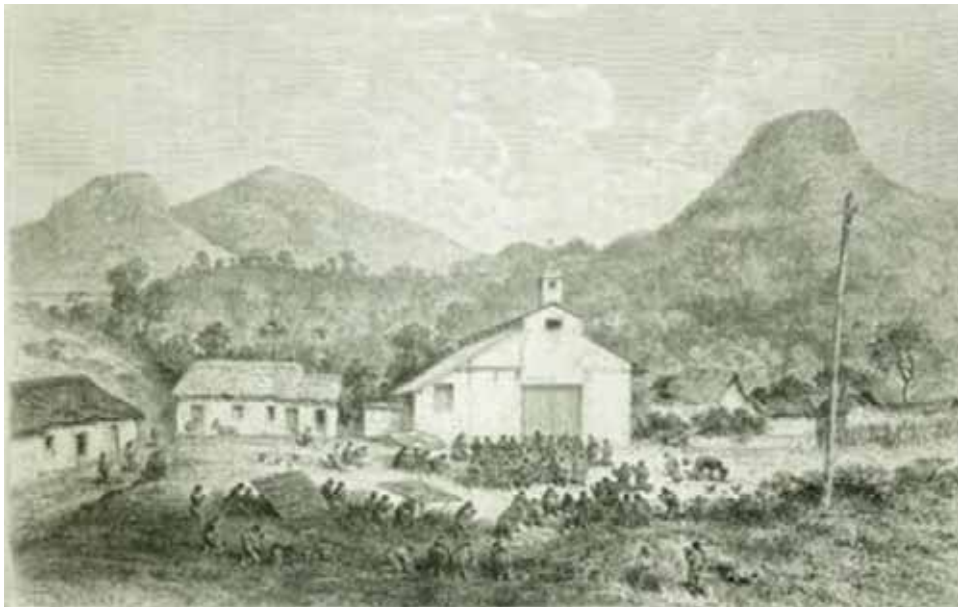


Figure 6. Mass in Salento, in the mountains of Quindío (nineteenth century)

Source: André, 1879

In their study of the gentrification of historical centres in Colombia, the National University of Colombia at Medellín (2016) found signs of the phenomenon in the historic centre of Salento, "whereby the inhabitants of certain areas are expelled when these are going to be the object of urban or real estate transformations". They added that the rising cost of land and the expulsion of original inhabitants "threaten the heritage value of the country's historic centres".



Figure 7. Nuestra Señora del Carmen Church in Salento and a cluster of 'Willys' jeeps (2019)

Source: Sylwia Kulczyk



Figure 8. House of *bahareque* type in Salento (2016)

Source: Sonia Uribe



Figure 9. Interior of a traditional house in Salento (2016)

Source: Sonia Uribe

The supervision and valuation of the CCLC is fundamental for its conservation, protection, and rational use (Duis, 2007). Rational use is a point to be addressed in more depth.

4.2.2. Rural Salento: El Valle del Cocora

Just outside of Salento is the world-famous Valle del Cocora (Cocora Valley), which features stunning vistas of the Andes and is also home to the wax palm (*Ceroxylon quindiuense*), the tallest palm in the world. Figure 10 shows a cabin and palm trees in the nineteenth century. This location has been a favourite destination of tourists for decades, including foreigners. Cocora adds overwhelming natural beauty to the allure of Salento and its rural outskirts. Figure 11 shows a colourful house in the Cocora Valley which has been converted into a restaurant and camping site for tourists; other similar houses in the rural part of Salento have been converted into hotels and hostels.



Figure 10. A cabin and wax palms at Las Pavas, Quindío (nineteenth century)

Source: André, 1879



Figure 11. Camping site in Valle de Cocora with Quindío wax palms (2016)

Source: Sonia Uribe

Maldonado (2020, p. 55) pointed to tourist gentrification as a factor influencing the scenic Cocora Valley. Andrade (2017) mentioned rural gentrification, although this has not been studied in depth. The latter affirmed that the value of land in the town has increased significantly in the areas with the greatest flow of tourists, which has already “caused displacements and rural gentrification processes”. The author added that “the carrying capacity of the village is now exceeded every weekend, and its residential and rural character has been lost”. Granada (2019) mentioned that tourism has drastically increased in Cocora’s territory but has not been backed up by the implementation of conservation activities in the area, despite the CCLC’s declaration.

4.3. The effects of tourism on the cultural landscape of Salento

Delgado (1999) described in detail the factors which lead rural societies to abandon farming when the use of their territories is converted from agrarian to non-agrarian activities. This then results in the displacement of the local population to small and medium-sized cities. At the same time, residents of urban centres tend to move to the peripheries of their cities, leading to what European researchers refer to as re-urbanisation. Delgado (1999, p. 85) interpreted these changes, which in the case of his study were occurring simultaneously in both the countryside and the city, as an overlap of the urbanisation of country life and the ruralisation of the urban periphery. The

same scenario is currently playing out within the CCLC. It is taking place within the context of a larger-scale population displacement which is occurring as much on a national as on an international scale and is equally rural and urban. Already prior to but especially following the designation of the CCLC as a UNESCO WHS, the region has experienced a notable change in land use practices, as well as a population movement from urban to rural areas and a shift in activities from mostly agricultural to touristic enterprises and trade with tourism providers. The new generation of *campesinos* has moved from rural zones to large and medium-sized cities or is working in tourist industries for urbanites now living in the country. Meanwhile, part-time or temporary residents originating from urban areas own vacation homes in which they reside during the holidays or on weekends. Nevertheless, some urban migrants permanently move to the countryside to escape the hectic life in the cities, searching for a peaceful place to rest which they can make into their home, and in the case of the CCLC, to look for economic opportunities provided by tourism. There also exists a considerable population of foreigners who, after having first visited the zone, later decided to take up residence there. For many of these people, the CCLC is also a workplace, given that they, like urban migrants, are taking advantage of the tourism boom to establish themselves and to develop businesses. When put under pressure due to the volatile nature of the coffee market and increases in prices and land taxes resulting from gentrification, *campesinos* often opt to sell their land and move to nearby cities or towns. They also seek to reunite with relatives who earlier migrated to the cities or other localities. Given recent socioeconomic changes, the agricultural activity that has long been their principal economic activity is now viewed as less desirable, thus leading many *campesinos* to shift from farming to tourism, just as urbanites who have left the city have also shifted to tourist activities centred in rural zones.

The World Tourism Organisation (UNWTO) defines sustainable tourism as “tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities” (UNEP–UNWTO, 2005, p. 12). The Official Tourism Website of the Republic of Colombia defines sustainable or responsible tourism as that which “respects both local people and the traveler, cultural heritage and the environment” (ProColombia, n.d.). Salento is certified as a sustainable destination according to ICONTEC’s Sectoral Technical Standard NTS-TS.001-1. It is doubtful, however, that a town such as Salento can be considered a sustainable tourist destination given that it is suffering from the effects of gentrification. We must aim to retransform Salento and other destinations to make them habitable again (Rozo, 2022). In order to ensure a prosperous future for the society of Salento, we must seek interdisciplinary solutions to avoid the traps set by unregulated development, and the proper solutions can only be determined followed a deeper, evidence-based analysis of the situation.

Synergies between tourism and the cultural landscape can be found in both rural and urban areas. In the case of Salento, where relatively little coffee is produced compared to elsewhere in the CCLC, the main attraction is the traditional *bahareque* architecture (see above) and the Valle del Cocora. New types of attractions have been popping up nearby, such as coffee-growing theme parks, events, and festivals.

Despite the benefits that tourism may bring, problems may arise when it is poorly managed and when the locals have little control over the process and/or receive few benefits (ICOMOS, 1999). Several studies have analysed the impact of tourism on cultural heritage, paying particular attention to destruction, both physical (wear and tear) (Berg, 2018) and symbolic (i.e. commodification, touristification) (Cohen, 1988; Duis, 2018; Greenwood, 2004; Jansen-Verbeke, 2015). Such damage to the diversity of cultural heritage and living cultures is, of course, not only regrettable in and of itself, but can also negatively impact the tourism experience (Durydiwka, 2014). The use of traditional architecture in some of the areas of Salento, for instance in the Calle Real, is no longer focused on residential improvement but on businesses targeted towards tourism (Fig. 12). This results in a departure from local creativity towards pleasing international markets, bringing with it the establishment of archetypal ‘tourist traps’. In addition, the increasing number of international tourists leads to a bias in meeting fellow ex-patriots instead of locals who represent the culture the visitors theoretically wish to experience (Fig. 13). English-language proficiency may unconsciously lead well-meaning travellers away from their original intent to meet and converse with locals. It is critical that such impacts are better understood through systematic research in order to inform policymakers using evidence-based conclusions (UNWTO, 2017).

The CCLC has experienced problems caused by the influx of tourists who are ostensibly drawn to the area to enjoy the natural beauty of the landscape and to take part in traditional culture. Their arrival in large numbers leads to issues associated with overcrowding and the deterioration of local traditions. The CCLC has suffered a gradual loss of its tradition of hand-picking coffee as well as *bahareque* architecture, impacts that will ultimately lead to “degradation, loss of integrity, and unsustainability of the CCLC” (Rincón, Montoya, 2016). The phenomenon of gentrification may potentially engender even greater levels of inequality (Lees et al., 2015).

Tourism in this cultural landscape can, if managed appropriately, benefit locals by encouraging the revitalisation of their culture, the preservation of their cultural heritage, and the opportunity to increase their income via tourism activities. In the case of Salento, the arrival of outsiders has brought with it diversified skill sets, in addition to aiding the locals with becoming more interconnected with the rest of Colombia. Another tick on the positive side of the ledger is that the job market for locals has improved considerably, including for women, which provides them with more income to support their families. Some former farmers are trained Cocora guides – after all, who



Figure 12. Traditional house in *bahareque* style converted into a shop selling products from India (2016)

Source: Sonia Uribe



Figure 13. National tourism on New Year's Day (2017)

Source: Sonia Uribe

knows the area better than them? Some elderly people also earn part of their livelihood by guarding the tourists' cars while they hike about the landscape. It would be helpful if they, for instance, could be able to share their many stories from the area with the visitors. In short, although gentrifiers unwittingly bring with them a number of problems, if aware of their consequences they can also become part of the solution.

5. Discussion

As we have seen, the rural and urban areas of the CCLC have in recent years undergone dramatic changes in economics and population size as well as in land use patterns. The latter stem from the expanding tourism sector, which was growing rapidly in Colombia prior to the onset of the COVID-19 pandemic. By that time, a new generation of *campesinos* had moved from rural zones to medium-sized cities or had begun to work in tourist industries for urbanites now living in the country. Meanwhile, part-time residents from urban areas or foreign countries increasingly came to reside within the CCLC during the holiday months or over weekends, staying in hotels or vacation homes and sometimes even moving there permanently. The rural landscape has been restructured, and the rural resources which traditionally served as the primary basis of the income of rural families are no longer always sufficient to meet their needs.

Both tourism and other forms of development may cause problems when they are not well organised. In the case of tourism, this may lead to social dislocation, displacement of long-term residents, loss of cultural heritage, economic dependence, increase in property prices, land use change, and ecological degradation. For example, *Salentinos* who have moved to towns such as Circacia or Filandia and cities like Pereira often become disconnected from the communities in which they grew up. Consequently, they cannot move back despite lack of opportunities in their place of residence. Homeowners often prefer to rent to tourism businesses rather than to locals, which may lead to lack of living spaces for the latter. Better understanding of the impacts of tourism, both positive and negative, may lead visitors to seek and demand responsible options that guarantee and promote true sustainable tourism.

We should not boil down our measure of success of tourism to the number of visitors; instead, we must find a way to assess the long-term happiness of all of the residents, both those long-established and the newcomers – in other words, a win-win solution for everyone. Given that the locals' vibrant traditional culture served as one of the main reasons for registering the CCLC as a WHS, we must avoid "killing the goose that laid the golden egg" by opening the floodgates of development with no safeguards; we must ensure that respect for the local culture is embedded in the development model. Thus, we have an urgent need to replace unhealthy models of tourism.

6. Conclusion

The CCLC is an important addition to UNESCO's list of WHSs, due not only to its biodiversity and scenic beauty but also to its wealth of priceless human traditions. It is critical that we better understand the effects that this listing may be having on the sustainability of the area. The effects of tourism may lean towards the positive, but only if proper policies are enacted to protect local residents from the insidious effects of gentrification. This review has highlighted the necessity of finding the right balance between development and tradition if we are to have any hope of protecting the CCLC and the rest of the world's most priceless human traditions and natural treasures.

I finished munching on my tasty arepa coated generously with 'hogao' (a Colombian tomato and onion sauce), swigged down the last drops of my 'café con leche' (coffee with milk) and bid la 'señora de arepas' adios. It was time to board the rickety bus and return to my mum's home in the bustling city of Ibagué, the 'City of Music' where I was born. I knew, however, that I would return soon to this colourful and characterful old town. As I walked down the hill towards the bus stop in the main square, I passed an Asian restaurant, and then a fancy coffee shop advertising its wares in English. I heard the voices of boisterous tourists, some speaking French, some American English. I arrived at the old town square, where the older residents of Salento used to gather to exchange gossip and greet those who were passing by. Now the square was full of young tourists; although I appreciated the energy of these multinational explorers, I gloomily reflected on the fact that the older residents who once filled the square with their stories and laughter were no longer there. So many changes in so little time. Would I even recognise this place the next time I returned?

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ABSTRACT

Understanding ‘outstanding’: An urban-rural cultural landscape facing tourism development. Case study of Salento, Colombia

This paper is a case study of the town of Salento within the context of the listing of the CCLC [Coffee Cultural Landscape of Colombia] as a World Heritage Site. We explore both the benefits provided to the social-ecological system by the increasing levels of tourism but also the threats, especially in the form of gentrification. Salento in particular has seen a rapid transformation over the past three decades, changing from a centre of agriculture, to a focus on trade, and then to a tourist destination. Without proper understanding and management, the current phase in the development of the town may potentially damage the livelihoods and traditions of the local people and lead to replacement of locals by city-dwellers and foreigners, putting at risk or potentially eliminating the system lying at the foundations of the CCLC. We recommend a deeper quantitative and qualitative analysis to understand the perspectives of the different stakeholders to preserve the culture and nature which bring both long-term and new residents to Salento, as well as working in partnership to achieve this goal.

Keywords: sustainable development, heritage tourism, gentrification, social-ecological system, Coffee Cultural Landscape of Colombia

THE CITY OF LA PLATA – ITS DEVELOPMENT AGAINST THE BACKGROUND OF EUROPEAN IDEAS OF IDEAL CITIES OF THE NINETEENTH CENTURY

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1. Introduction

An ambitious goal of many designers and urban planners is to build an ideal city. Cities endowed with a harmonious architecture and geometric, proportional divisions have also been intended to contribute to shaping a new kind of society. A watershed moment in the history of devising ideal cities was the nineteenth century, which was connected with the development of industry and the creation of the so-called industrial cities. The Industrial Revolution brought with it development of the infrastructure, e.g. transport, in conjunction with migrations of large masses of people from villages to cities, which triggered radical spatial, social, and environmental transformations in those agglomerations. Nevertheless, the cities of the era were not ready for such changes. This issue was especially pronounced in terms of ensuring an appropriate number of apartments and at least tolerable living conditions for newcomers. As a result, health-related, social, or educational problems were exacerbated (Żejmo, 2015), which took a particularly heavy toll on working-class families.

A remedy for that situation were to be, among others, new city models created in such a way that the needs of all their inhabitants, prosperous or not, should be satisfied. They were also intended to help in shaping a new model of society in which people are equal and deserve equal rights and opportunities (egalitarianism). It was believed that a harmonious city development as well as a geometric and well-ordered urban layout would contribute not only to a better functioning of such cities, but also to the development of social life.

In hindsight, those assumptions turned out to be erroneous, and a large number of designs of the so-called ideal cities which came into existence at the turn of the twentieth century have never been implemented. Those which were indeed brought to fruition did not meet expectations; instead, they often exacerbated class differences or gave origin to suburbs (initiation of the suburbanisation process) and environmental degradation.

This article is aimed at presenting the urban layout of the city of La Plata, located in Argentina, not far from Buenos Aires. According to its initial

assumption and due to its harmonious urban form, it was intended to shape a new type of Argentinian society (modern society) in the early 1900s. The European urban planning concepts taking shape at the turn of the twentieth century and nowadays referred to as utopian ideas will be presented in reference to well-arranged and comprehensively designed city layout. The study will also include a certain reflection on whether a geometric, intentional city layout (like in the city of La Plata) actually contributes to a harmonious development of the agglomeration and can counteract spatial chaos. This issue is extremely important from the viewpoint of urban and spatial planning and of the problems related to spatial order in cities. This article has been compiled on the basis of field studies (conducted in the city of La Plata in June 2019 during a research stay under Era Net Lac 3, an international grant whose Polish part was sponsored by the NCBiR – National Centre for Research and Development) and an analysis of available literature on utopian cities, the structure and development of South American cities, as well as on the history and the development of the city of La Plata.

2. Spatial harmony and ideas of utopian cities in the nineteenth century

Spatial order generates so-called equilibrium in space and constitutes an important factor in maintaining good quality of life, preventing the degradation of environmental resources, both natural and cultural, as well as counteracting so-called spatial disharmony (Falkowski, 2017). A clear aspiration in the development of the art of city shaping since ancient times has been to create a harmonious space to live in. In antiquity, people were looking not only for an optimal and ideal city structure, but also for a way of creating spaces which would favour the so-called 'good life'. The first theoretical model of an ideal city was elaborated by Plato, and its shape was circular (an ideal figure). It was believed that an ordered urban structure would influence the shaping of an ideal society (Słodczyk, 2016). The adoption of social concepts in the process of city development was also influenced by the works of Thomas More, who in 1516 devised a concept of an ideal city – Utopia.¹ Like in Plato's formulation, the city has a carefully planned urban layout aimed at facilitating social reform so as to contribute to a harmonious life of its inhabitants (Picon, 2013). The island of Utopia was to consist of 54 cities, each having 6,000 residents, all based on the same plan. A division into four equal parts constituting different quarters was visible – the centre of the city was to be accentuated by a market square (Słodczyk, 2016). Ultimately, the construction of such a unit was never undertaken, and the word 'Utopia' has become a symbol of striving to create

¹ The word consists of Greek words *ou* (not) + *topos* (place) which in free translation means 'nowhere' (Picon, 2013).

something perfect but impossible to implement – in this case, to achieve an ideal social and political system – thus becoming an inherent part in the history of urban planning.

The need of working out new urban models arose in the nineteenth century. It was caused by a rapid development of industry in the areas of erstwhile agglomerations and their maladaptation to the factors connected with this process. This generated many social, spatial, and also health-related problems. At that time, there appeared a large number of new ideas aimed at finding an ideal city model (incl. shaping an ideal, homogeneous society) which would guarantee appropriate working and living conditions for workers and their families. Many of those concepts may now be deemed utopian and unfeasible (Słodczyk, 2016). An essential element was an appropriate organisation of space accommodating extensive greenery which – apart from social integration – was to be beneficial to physical and spiritual life of the local population (Tölle, 2011). An example of such an approach to shaping urban units was the design set forth by Robert Owen, author of the Village of Unity and Mutual Cooperation – designed for 800–1,200 people constituting a specific community. An important role was attributed to school education of kids, which can be also noticed in the ideal cities designed by Charles Fourier, creator of units referred to as phalansteries (*Phalanstère*),² and by Jean Baptiste André Godin. The latter put emphasis on ensuring good living conditions for industry workers, so he proposed building the so-called familisteries (*Familistère*) – housing estates for workers employed in a local factory. Both the city and the workplace were to be managed by its employees. Godin's was one of the few projects actually brought to life (Tölle, 2011). The end of the nineteenth century abounded with proposals of many city models which have influenced the design of today's agglomerations. One of the most important concepts was the project of Ebenezer Howard – the Garden City – radically different from the existing nineteenth-century agglomerations. As Howard had it, prospective inhabitants were to be guaranteed the comforts offered by the city and at the same time enjoy the benefits of living in rural areas. Industrial centres, as opposed to the layout of existing cities, were to be located outside the boundaries of garden cities; in addition, the factories were to be separated from the residential zones with a green belt. According to the designs, suburban towns of limited size (32,000 inhabitants) should be surrounded by a belt of agricultural land and arranged around the central town inhabited by a population of 58,000 (Tölle, 2011). Those so-called “green belts”³ constituted a distinct city boundary. The urban layout of the Garden City was intended to allude to ideal ancient or Renaissance cities – it had a concentric, radial layout,

² A phalanstery was to be the basic social unit – something like a palace located in a rural area, designed for 2,000 dwellers (Tölle, 2011).

³ Nowadays, the so-called “green belts” are an element intended to prevent large metropolises from spreading to outside areas (Ciszewska, 2019).

with a clearly emphasised town park surrounded by cultural and trade facilities (Tölle, 2011). Ebenezer Howard published his concept of city shaping in 1898; these new agglomerations were conceived of as a remedy for overcrowded industrial towns whose populations were incessantly growing with the arrival of new workers to be employed in the developing industry sector (Miazga, 2014). However, after some time it turned out that new settlements developed according to Howard's guidelines were occupied mainly by the middle class; no factories were built on the outskirts, and as a consequence, those units were not self-sufficient (Tölle, 2011).

From the viewpoint of modern town planning and development, another important idea was the Industrial City (*Cité Industrielle*) by Tony Garnier. The unit was to be divided into three zones: manufacturing and industrial, residential, and sanitary, with a segregation of pedestrians and vehicles. The city was designed for a population of 35,000 workers, for whom the idea of their common good ought to be essential (Tölle, 2011). Another interesting city model was proposed by Arturo Soria, who in the year 1882 created a concept of the so-called Linear City. It had the shape of a band formed of development arranged in a line and consisting of single-family houses with small gardens (the designed development width was 460 m and was to be connected to complexes of parks and forests, arranged along a multifunctional thoroughfare whose core was to be railway network). This main band was crisscrossed by transverse streets at regular intervals (Miazga, 2014).

The development of the so-called "utopian" urban planning in the nineteenth century was influenced by the social utopian ideas which were being formulated at the time. A new model of social planning was to be based upon a new spatial layout. It was a reaction to the progressing social stratification observed in towns, where the standard of living of poor people was subject to continuous deterioration because of the developing capitalist system. According to the idealist urban planners of the era, an ideal city was one where there were no private plots and whose important element were social aspects (teamwork and social harmony, use of common spaces) as well as remaining close to nature (Słodczyk, 2016).

3. Structure of the city of La Plata compared to other cities in Latin America

South American cities (taking into account only the so-called Spanish America) were founded by settlers coming from Europe, and in consequence, they were evolving according to a common scheme/model, with a predetermined size and shape. They were built on rectangular plots measuring 400×600 feet, which enabled their further development in an orthogonal layout. Not only the city's proportions but also its structure was predefined. The central part was a market square whose size influenced the sizes of the quarters dividing

the city into smaller parts (Szpakowska, 2011), creating a chessboard layout. This blueprint was established by the Spanish decree of 1513 titled *Real Cédula expedida en Valladolid*, which was the base for determining the way new cities were designed and founded (Czerny, Czerny, 2017). A church was erected on the square and constituted its landmark, whereas the quarters directly surrounding it were intended for representative buildings used as seats of public institutions or as private premises (Szpakowska, 2011). This is also typical of the city of La Plata analysed in this article. As time went by, geometric urban layouts became subject to modifications. At the turn of the twentieth century, Latin American cities came to be occupied by emigrants, most of them Europeans, and in consequence, compact geometric cities started to expand towards extra-urban areas. This contributed to the initiation of the effect of suburbanisation, namely the growth of cities outside of the urban area, their spread to land previously dedicated to manufacturing and agriculture. At the same time, central quarters started to suffer gradual degradation, which resulted from the exodus of better-off inhabitants towards the outskirts. In the 1970s and 1980s, one could observe a new spatial and social phenomenon which consisted in the emergence of poverty-stricken districts with informal development, so-called favelas or (in the Argentinian context) villas (Czerny, Czerny, 2017). This phenomenon can be noted not only on the outskirts but also in the existing gaps in the central spaces of cities and is characterised by compact urban tissue and substandard building developments (Fig. 1).



Figure 1. A view of a substandard building development at Villa 31 Buenos Aires

Source: Agnieszka Dudzińska-Jarmolińska

4. Spatial structure of the city of La Plata

Among the cities of South America, the urban layout of La Plata constitutes a unique example of a comprehensive implementation of urban design founded *in cruda radice* (lit. 'on a raw root', i.e. built from scratch). La Plata has the status of the capital city of the Buenos Aires Province and is located approx. 56 km from the capital city of Argentina. Its establishment in 1882 (Vélez, 2018) was connected with political transformations which took place in Argentina after 1880 (Mujica, 2011). According to statistical data for the year 2010, the population of the city was around 654,000. Hence, it was the fourth most populated city in Argentina. It is estimated that 130,000 of its inhabitants are students of the La Plata University (Vélez, 2018).

The founder of La Plata was Governor Dardo Rocha (Pessoa, Sabaté, 2016), and its architect – Pedro Benoit, who suggested that its urban layout should have a strictly geometric shape. The city location was determined by political factors (Mujica, 2011). The city of La Plata was to be the showcase of modern Argentina, a progressive state under dynamic development – hence, it was the first city in South America with electric streetlights (Guamet et al., 2012). It also boasted water supply systems which allowed the inhabitants to use running water at their homes (Reed, 2015). The modern character of the city was to reflect not only the new political and social ideas, but also the scientific and educational aspirations of Argentina – that is why the second largest national university was established in La Plata (Pessoa, Sabaté, 2016). It is situated in the most attractive part of the city, in a eucalypt forest, and has a large campus, sports facilities, and extra auxiliary infrastructure, including a museum and a planetarium.

Harmoniously designed agglomeration space was to contribute to shaping of a new type of society – according to the slogan “change the city – change the society” (Pessoa, Sabaté, 2016) – which was also typical of many urban planning utopias devised in Europe at that time. That is why the design principles implemented when establishing the city were deemed to be a vision of a utopian city (Pessoa, Sabaté, 2016). The regularity of the urban layout makes it akin to the street network of Barcelona (in which case it was assumed that such a regularity would make the city equally accessible to all) (Szpakowska, 2011). In the structure of La Plata, there can be also discerned some characteristic elements of the Haussmann style which has shaped modern Paris as well as analogies with the Ringstrasse boulevard in Vienna (Mujica, 2011) or with the so-called garden cities.

This modern and – by the standards of the era – comprehensive approach to planning the city layout from scratch came to be appreciated at the Universal Exposition of 1889 in Paris. The layout of La Plata won two gold medals – viz. in the category of the cities of the future and for best design (Guamet et al., 2012). La Plata was to be one of the most important urban planning projects for the cities in South America arising in the early 1900s.

However, in light of the growing popularity of modernist ideas in architecture and urban planning and development at the beginning of the twentieth

century, the city – then still under construction – had already become an anachronic structure, not adapted to the realities of contemporary times. Moreover, the mid-twentieth century saw the foundation of Brasília – a city envisioned according to the cutting-edge modernist principles of Le Corbusier, with a remarkable design developed by outstanding architect Oscar Niemeyer. This was something with which La Plata was unable to compete (Reed, 2015).

5. City layout

The city of La Plata has a square layout and is surrounded by a green belt which brings to mind Howard's concept of garden cities. Running through its centre is the main axis dividing the space in two halves. Developed on both sides of this road were the most important public buildings whose design was determined through publicly announced architectural competitions. There are also two secondary axes (parallel to the main one) where ministries and other public buildings are located. The centre of the city is its central square – Plaza Moreno, one of the largest park squares in the world. Its landmark on one side is a Neogothic cathedral, and on the other – the Town Hall (Figs. 2 and 3). This is typical of many South American cities, in which the square architectural landmark is a church. The city has a regular grid of streets which are additionally intersected by diagonal streets, forming a rhomboid layout (Mujica, 2011). This makes it possible to streamline the air circulation in city centre (Vélez, 2018).

Hence, La Plata is a city with a modular structure – each module measures 120×120 m (Mujica, 2011) and is subdivided into 40 blocks. Such a division has made it possible to establish individual residential areas in each of the demarcated quarters with a view to create something like a mosaic of small residences throughout the city (Fig. 4). As time went by, it turned out that the lack of defined architectural guidelines, e.g. pertaining to the estates' height, area, or density (Pesoa, Sabaté, 2016), eventually brought La Plata to a state of spatial chaos (Fig. 4).

Not all blocks forming part of La Plata are of the same size. The blocks in Avenidas 44 and 60 become proportionally narrower the closer to the main city axis they are (Mujica, 2011). This results in urban consolidation and underlines the importance of space, something which is (particularly) significant for the functions of the buildings situated there. Visible here is also a hierarchisation of streets which is not found in other Argentinian cities (Pesoa, Sabaté, 2016). Wider streets divide the space into sectors (every sixth regular street forming respective city blocks), each of which constitutes a quarter with access to green squares established at the intersections of wider streets (vertical to the parallel ones, and the diagonals), which were to improve the so-called hygienic character of the city and to guarantee its residents contact with nature (Pesoa, Sabaté, 2016) (Fig. 5).



Figure 2. The Cathedral of La Plata

Source: Agnieszka Dudzińska-Jarmolińska



Figure 3. Palacio Municipal de la Ciudad de La Plata (Town Hall)

Source: Agnieszka Dudzińska-Jarmolińska

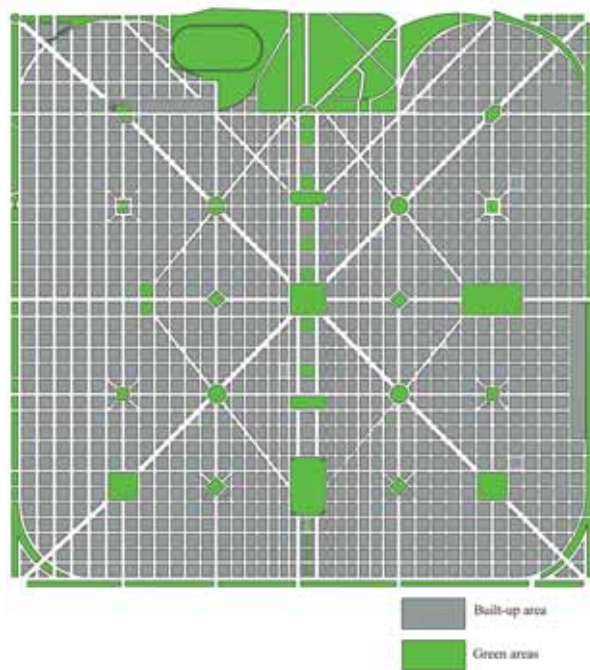


Figure 4. Layout model for the city of La Plata

Source: Agnieszka Dudzińska-Jarmolińska



Figure 5. A square at the intersection of two main thoroughfares in the city of La Plata

Source: Agnieszka Dudzińska-Jarmolińska

The respective ‘quarters’, or sectors of the city, have been planted with different tree species. Thanks to this, the users of the space can better navigate the city and know in which part of the agglomeration they are. Planted along the streets are, among others, orange or lime trees (Mujica, 2011). However, the most important green space of La Plata is a large town park arranged in the city’s northern part, called Paseo del Bosque. It comprises a preserved eucalypt forest constituting the *sui generis* “lungs of the city” (Mujica, 2011).

6. Development and spatial analysis of the city of La Plata compared to other ideal cities

The ideological and spatial premises underlying the design of the city of La Plata allude to the projects which were then taking shape in Europe. There are visible analogies with Haussmann’s vision of Paris or the social ideals of utopian cities, but the most prominent inspiration is Ebenezer Howard’s idea of garden cities. The concept of the Garden City and the project of La Plata were both conceived at the end of the nineteenth century and implemented in the early twentieth century. And so, when garden cities lost their relevance – along with the promulgation of modernist visions of contemporary cities – so did La Plata, which was due to the construction of the city of Brasilia in its modern form.

6.1. Urban layout

The structure and functional solutions adopted in the city of La Plata show many similarities with the urban layouts typical of utopian cities arising in Europe in the nineteenth century. They are visible in La Plata’s geometric form, which was aimed at creating harmonious spaces fostering a new type of society. Another important aspect for La Plata and other utopian cities was the sanitary/hygienic factor. The inhabitants of such urban centres were to be granted unrestricted access to greenery in order to improve their standard of living (Pesoa, Sabaté, 2016). An important aspect was correct aeration of the city, which was possible due to the demarcation of broad avenues. They also had another task – they were a specific measure of controlling the society, a principle which also stood behind the avenue layout in Paris dating back to the nineteenth century (Szpakowska, 2011).

6.2. Transport system

Both La Plata and garden cities were intended to be satellites of a larger urban centre – in the former case, of Buenos Aires. And, just like in the case of garden cities, the transport among the two urban centres was to be ensured with the development of a railway network. The local train station was intended to constitute one of La Plata’s centralising elements, and that is why it was

arranged in its very centre in 1870. However, the decision-makers were aware that such a location of the railway station might have a negative effect on the functioning of the agglomeration; that is why the station was relocated to nearby Avenida 1 (Pesoa, Sabaté, 2016), which considerably reduced its availability to the majority of city inhabitants. While analysing the railway layout in Howard's original plans of garden cities, one will swiftly notice that railway stations are not situated in the centre but on the outskirts.

Nowadays, in the year 2019, the entire communication between La Plata and Buenos Aires is operated by means of motor and bus transport, and although the transportation services are streamlined, they are still insufficient – the railway station is undergoing modernisation works. There are considerably more problems related to transport; because of its layout, consisting of a network of predominantly one-way and narrow streets, it is hard to travel in the city by car. Pedestrians, too, find it challenging to cross successive streets as the street grid becomes clearly denser towards the main city axis. Firstly, many of those streets are not provided with traffic lights, so a pedestrian has to wait until a vehicle gives him/her way, which occurs rather seldom. Secondly, even if a street is equipped with traffic lights, they are dedicated to drivers, not pedestrians. Therefore, a typical feature of modernist and North American cities is the primacy of vehicular over pedestrian traffic – which was criticised by Jane Jacobs, an activist, as early as the 1960s.

6.3. Economic aspects of the city

In line with the concept at the core of ideal cities, La Plata was to be economically independent. The city was intended to be surrounded by two radii of farmsteads constituting a municipal production unit, which was also typical of garden cities. Economic success of the agglomeration was also to be ensured by the existing, natural port of Ensenada – connected with the city by two parallel canals so as to transport goods from the port to the “tollbooths” of the city. Yet, the port never developed enough to grow in importance, which was due to the existing political and economic factors as well as the proximity of the important port in Buenos Aires (Pesoa, Sabaté, 2016).

6.4. Greenery

One of the more prized spaces within La Plata is the eucalypt forest planted by Martín Iraola. The initial intention behind it was to drain that area, but then it became the base for establishing the Paseo del Bosque park. Even today, there are some trees which are vestiges of primeval eucalypts, some the oldest specimen of this species in Argentina (Pesoa, Sabaté, 2016). Alas, over the years the park area has been successively dwindling. Initially, the only facilities on its premises were buildings of the La Plata University as well as some additional pieces of infrastructure, such as a summer theatre, an astronomic observatory,

and a natural history museum. Recently, the green area has shrunk again, with additional space taken by a soccer pitch or tennis courts.

Arranged in the heart of the city, like in the case of garden city layouts, is a city square doubling as a park. Greenery is also distributed among a series of squares created at the intersections of main thoroughfares; however, it is difficult to take any rest in them due to heavy vehicular traffic. The boundaries of the primary urban layout have been defined by a narrow green strip along the original perimeter of the project – this is also analogous to Howard's concept of shaping cities. Nowadays, this idea of surrounding cities with green areas (green belt) is more and more frequently implemented in urban planning and development, which allows for better control over the process of urban sprawl. As far as La Plata is concerned, the green boulevard is 100 m wide and forms something like a green ring which allows one to walk around the entire city (Pessoa, Sabaté, 2016). However, this barrier has proved insufficient, and presently the city is spreading beyond it in an uncontrolled way.

7. Current condition

Nowadays, the city of La Plata, despite having preserved its unique urban layout (Mujica, 2011), is subject to considerable transformations which adversely affect its image. It is clearly undergoing a process of destroying old, historic development and replacing it with new buildings of low architectural value. Around 1920, the height of most buildings did not exceed two storeys (Pessoa, Sabaté, 2016) (Fig. 6); in contrast, the objects under construction today are multistorey buildings squeezed into narrow plots, and there is no control over the number of the storeys in each of them. The variety of heights in the new development exacerbates the existing urban chaos – which is also typical of many other cities in Latin America (Mujica, 2011) (Figs. 7a, 7b).

The chaos results from the fact that the primary city plan did not provide for such a high density of newly emerging development, and all attention was put on La Plata's urban layout. The designers of the city believed that its development would be steady and linear (Pessoa, Sabaté, 2016).

Another spatial problem discernible in today's La Plata is the intensive outward expansion of the city, which means that the development is more and more dispersed and starts to deviate from the original geometric chessboard layout. The more distant an estate from the historic city area, the more conspicuous this phenomenon becomes. The new suburbs are inhabited mainly by wealthier dwellers who occupy single-family houses and residences surrounded by gardens. Such areas, e.g. City Bell, are beautifully arranged spaces with access to a broad range of services. Apart from such zones, there are also some gated communities separated from the rest of the city. Such enclaves are created in areas originally serving primarily agricultural functions or those previously occupied by informal development (Colella, 2012).



Figure 6. An example of chaotic architecture in one of the streets of La Plata

Source: Agnieszka Dudzińska-Jarmolińska



Figure 7a, Figure 7b. New development among historic architecture

Source: Agnieszka Dudzińska-Jarmolińska

Other problems in the city are related, among others, to its close proximity to the La Plata River; hence, a large part of the urban centre is at risk of flood and inundations (Pessoa, Sabaté, 2016). This situation is additionally complicated by the fact that the city directly borders on a refinery from the side of the river, which means that when the waters swell, they carry with them petroleum derivatives to the residential areas, contaminating extensive parts of La Plata. Nowadays, such events are likely to occur more and more often, mainly due to the increased frequency of torrential rains, which are a consequence of worldwide climate changes. An example may be the 2013 flood, which affected 3,000 inhabitants and resulted in 48 fatalities (“Argentina floods...”, 2013).

8. Conclusion

The solutions adopted by the creators of the city of La Plata followed a broader trend taking shape at the turn of the twentieth century and largely based upon social ideas. An ideal city structure was supposed to contribute to shaping a better, equal society. An important goal was also to provide such a society with proper education, which was to be ensured by the university built in the city area. These theoretical premises were the basis for models of ideal cities developed in Europe by such authors as Robert Owen (*Village of Unity*), Charles Fourier (*Phalanstère*), Jean Baptiste André Godin (*Familistère*), Ebenezer Howard (*Garden City*), or later by Tony Garnier (*Cité Industrielle*) or Le Corbusier (*Cité Radieuse*). Nevertheless, these visions – both of the people mentioned above and those in charge of creating the city of La Plata – turned out to be unfeasible; hence, those concepts are deemed utopian.

When analysing the historic layout of the city of La Plata, we can discern a large number of elements typical of the idea of garden cities – which is interesting, because the project of the Argentinian city had been developed earlier than the manifesto of Ebenezer Howard. Both La Plata and garden cities were conceived of as satellite towns connected with the main cities by means of a railway network (like the garden city of Podkowa Leśna connected with Warsaw and La Plata with Buenos Aires).

The city morphology itself also displayed some elements aligning with the ideas promoted by Ebenezer Howard – the most salient being the green town square located in the central part of La Plata. It is surrounded with public buildings most important for the city, thus playing the role of an agora or a space for the integration of the municipal community. Another similarity is the green belt surrounding the historic city layout. Green belts were also a part of design for the emerging garden cities, enabling the demarcation of typical city zones and areas intended for industry. The third coincident element, noticeable in both the city under analysis and in garden cities, is providing space aimed at integrating city dwellers. This goal was to be achieved by creating a large quantity of public green areas. In La

Plata, such areas were the central city square, some smaller squares located at intersections of local thoroughfares, plants along the streets, and, most importantly, the preserved eucalypt forest – Paseo del Bosque. The primary urban layouts – both in La Plata and garden cities – are subject to changes as time goes by. In La Plata, this change consists primarily in the demolition of the old city tissue of high architectural value with concomitant chaotic development of ‘released quarters’. The new development in the city comprises buildings of various heights, which creates an impression of chaotic space. The preserved historic layouts of garden cities are given appropriate legal protection, thanks to which the unique concentric arrangement is still visible, but similar safeguards are also adopted for the gardens and buildings within the urban tissue. Consequently, various legal provisions allow for initiating new development which will fit harmoniously into the historic city layout. The similarities between La Plata and garden cities in Europe clearly indicate how important the social aspects of creating a city were for the urban planners of the era, who believed that it should become an ideal space for living and working. However, despite having a thought-out and harmonious layout, La Plata was not spared from undergoing adverse changes. Nonetheless, the city has largely preserved its original form and constitutes an important monument to the urban planning solutions of the turn of the twentieth century. According to the ideas of their creators and designers, it was to be a self-sufficient urban organism with plentiful production areas and a port (Pessoa, Sabaté, 2016). Alas, those dreams have not been fully brought to life, just like the visions of other ideal cities conceptualised at the end of the nineteenth century.

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ABSTRACT

The city of La Plata – its development against the background of European ideas of ideal cities of the nineteenth century

La Plata, being a satellite city of Buenos Aires, was designed from the ground up in a geometric layout which still exists today. It also has a spatial arrangement typical of many other Latin American cities, developed under the influence of European utopian projects implemented at that time. In the structure of La Plata, we can find many parallels to the European cities developing in the nineteenth century, such as Paris, Vienna or Barcelona – which proves that it was supposed to be a modern city with an international character. Over time, it turned out that the ideally designed urban layout did not translate into harmonious development of the city, which is reflected in its image today. Currently, La Plata is struggling not only with urban chaos, but also poorly functioning communication or flooding from the La Plata River and pollution produced by the refineries operating nearby.

Keywords: La Plata, utopian cities, spatial chaos, garden cities

IV. THE CRISIS AND THE RESPONSE

URBAN AGRICULTURE AS AN ELEMENT OF MITIGATION-ADAPTATION STRATEGY: A RESPONSE TO CLIMATE AND FOOD CRISES

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1. Introduction

It has been universally acknowledged that the negative effects of climate change are particularly severe for the poorest and most vulnerable city dwellers, exacerbating other problems such as food insecurity, poverty, and low quality of life. Due to the ever-accelerating urbanisation, research on the adaptation to and mitigation of climate change in urban areas is a high priority. Particularly noteworthy is the fact that, on the one hand, it is cities, and the urban poor in particular, that suffer the most impacts of these changes, and on the other hand, cities are concomitantly considered a major part of the cause, which is largely due to unsustainable consumption and food production (Dubbeling, De Zeeuw, 2011). It is therefore crucial to look for solutions which would allow the most vulnerable city dwellers to adapt to change and simultaneously help reduce cities' contribution to pollution and greenhouse gas emissions. The aim of this text is to present the role of urban agriculture as an element of the mitigation-adaptation strategy. Not only will it focus on the crisis related to climate change, but also on the changing economic conditions and food crises that follow.

Although the end of the COVID-19 pandemic is in sight, as stated in mid-September 2022 by Tedros Adhanom Ghebreyesus, the current Director-General of the World Health Organisation (<https://news.un.org/en/story/2022/09/1126621>), it is worth recalling the situation from the beginning of 2020. A few days after the announcement of the global pandemic, store shelves began to empty, and food products started to disappear. Among the concerns about food shortages being an indirect outcome of the spreading virus, the issue of food provision in urban areas was raised once again. The COVID-19 pandemic has re-exposed a pressing issue that resurfaces whenever the next environmental, economic, or political crisis emerges – urban food systems are unsustainable, unjust, and vulnerable to shocks and pressures. This text attempts to answer the question of whether urban agriculture can serve as a useful means of adapting to the occurring changes and whether it

is an activity that helps limit their negative effects. The paper constitutes an overview and is based on the analysis of the available literature concerning the adoption of urban agriculture in fighting past, present, and future crises. It focuses mainly on the publications that combine the topics of urban agriculture and the mitigation-adaptation strategy.

The structure of the text is as follows. Firstly, three terms – urban agriculture, mitigation, and adaptation – will be conceptualised, followed by a discussion of the integrated mitigation-adaptation strategy used nowadays in the fight against, above all, the climate crisis. Then, based on several examples, the functions of urban agriculture will be classified, broken down into those that can be considered as part of adaptation and those that are part of the mitigation strategy. The text will end with a summary and discussion regarding the limitations of the use of urban farming activities in reducing the negative effects of climate change and helping communities adapt to what the future brings.

2. Urban agriculture and the mitigation-adaptation strategy – conceptualisation

In order to understand the role that urban agriculture can play in the mitigation and adaptation strategy against both climate and food crises, it is necessary to define this concept and set the framework for its analysis in the context of this work. There are plenty definitions of urban agriculture proposed by various authors. Most often, however, the term is understood as plant cultivation and animal rearing both for home consumption and income generation in and around cities (to name a few: De Bon et al., 2010; Zezza, Tasciotti, 2010; Orsini et al., 2013; Van Veenhuizen, 2014). Urban farming takes many forms, from household gardens, through community gardens and allotments, to vertical farms, considered urban farming laboratories of the twenty-first century (Vejre, Simon-Rojo, 2016). It also involves a number of different production methods – from traditional soil cultivation and growing plants in balcony pots to modern hydroponics, aeroponics, and aquaponics (Smit et al., 1996; Mougeot, 2000, 2005; Sroka, 2014; Van Veenhuizen, 2014; Górna, 2018). Moreover, many authors emphasise that urban agriculture is such a broad concept that it does not end with the cultivation of plants and animal husbandry, but also includes a number of other activities, such as processing, packaging, transport, and sales (Mougeot, 2000; Van Veenhuizen, 2014).

In order to present the broadest spectrum of functions of urban agriculture and to show the widest possible perspective on the role it can play in the mitigation-adaptation strategy, in this paper it is assumed that urban agriculture is a complex term that encompasses various activities engaging a multitude of actors that reap a range of environmental, social, and economic benefits. Functional approach in studies on urban agriculture is common and has been

adopted by many scholars conducting research in different geographical locations (Losada et al., 2000; Zasada, 2011; Aubry et al., 2012; Poulsen et al., 2017; Le, Dung, 2018; Valley, Wittman, 2019; Moskalonek et al., 2020).

While most frequently considered complementary and often (also in this work) analysed together under one integrated strategy, it is important to clarify what the concepts of mitigation and adaptation stand for. According to Cambridge English Dictionary, mitigation means “the act of reducing how harmful, unpleasant, or bad something is” (<https://dictionary.cambridge.org/dictionary/english/mitigation>). With regard to climate change, mitigation will therefore mean making its impacts less severe, mostly by reducing the emission of greenhouse gases into the atmosphere (Lwasa et al., 2014). Climate mitigation mostly focuses on the energy and transport sector and efforts that employ decarbonisation technologies and techniques that reduce CO₂ emissions, such as the use of renewable energy sources, like solar, wind, and geothermal power, or carbon sequestration techniques (Biesbroek et al., 2009; Vijayavenkataraman et al., 2012; Thornbush et al., 2013; Fawzy et al., 2020). Nevertheless, initiatives that involve built environment densification as well as protecting and increasing the area of urban greenery are also considered important (Thornbush et al., 2013).

Throughout the history of climate studies and policy development, scientific and political research was limited to mitigation that was considered as a proactive and most effective means of tackling the problem on a global scale (Smit, Pilifosova, 2003; Biesbroek et al., 2009). The actions that fell under the umbrella of adaptation measures were in turn disregarded as a sort of an admission of defeat in the fight against climate change. Such a perspective led to a visible dichotomy between mitigation and adaptation and resulted in the conviction that these are two separate approaches to the same problem (Biesbroek et al., 2009). Although more attention was given to mitigation in the past, at the beginning of the twentieth century, mitigation strategies started to be recognised as insufficient, and the issue of adaptation started to gain in importance (Smit, Pilifosova, 2003; Biesbroek et al., 2009; Biesbroek et al., 2010). It was no longer treated as a fatalistic approach but rather a necessary measure, as climate change and its detrimental impacts became unavoidable (Biesbroek et al., 2010).

According to the Intergovernmental Panel on Climate Change (IPCC), adaptation in human systems is defined as “the process of adjustment to the actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities” (IPCC, 2012). Research on adaptation fits into the broader context of research on urban resilience, sustainability, and vulnerability (see, for instance: Biesbroek et al., 2009; Biesbroek et al., 2010; Pike et al., 2010; Archer et al., 2014; Lwasa et al., 2014; Larsen, 2015). The concept of adaptation is also closely tied to the Sustainable Livelihood Approach, which provides a framework for the research on climate change effects at the level of individual households. The SLA was pioneered by Chambers and Conway

in 1992 and was later expounded on and critically evaluated by other authors (Scoones, 1998; de Haan, 2012).

Although the concept of adaptation is most often associated with climate change, it is important to discuss its broader understanding – not only in environmental but also in socio-economic terms. Adaptation capacity is also crucial for communities and individual households in the face of economic, political, and social shocks, including food crises. Among the works that have studied adaptation strategies as a response to economic slumps are, for instance, those by Wrigley and Dolega (2011), investigating the example of the UK's high street and the global economic crisis of 2007–2009, as well as Kontogeorgos et al. (2016), concerning the Greek economic crisis that emerged in its aftermath. A broader comprehension of adaptation was also included in the research on urban sustainability by Bächtold (2013). Among the three key features (alongside proximity and compactness) defining a sustainable city, the author named adaptability based on the criteria of functional, social, and cultural mix. According to Bächtold, it is imperative that the city is diverse and evolves continuously to meet changing economic and social needs. Only then will it be able to adapt to external shocks.

Nowadays, it is stressed that efforts combining mitigation and adaptation strategies are needed in order to effectively implement programmes battling climate change and other crises (Smit, Pilifosova, 2003; Biesbroek et al., 2009; Thornbush et al., 2013). Reducing the causes of climate change (mitigation measures) along with addressing the local negative impacts of environmental and economic shocks (adaptation measures) are now considered to be two integral parts of a sustainable urban strategy (Thornbush et al., 2013).

The issue of urban agriculture and its role in the mitigation-adaptation strategy has been discussed so far by many authors (see, for instance: Lwasa et al., 2014; Specht et al., 2014; Padgham et al., 2015; Anafo, Akolgo, 2018; Jonck et al., 2018; Artmann, Sartison, 2018). Two studies, by Dubbeling and De Zeeuw (2011) and by Lucertini and Di Giustino (2021), deserve particular attention, for not only do they draw on the relationship between climate and food crises, but they also recognise urban agriculture as an important tool for ensuring food security in the face of the ongoing climate change.

3. Urban agriculture as a climate change mitigation strategy

Considerations of urban farming as a mitigation strategy will revolve around its positive direct and indirect impacts on the urban climate. Due to increased urbanisation and the consequent urban sprawl on the one hand, and in-fill development on the other, cities are responsible for the loss of green areas, which fall victim to ever-increasing development. A high proportion of concrete surfaces, building up air corridors, insufficient water retention as well as increased greenhouse gas emissions in urban areas lead to the urban heat

island phenomenon. It is characterised by increased temperature and lower humidity in cities as compared to rural areas. Urban agriculture is an activity that can help reduce the effects of urban heat island. Fruit crops and trees provide shade, reducing land surface temperature, and agricultural lands or urban gardens increase evapotranspiration, thus lowering air temperature and increasing air humidity (Lwasa et al., 2014; Orsini et al., 2014; Tsilini et al., 2015; Dubbeling et al., 2019; Lucertini, Di Giustino, 2021). Furthermore, soil and vegetation in the city have the potential to sequester CO₂, which also translates into reduced emissions (Thornbush, 2015; Anafo, Akolgo, 2018; Lucertini, Di Giustino, 2021). Urban agriculture can take different forms, one of which are rooftop farms and gardens that take up otherwise unused, predominantly concrete surfaces (Fig. 1 and 2). According to Thomaier et al. (2015), open rooftop farms generate green-roof effects through lowering rooftop surface temperatures and thus reducing the need for air conditioning in buildings. In addition, although not yet widespread, the practice of locating greenhouses on city rooftops can provide insulation and minimise heat gains and losses (Specht et al., 2014; Thomaier et al., 2015). The potential of using rooftops for food production is still significantly underused. Research conducted by Astee and Kishnani (2010) in Singapore proves that building-integrated agriculture can be introduced in that country on over 660 hectares of roof surface. According to the authors' estimates, this would reduce the dependence on food imports, thus decreasing CO₂ emissions (by over 9,052 tonnes per year).



Figure 1 and 2. *Comcrop* rooftop farm in Singapore using hydroponic cultivation method (left) and Brooklyn Grange Sunset Park rooftop farm using shallow-bed cultivation method (right)

Source: Ada Górna, 2019, 2022

It is crucial to highlight that climate change mitigation by urban agriculture is tightly linked with reducing the carbon footprint of urban food systems, which are currently hardly sustainable and self-sufficient. The aforementioned example of Singapore effectively outlines the scale of the problem. According to the Singapore Food Agency (<https://www.sfa.gov.sg/food-farming/>

singapore-food-supply/the-food-we-eat), this Asian city-state is forced to import over 90% of its food from abroad (not only from neighbouring Malaysia, but also from China, Indonesia, Thailand, Australia, as well as European and American countries). The transport (by road, sea, and air) of food products over such long distances contributes to increased CO₂ emissions. Urban agriculture, due to the shortening of the supply chain and, above all, the reduction of the so-called food miles, or the distance travelled by food, can significantly decrease the carbon footprint of cities (Lwasa et al., 2014; Anaifo, Akolgo, 2018). Furthermore, the location of food production and consumption in the cities themselves allows for a significant reduction in energy losses, for example used for cooling, storage, and packaging (Lwasa et al., 2014; Dubbeling et al., 2019). Another measure for urban agriculture to decrease emissions (especially methane) and reduce energy losses is through nutrient and wastewater recycling (Lwasa et al., 2014; Anaifo, Akolgo, 2018).

Finally, climate change is associated with often unpredictable and extreme phenomena. By increasing water retention, urban farming can contribute to mitigating the risk of drought and flooding. It has demonstrated flood reduction capabilities by extending the time lag between floods and the slowing of storm waters (Lwasa et al., 2014; Gittleman et al., 2017; Anaifo, Akolgo, 2018; Lucertini, Di Giustino, 2021).

The direct role of urban agriculture in the mitigation strategy is analysed primarily in relation to climate change. When it comes to economic and food crises, urban agriculture will be treated as an indirect tool. Food security in urban areas is closely tied to food prices, which are particularly sensitive to natural events induced by climate variability both on local and global scale (Lwasa et al., 2014). In addition to having a positive impact on the city's climate, urban agriculture can reduce the risk of food scarcity and the fluctuations of food prices.

4. Urban agriculture as a climate and food crises adaptation strategy

The development of urban agriculture is recognised as one of the main strategies that is being adopted in a bottom-up manner by the most vulnerable social groups living in cities in order to tackle urban poverty and improve the well-being of urban residents (Orsini et al., 2013). According to Lwasa et al. (2014), the resilience of cities depends on how institutions, individuals, and authorities reduce the negative impacts of crises locally. There are several benefits of micro-scale adaptation strategies based on urban agriculture that help communities adjust to climate change as well as economic shocks, make them less vulnerable, and hence increase city resilience (Lwasa et al., 2014; Anaifo, Akolgo, 2018).

The key role of urban agriculture in adaptation to any external disturbances that may affect the urban system is its contribution to food security of urban

residents. Food shortages and unequal food access, often being the result of economic barriers and skyrocketing food prices, are almost immediate effects of most disruptions in the system – whether related to climate change or economic and political crises. Here, the role of urban agriculture is invaluable. Not only does it increase access to food in terms of quantity, but it also improves food security by promoting a more nutritious diet (Artmann, Sartison, 2018). In the event of a crisis, households that are involved in urban agriculture become less vulnerable to external negative impacts and less reliant on food prices fluctuations.

From a different perspective, urban farming in many cases appears as an impromptu response to an emerging economic crisis. Cuban cities (and Havana in particular) may serve as a specific example (Gonzalez Novo, Murphy, 2000). In the 1990s, Cuba struggled with serious food scarcity due to the suspension of deliveries from the USSR, which had been the main supplier of food products to the island. Seeking to ward off the direct threat of hunger, Cuban city dwellers initiated a grassroots agriculture movement by establishing urban gardens on vacant plots of land (Altieri et al., 1999; Gonzalez Novo, Murphy, 2000). This bottom-up action taken by the people has proven to be an effective and long-term strategy to combat the crisis, as urban farming remains the backbone of Cuba's urban food systems to this day (Górna, Górny, 2020).

It should be noted that food security is an issue not only for the countries of the Global South but also for low-income households of the Global North (Artmann, Sartison, 2018). An example of a serious threat to food security in one of the most developed (though highly polarised) countries in the world – the United States – may be the case of the poorest residents of Detroit in the aftermath of the economic crisis and the eventual declaration of the city's bankruptcy in 2013. A significant problem of the city that appeared along with the gradual degradation were food deserts – low-income neighbourhoods that lack access to retail facilities offering fresh, healthy, and affordable food (Thomaier et al., 2015). Similarly to Cuban cities, Detroit residents have turned to urban agriculture to deal with scarcity and support local communities. Today, there are plenty of various types of gardens and farms operating in Detroit. They differ in terms of methods of production, scale, as well as managerial aim (Viljoen, Bohn, 2014).

The use of local agriculture as an adaptive strategy and an immediate response to food crises is not a novel phenomenon. For example, in the United States, during the two world wars and economic recession, gardens were established in cities in order to ensure food provision for urban residents. During World War I, these were the so-called 'war gardens', during the Great Depression – 'relief gardens', and during World War II – 'victory gardens' (Mok et al., 2014). The inhabitants of European cities reacted to crises in a similar way. During both world wars, in the situation of limited food supplies, urban farming complemented traditional rural agriculture and became an essential component of urban food systems (Mok et al., 2014). However, urban gardens

were only a temporary solution and after the end of the crises, they ceased to be of such key importance.

Another crucial function of urban agriculture which increases the resilience of cities to external shocks is that it contributes to the strengthening of households by building both their financial and social capital. Municipal gardens or farms are a source of employment and additional income, which is a significant support for the household budget (Lwasa et al., 2014). This is particularly important in the case of the poorest urban communities, especially in the cities of the Global South, where agriculture can even constitute the main source of income, and thus the basis of existence (Anaafo, Akolgo, 2018). Gardens established in cities (community, educational gardens) are frequently places where social bonds are tightened and interpersonal relations are built (Specht et al., 2014; Lucertini, Di Giustino, 2021). Social capital was included in the Sustainable Livelihood Approach framework as an important asset that may reduce vulnerability to crises (Scoones, 1998; de Haan, 2012). Households that have an extensive network of social relations may therefore be more adaptable to changing environmental, political, and socio-economic conditions.

Urban farming is an important part of the adaptation strategy. It plays a key role in increasing the food self-sufficiency of cities by reducing their dependence on food supplies from rural areas. Cities that include local food production in their development strategy are less reliant on global prices that are particularly sensitive to external political and economic shocks. Furthermore, the presence of various types of farms or urban gardens also enhances the spatial multifunctionality, which is an important aspect in building sustainable cities.

Several authors have recently shed new light on the role of urban farming as a direct response to crisis, discussing it in the context of the spread of the COVID-19 virus (Lal, 2020; Pulighe, Lupia, 2020; Yoshida, Yagi, 2021; Simon, 2022). Based on different examples, they draw similar conclusions that the global pandemic has exposed the weakness and fragility of urban food systems, and that urban agriculture can make a significant contribution to strengthening households and increasing the food security of their members, thus increasing urban resilience.

5. Conclusions and discussion

Although urban agriculture is recognised as an important element of the mitigation-adaptation strategy, both in relation to climate change and to economic and food crises, the limitations in incorporating this practice into the functioning of urban food systems are particularly noteworthy.

Researchers of the topic list a number of barriers which hamper reaping full benefits of urban farming. First of all, it is important to mention scarce land resources in cities, as well as competition for space with other potential land uses (Lwasa et al., 2014; Specht et al., 2014). The omission of urban

agriculture in city planning processes, and often even its outward prohibition within the city boundaries due to the emerging concerns about its economic value, is also a significant limitation (Lwasa et al., 2014). The solution here may be the use of modern production techniques and vertical or Zero-acreage Farming,¹ which enable the use of spaces otherwise unsuitable for cultivation, such as roofs of buildings or shipping containers (Specht et al., 2014). However, indoor and rooftop farms that use high-tech production systems need massive amounts of energy and substantial economic resources, which is considered to be a major disadvantage (Specht et al., 2014). On the other hand, based on the examples included in this text (Detroit and Havana), city dwellers who do not have access to cutting-edge technology usually rely on simple and affordable solutions when faced with necessity. They also make use of even the smallest undeveloped spaces, such as wastelands, balconies, patios, or road verges (Lwasa et al., 2014). At this point, it is imperative to mention another threat that may arise from the location of crops in cities, especially those particularly struggling with the problem of soil and air pollution, namely biological and chemical contamination (Orsini et al., 2013; Lwasa et al., 2014). The selection of a location unsuitable for cultivation and the lack of appropriate safety measures in the production process may pose a threat to producers as well as consumers. What is more, the emergence of urban agriculture in the situation of limited resources may also lead to the use of dangerous materials in food production, such as asbestos used to build the bordering walls of growing beds in Cuban cities (Górna, Górny, 2020).

As for the social limitations of urban agriculture, especially that based on advanced technological solutions or requiring significant financial resources, some authors mention the problem of inequity in access to funding or government grants and even link urban agriculture with gentrification and social disparities, as local produce is usually more expensive and accessible only to those who can afford it (Guthman, 2008; Ackerman, 2011).

Finally, though there is a number of limitations that prevent taking full advantage of the benefits of urban agriculture, it is also necessary to highlight another problem, indicated by Specht et al. (2014) and related to the insufficient number of integrated studies and data on particular solutions used in urban farming. The authors point out that in order to define the positive role of agriculture in mitigation and adaptation to climate change in cities and solve the remaining theoretical and practical issues, it is necessary to integrate and exchange information between various disciplines (Specht et al., 2014). Although urban farming is still practiced on a much larger scale in the countries of the Global South, the engagement in local food production

¹ The term Zero-acreage Farming or ZFarming comprises all types of urban agriculture characterised by the non-use of farmland or open space, e.g. rooftop gardens, rooftop greenhouses, edible green walls, indoor farms, or vertical greenhouses (Specht et al., 2014).

is also increasing in the cities of the Global North. The growing interest in urban agriculture and the creation of sustainable urban food systems is even called a 'New Food Revolution' by Cockrall-King (2012). As shown in this paper, agriculture very often appears in cities at a time of a serious threat to food security resulting from external shocks. It is thus very likely that as a consequence of the deepening climate catastrophe and emerging political and economic crises, urban dwellers will be forced to turn to an alternative practice that will allow them to secure access to basic food products. In order to facilitate that process and to make it as effective as possible, it is necessary to produce a wide range of research on urban farming in different geographical locations and various economic, social, and political conditions, which will help fully understand its potential in a mitigation-adaptation strategy.

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ABSTRACT

Urban agriculture as an element of mitigation-adaptation strategy: a response to climate and food crises

In the face of accelerating urbanisation, a particularly important challenge for urban sustainability is the search for solutions which will allow the most vulnerable city dwellers to adapt to climate change and, at the same time, will curb cities' contribution to climate change. This text shows the role of urban agriculture as an element of the mitigation-adaptation strategy. It addresses the issue of climate crisis, as well as economic and food crises directly linked to it. Three terms: urban agriculture, adaptation, and mitigation are conceptualised. Then, the functions of urban agriculture are presented, broken down into adaptation and mitigation strategies. The analysis shows the importance of urban agriculture in the face of economic, environmental, and food crises. While local food production brings a number of benefits, there are also limitations to using its full potential.

Keywords: urban agriculture, adaptation-mitigation strategy, climate change, food crises

TOWARDS THE CONSTRUCTION OF A TERRITORIAL HUMAN DEVELOPMENT INDEX. AN APPROACH FROM THE METROPOLITAN PERSPECTIVE

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1. Introduction

“The true wealth of a nation is in its people” – this was the starting point for the United Nations’ Development Programme which was to have tangible implications on the development of countries. This conception has since evolved to meet national demands and has been oriented towards expanding the capacity of populations to freely engage in activities of their choice.

The index measuring human development has been used as a tool for quantifying the degree to which given environment gives human beings the possibility of enjoying their lives. It is based on three essential elements: longevity, knowledge, and decent standards of living, although certain adjustments have been made to its methodology, such as putting emphasis on strategic elements and adaptations to various territorial scales. Still, it has been approached mostly as a simple average of numerical data, without much regard to the true concept of territory and territoriality, which should lie at the foundations of the analysis of a topic as relevant as human development. Hence, the objective of the present work is to analyse the human development index in the metropolitan areas of Mexico from a territorial perspective and present a proposal for how it should be studied.

2. Methodology and data analysis

Considering that the aim of this paper is to show the relevance of the territorial factor in measuring human development in metropolitan areas, the data used are taken from the Municipal Human Development Report 2010–2015 in order to consult, process, and analyse the Human Development Index of 74 metropolitan areas for the year 2015.

The information has been systematised by stratifying the data corresponding to each metropolitan area in an Excel sheet with the use of the Dalenius-Hodges classification method (Palacio-Prieto et al., 2004) (Table 1).

Table 1. Calculation of stratification

Strata	Minimum limit	Maximum limit	Degree of human development	Frequency	%
Stratus 1	0.7030	0.7387	Very Low	9	12
Stratus 2	0.7387	0.7655	Low	11	15
Stratus 3	0.7655	0.7923	Medium	19	26
Stratus 4	0.7923	0.8102	High	15	20
Stratus 5	0.8102	0.8370	Very High	20	27
			Total	74	100

Source: Own elaboration

Subsequently, the stratification results were incorporated into SPSS to define the degree of human development of each metropolitan area, which has unveiled the territorial panorama in the country (Fig. 1).

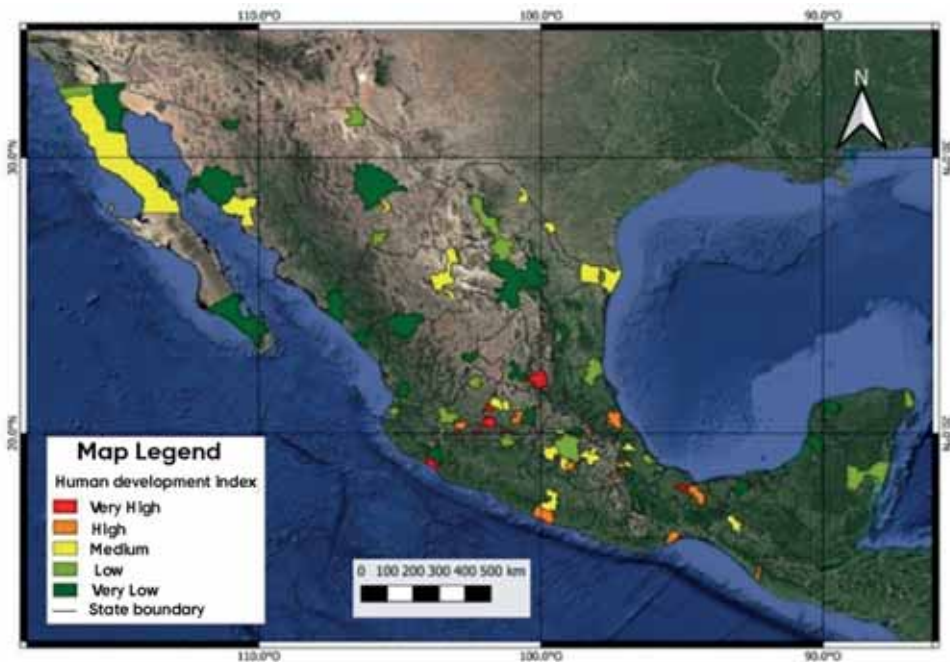


Figure 1. Degree of human development in Mexico

Source: Own elaboration

Each of the 74 metropolitan areas has particular characteristics of territorial development, varying in terms of education and health, two factors determined by income. Therefore, it is necessary to analyse human development from a territorial perspective.

Although the Municipal Human Development Report 2010–2015 reflects the state of human development at the metropolitan area level, it is essential to note that the governance at this territorial level is characterised by lack of coordination in its organisation. As a result, in terms of accessibility, the functionality of metropolitan areas is determined by inequality, which can be verified when observing the slow and uneven municipal development.

The metropolitan areas are divided into five strata according to their level of human development, each of which needs to be measured without the context corresponding to territorial similarities.

There are nine metropolitan areas that belong to the 'Very Low' stratum. It groups growing urban areas which have not adopted a comprehensive model of production and territorial management beneficial for the development of human capacities. The 'Low' stratum comprises 11 metropolitan areas in which it is primarily the regional city which develops dynamically in terms of production and territory. The 'Medium' stratum consists of 19 metropolitan zones and groups urban areas that are in transition to becoming strategic regional centres of productive and territorial development. In the 'High' stratum, there are 15 metropolitan zones with urban areas which have regional influence on crucial productive and territorial development. Finally, the 'Very High' stratum comprises 20 metropolitan areas boasting urban centres which have achieved an integral level of productive and territorial development reflected in the development of human capacities.

However, human development becomes a much more complex issue when 63% of the population is concentrated in metropolitan areas consisting of clusters of uncoordinated municipalities. As a consequence, it is difficult to ensure a harmony between territorial functionality and the human right to education, health, and decent income.

3. Progress or development, an ongoing discussion

The discussion about the difference between economic growth and development has deep historical roots. It has evolved from an initial approach focusing on wealth towards conceptualising development as a broader phenomenon analysed from various perspectives which highlight the relevance of fundamental issues such as human, natural, and institutional capacities within a long-term vision (Solano, 2007).

Although there have been theoretical and conceptual differences in the debate on the idea of development, it has been primarily conceptualised as being the product of transformations in terms of different social needs (Fig. 2).

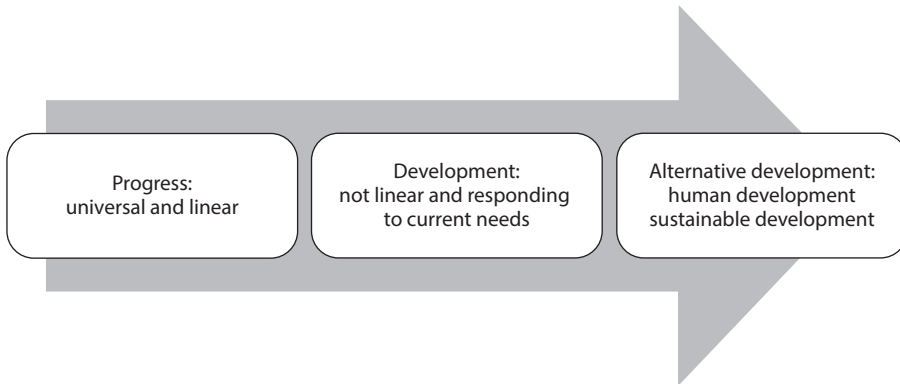


Figure 2. Evolution of the concept of development

Source: Own elaboration based on Nisbet, 1986; Gutiérrez Garza, González Gaudiano, 2010; Rojas, 2012

The term ‘progress’ can be understood as a process of constantly moving towards something better, which is dependent on random circumstances (Turgot, 1991). This idea of progress has been common for different civilisations striving for a better future – an effort that, although its goal has been to foster freedom, equality, and justice, has only served to affirm political absolutism, racial superiority, totalitarian states, and human inequality (Nisbet, 1986), all of which were reasserted by the premises of order and progress proposed by the positive discourse (Comte, 2000).

To achieve this progress, it is necessary to define its stages, understood as the phases to follow, where the urban-technological vision is positioned as the point to be reached. Historically, this “end” was based on the ideology of Europeanisation and universalisation, but since the second half of the twentieth century, these ideas have lost much validity, as they proved inoperative for explaining the causes and consequences of different negative phenomena such as wars, economic crises, dictatorships, and environmental problems (Nisbet, 1986). This is why new theories and notions have emerged, such as the one of development.

Rojas (2012) points out that great historical changes are the product of the reorganisation of the world, brought about by the loss of faith in the prevailing ideas imposed on the society and, subsequently, by opening a space for new proposals. This sets the common understanding of progress–development as synonyms in which development does not occur in a linear manner but is heralded by conflicts which bring it closer to its ultimate end, that is to say, development is immersed in modernity and the idea of a single pattern to achieve it is rejected.

In order to respond to various questions which have emerged as a product of the polarisation of countries, different theories have been proposed – their focus is specified in Table 2.

Table 2. Evolution of development theories

Classical theory	The main engine of the economy was the accumulation of capital.
Neoclassical theory	The market was the centre of economic regulation, and any state intervention was rejected.
Keynesian theory	The State should intervene and regulate all actions.
Latin American theories	Theory of the international economy (based on the centre-periphery relationship between countries), theory of import substitution (endogenous growth), and theory of the state as an expression of power (the state operates in its entirety).

Source: Own elaboration based on Reyes, 2001; Nisbet, 1986; Gutiérrez Garza, González Gaudiano, 2010

Changes within theories of development were induced by the needs and the prevailing economic model of each era, moving from a vision where development was centred on the economic dimension (classical and neoclassical) towards a conceptualisation combining the economic factor with considerations of political, human, social, and lately also environmental aspects. In this new understanding, “development must provide the entire population with opportunities to live with dignity and exercise full freedom” (Sen, 2000b, p. 12). In this sense, the inclusion of the human dimension in development is fundamental.

Human development has emerged as an alternative to measuring progress according to the GDP indicator. The proposal does away with the economy-centred approach and instead represents a holistic vision recognising that economic growth by itself is not a sufficient condition for human well-being. Consequently, it has been asserted that growth and development are related but different concepts (López Calva, Vélez Grajales, 2003; Nisbet, 1986; Gutiérrez Garza, González Gaudiano, 2010).

4. Human development

Human development is understood as a process by which people are offered greater opportunities, referring to the formation of human capacities and their use. The term, therefore, relates to the process of creating broader opportunities for individuals to achieve a higher level of well-being by distinguishing two fundamental aspects: the formation of human capacities and the way in which these are used (PNUD, 1990).

Mahbub Ul Haq and Amartya Sen (PNUD, 1990) conceptualise human development as increasing the options available to the human being, such as equal opportunities, sustainability, and empowerment (PNUD, 1995), which broadens the vision of development and orients it towards the capacities of individuals (Griffin, 2001). Human development is the development of society

through creating human capacities based on participation, which is both the process and the result thereof (PNUD, 2016).

Amartya Sen (2018) provides a non-linear vision of development focusing on the way people live their lives. Instead of taking into account solely the functioning of institutions, the concept is based on being open to plurality, the importance of the imperfect, and above all on the idea that what matters is not the result but the process followed to achieve it. While there are also other perspectives of human development, the work of Amartya Sen has provided the conceptual foundation for an alternative, broader approach to analysing the operation of governments and the responsibility of various institutions in terms of offering opportunities to people and guaranteeing them freedom to develop their capabilities (Bedoya Abella, 2010).

Sen (2000a, p. 89) conceives of development as “the expansion of the population’s capacity to carry out freely chosen and valued activities”, which shifts focus from the end to the means used to achieve it as a factor having an important role in the process.

Given this complexity, the concept of human development has been proposed to be used in the study of large data sets, a situation that has generated scepticism in the scientific world. However, it was not a limitation for Mahbub Ul Haq, who put forward an alternative vision that was both practical and inclusive. In his formulation, the Human Development Index (HDI) was conceived of as consisting of three basic dimensions (longevity, knowledge, and decent standards of living) (PNUD, 1990). These elements have been refined in order to disaggregate data and render a more comprehensive measurement (PNUD, 2018) (Fig. 3).

In this sense, human development is a complex process in constant flux which, in response to various challenges, has led to identifying a number of spheres which need to be taken into account in its configuration process (Fig. 4).

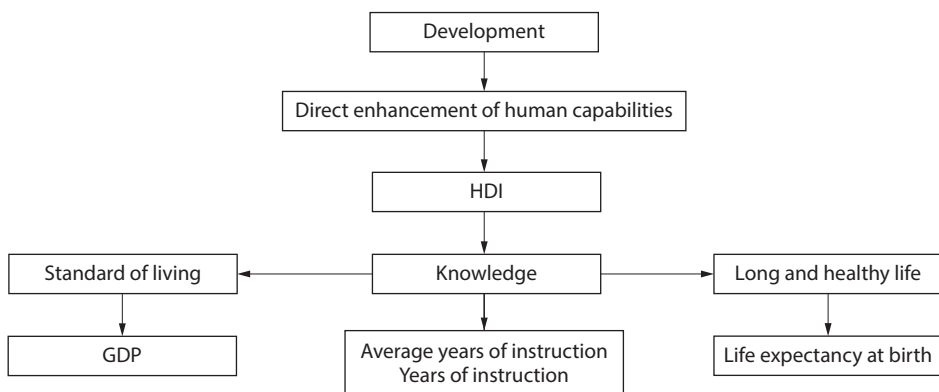


Figure 3. Human Development Index

Source: Own elaboration based on PNUD, 2015, 2016

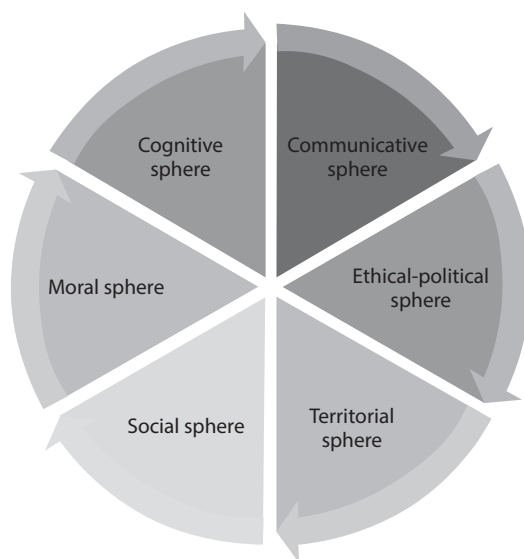


Figure 4. Domains of Human Development

Source: Own elaboration based on Delgado, 2006; García-Lirios, 2019

Although all these spheres are interrelated in the process of achieving human development, the territorial aspect stands out due to its relevance as a determining factor of the capabilities and opportunities available to individuals. However, it should be clarified that the concept of territory comes from the root of the word, *terra*, which refers to land, and the suffix *thorium*, which means the place where the action occurs or where the instrument used for the action is located. In this sense, territory is understood, from the etymological point of view, as a meeting of material reality and an action, of the object of interest and the interested subject, that is, an appropriated space (Monnet, 2014).

The connection of territory and human development analysed in terms of the territorial dimension has allowed its analysis at different scales. In addition, as a result of the change in the conceptualisation of the urban area as a production scenario, different proposals have been generated, such as the right to the city, the redistribution of resources, and the importance of human capacities (García-Lirios, 2019). However, for the purposes of this paper, the notion of territory has been deemed fundamental to the analysis of human development on a metropolitan scale.

5. Territorial foundation

Territory as a concept refers to the elements present in reality, comprising empirically perceivable elements contained in an object of study in order to facilitate the generation of new knowledge (Llanos, 2010). It is a social product,

which is to say that it results from the work engaged in by a society to achieve its objectives and therefore is part of the economic system, an inseparable, supportive, and contradictory set of increasingly artificial systems of object and action. It is neither chaos nor a collection because its essence lies in interaction, complexity, and change. Space is historically built (Rodríguez-Valbuena, 2010).

The term 'territory' began to be commonly used during the eighteenth century, although its understanding has varied. However, it is commonly understood as the physical delimitation of a space and as the space in which an action takes place (Aceves González, 1997).

It is a polysemic concept. As Gottmann (1961) points out, for politicians it means population and resources; for the military, it corresponds to the topographical characteristics which inform tactical, strategic, and distance-related conditions; for a jurist, it is jurisdiction and delimitation; for a geographer, it is space comprising a certain location.

It is recognised that the term 'territory' can be conceptualised from the perspective of different disciplines (biological, social, geographical, etc.) and may be considered multireferential, which is why it is essential to define its meaning relevant for the present study. Here, it is understood as the etymological meeting of matter and action, of the object of interest and the interested subject, that is, an appropriated space (Monnet, 2014).

For its part, territorialising is understood as an approach which insists on human action based on a certain value system to produce a territory (Monnet, 2014). Territorialising a space implies changes in mobility and a possible clash with other species (Herrera Montero, Herrera Montero, 2020). In other words, territory can no longer be conceived of as a container of space or an administrative divider established by urban and regional planning but needs to be seen as the superposition of territorial scales and dimensions to be considered in the same space (Beuf, 2017).

The convergence of countless elements in the social life of a given territory generates multiple research problems, and each of them may be studied from multiple perspectives and disciplines. Therefore, it is not enough to select a research problem and make occasional references to the concept of territory. The notion should rather be integrated into the study of social systems and relationships and understood as part of everything which is the subject of intervention on the part of human beings (Llanos, 2010).

Linking human development with territory represents a challenge, not only in matters of scale, but also in the recognition of converging functional relationships. Within a single country, it has been approached on different scales (national, state, municipal, and metropolitan) (PNUD, 2019), understood not only as population groups but also as a connecting element between common features, cultural identity, and social participation networks. Under this concept, the distinctions between the rural, the urban, or the metropolitan, as well as the institutional political relationships, would be more important for the definition of human development (PNUD, 2004).

6. Metropolitan areas

The complexity and leading role that cities have acquired in the modern world are tangible and inevitable facts. Urban centres incessantly mutate and transform (Martín Ramos, 2004). In the case of Mexico, the challenges the country faces in terms of urban development are related to worldwide changes associated with the globalisation process, generating new trends in population distribution and the expansion of cities. This has caused a large number of Mexican cities to spill over the boundaries of the original municipality or to establish conurbations and close socioeconomic relations without necessarily having urban continuity. The common denominator for all these phenomena is the metropolitan area, understood as an extensive terrain which encompasses two or more administrative political centres (CONAPO, INEGI, SEDESOL, 2004).

Metropolitan areas, due to their relevance, offer a large number of opportunities but also generate many problems associated with such issues as concentration of the population, the provision of services, specialisation, and diversification (CONAPO, INEGI, SEDESOL, 2012). Data indicate a positive correlation between the size of the metropolitan area and the income it provides, in addition to a greater availability of human and physical capital, making metropolitan planning, coordination, and administration key instruments in influencing the pattern of spatial organisation.

According to data from CONAPO, SEDATU, and INEGI (2015), the number of metropolitan areas in Mexico increased from 59 in 2010 to 74 in 2015. Likewise, their population went up from 63.8 million to 75.1 million, which represents 56.8% and 62.8% of the national population, respectively (Table 3).

Table 3. Population and metropolitan areas in Mexico

Range	Number of metropolitan areas	Population in 2015	%	Annual growth rate (%)	
				2000–2010	2010–2015
National total		119,530,753	100	1.4	1.3
Metropolitan zone total	74	75,082,458	62.82	1.6	1.4
5,000,000 or more	1	20,892,724	17.48	0.9	0.8
1,000,000 to 4,999,999	12	25,734,673	21.53	2.0	1.8
500,000 to 999,999	23	17,892,903	14.97	2.0	1.7
Less than 500,000	38	10,562,158	8.84	1.7	1.5
Rest of the country		44,433,460	37.17	1.0	1.1

Source: Own elaboration based on SEDATU et al., 2018, p. 56

7. Conclusions

The analysis of the feasibility of linking territory and human development shows that there are still few approaches which take this relationship into consideration in the current research on demographic and urban growth, as what prevails are visions centred on economic growth and data generation. In this light, it is particularly interesting to analyse the connection between metropolitan areas and the HDI, showing that it is not a static relationship, but a complex, diverse, and dynamic one.

The need to broaden the understanding of the principles of human development and go beyond its global and specific conceptions is highlighted by research which discusses them in terms of structural axes and reflects on the concept of territory and human development. In this sense, the establishment of these new visions allows us to analyse territorial processes and the individual as two integral parts of one issue, with the theory of human development forming the basis for such considerations.

Statistical analysis confirms the profound dynamism and territorial complexity present in Mexico. By using territory as the foundation for researching human development, we can observe significant territorial differences, and the introduction of this factor to the discussion translates into flexibility when analysing territorial dynamics on different scales.

Specifically, the territory-based approach demonstrates that the degree of human development in Mexico varies and should be considered individually according to the context. Human development cannot be measured by compiling quantitative results, but by studying the particular factors influencing the quality of life of people living in a territorial unit – in the case of this text, in a metropolitan area. Such territorial units have a complex nature due to their governance status and lack of coordination. However, the way in which they function represents a challenge for the people who need to navigate them daily, and that is how the degree of human development in a given region is measured.

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ABSTRACT

Towards the construction of a territorial human development index. An approach from the metropolitan perspective

“The true wealth of a nation is in its people” – this notion has evolved in history according to national demands and has been oriented towards empowering the population in carrying out the activities of their choice. To measure this idea, the Human Development Index (HDI) has been used as a tool of quantifying the degree to which human beings enjoy their lives, focusing on three essential elements: longevity, knowledge, and decent standards of living. Adjustments have been made to its methodology, such as putting emphasis on strategic elements and adapting it to various territorial scales. However, the development index has mostly been approached as a simple average of the available data, leaving aside the true concept of territory and territoriality, which should be the basis for the analysis of a topic as relevant as human development. Therefore, this paper proposes to analyse the human development index from a territorial perspective, discussing its importance on the example of the metropolitan areas of Mexico.

Keywords: human development, metropolis, territory, human development index, factoring

WORKERS' ADAPTATION STRATEGIES IN A HIGHLY INFORMAL LABOUR MARKET DURING THE COVID-19 PANDEMIC. THE CASE OF METROPOLITAN LIMA

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1. Introduction

The COVID-19 pandemic has had unprecedented economic effects (Ozili, Arun, 2020; OECD, 2020). Numerous governments imposed lockdown measures to curtail the spread of the disease, resulting in substantial economic damage (Goolsbee, Syverson, 2021) and profound consequences for labour markets in many countries (Dolado et al., 2021; Zhang et al., 2022; Casarico, Lattanzio, 2022). Among the various consequences of the pandemic are increased unemployment rates and large-scale economic restructuring (ILO, 2020a, 2020b, 2022). Furthermore, the pandemic's impacts manifested in social segmentation and spatial variation, also present in labour markets (Adams-Prassl et al., 2020).

The International Labour Organization (ILO) has projected that approximately 1.6 billion employees in informal sectors would be significantly affected by the COVID-19 pandemic (ILO, 2020c; Pitoyo et al., 2021). Developing countries have been disproportionately impacted, as they are characterised by a high percentage of informal workers in their labour markets. The pandemic has heightened workers' vulnerability, leading to job losses, housing insecurity, and effects on social, physical, and mental well-being (Alam et al., 2022). Social changes stemming from distancing measures have contributed to increased informality, unequal access to decent work, and shifts in mobility patterns (CEPAL, 2021), which have been particularly devastating for the most vulnerable people.

The COVID-19 pandemic has severely affected Peru, resulting in a health crisis and the most significant decline in economic activity in the last century, with devastating consequences for employment levels (Gamero, Pérez, 2020). As a result, many workers lost their jobs, and others were compelled to adapt

to new circumstances rapidly – some changed their occupations, while others transitioned to new working modalities. We examine the adaptation strategies of workers in Metropolitan Lima, primarily utilising a quantitative approach and exploring data from the National Household Survey in Peru (ENAHO) from the years 2017–2021, covering the period before and during the COVID-19 pandemic (INEI, 2017b, 2018, 2019, 2020, 2021).

Our findings reveal that the COVID-19 pandemic substantially impacted household work income in Lima, causing a 15-year setback in urban poverty reduction. Households were forced to adjust expenditures, primarily by cutting food consumption and depleting their savings and capital. Although families in Lima benefitted from government financial relief measures, these were insufficient to cope with the severe economic and health consequences. Many workers lost their jobs, others became inactive, while some took on new jobs, typically in lower-skilled occupations, reducing their commuting to other districts, working in smaller firms, or joining the informal market.

In the first section of this article, we review the literature on adaptation strategies in the labour market. The second section describes the research area and changes in the labour market during the COVID-19 pandemic, providing the theoretical foundations for the proposed hypothesis. The third section discusses the methodology employed in the study, while the fourth section presents the results of the empirical analysis and discusses the findings. The final section offers conclusions.

2. Adaptation strategies in informal labour markets

Resilience is defined as a community's ability to effectively resist, adapt to, and recover from the consequences of a threat (ILO, 2017). In the context of labour market resilience, it pertains to the capacity to cope with external shocks and mitigate their impact on employment (Bigos et al., 2013). Many developing countries have yet to develop their ability to manage shocks and crises. Numerous countries in the Global South lack the resources and appropriate institutional approaches to ensure social protection mechanisms, leaving the most vulnerable with little to no support (McCord, 2010). Therefore, it is crucial to understand how various crises affect people in developing countries and how they cope, as this has significant implications for the design of social protection (Heltberg et al., 2012).

This paper focuses on individual resilience, specifically on workers' adaptation strategies to the changes in Lima's labour market caused by the COVID-19 crisis. According to Luthar et al. (2000), resilience denotes the capacity for positive adaptation by individuals despite experiencing significant adversity. Adaptation refers to how individuals and groups construct and execute decisions regarding the utilisation of their capacity to handle risks associated with perceived changes (Smit, Wandel, 2006). An adaptation strategy can be defined

as behaviours and actions undertaken to meet the conditions required to address encountered problems (Putra, 2003). Therefore, an adaptation strategy in the labour market involves actions taken by the labour force to achieve specific goals, primarily economic, by using knowledge and skills, i.e. human capital, while considering opportunities and constraints.

Another essential concept to define is informal employment. According to the ILO, informal employment encompasses a number of informal jobs in both the formal and informal sectors, as well as domestic workers paid by households. Informal workers are not subject to national legislation, do not pay taxes, and do not receive social protection or employment benefits (Bacchetta et al., 2009). This type of employment is the most precarious and widespread, with 60% of workers worldwide holding informal jobs (Bonnet et al., 2019).

Heltberg et al. (2013) have found that among adaptation strategies employed during crises, particularly in developing countries, the most common are working longer hours, switching to informal jobs, or engaging in self-employment. The authors have showed that after the 2008 financial crisis, increased indebtedness was typical in Kazakhstan, Mongolia, Serbia, and Ukraine. In Southeast Asia, informal workers adapted to the crisis by taking family or high-interest loans. In Cambodia, Thailand, and the Philippines, many people sold their land or homes to pay debts. Conversely, access to formal financial institutions was virtually impossible in Africa. People frequently tried to work out new options of making a living and moved to other sectors, occupations, or localities (Heltberg et al., 2013). In Indonesia, Dahles and Prabawa (2013) analysed the adaptation strategies of pedicab drivers during the crisis, finding that the most common strategies included changing their sector of employment, selling possessions, or relying on help from family or friends.

International and national crises frequently serve as a magnifying glass highlighting labour market inequalities that disproportionately impact the most vulnerable individuals. Periods of crisis often exacerbate disparities among people, as resources become scarce and individuals fear for their livelihoods. A similar pattern emerged during the COVID-19 pandemic, which generated widespread unemployment and significant economic losses (Kantamneni, 2020). Furthermore, early research during the pandemic revealed that many workers who lost their jobs ceased to actively seek new ones (Coibion et al., 2020), contributing to the increase of unemployment figures used to gauge the extent of COVID-19 impact on labour markets.

Indeed, more vulnerable populations, such as less-educated or younger workers and women, experienced the greatest effects of the pandemic on their employment patterns (Adams-Prassl et al., 2020; Lemieux et al., 2020; Hershebein, Holzer, 2021; Zhou et al., 2020). Additionally, various economic sectors were impacted differently, with service sectors like hotels and restaurants being the most affected (Alon et al., 2021; Blundell et al., 2020; Gössling et al., 2020). Many workers in the informal markets of developing countries, particularly in Latin America, were forced to adapt rapidly to this challenging situation.

A crucial aspect to consider when analysing labour market conditions and adaptation strategies, especially in megacities with populations exceeding 10 million people (UN DESA, 2019), is commuting. Individuals choose different modes of commuting to the workplace based on factors such as their country and city of residence, distance from work, financial resources, and environmental concerns (Thomas et al., 2021). During the initial months of the COVID-19 pandemic, governments in numerous countries implemented travel restrictions to curb people's mobility and minimise the spread of the virus. In Peru, travel restrictions disrupted commuting habits, as only essential businesses remained open and public transport was severely limited (Barrutia Barreto et al., 2021).

The COVID-19 pandemic has underscored the difficulties in accessing decent work, which Blustein et al. (2019) define as fair, equitable work that ensures respect for workers' fundamental rights, safe working conditions, and adequate compensation, including benefits. Following the outbreak of the pandemic, many employees, particularly those in developing countries and working informally, had to devise and implement strategies for adaptation in response to rapidly changing and predominantly deteriorating conditions. Understanding how individuals maintain their livelihoods can inform the development of appropriate policies and interventions in existing adaptive strategies (Allison, Horemans, 2006).

This study will concentrate on the resilience and adaptation strategies of workers in Metropolitan Lima during the COVID-19 pandemic. The authors aim to analyse these aspects through the lens of workers and households, with a particular focus on the informal market.

3. Research area – Metropolitan Lima

This study focuses on the metropolitan area of Lima, the capital of Peru, which boasts a substantial demographic size (Mesclier et al., 2015). With nearly 10.5 million inhabitants, it represents 29.9% of the country's population (INEI, 2022a). Over recent decades, considerable migration from the provinces to Lima has occurred; however, urban development has been marked by inadequate planning (Sánchez Aguilar et al., 2017). As a result of numerous invasions on the city's periphery, informal human settlements emerged. Figure 1 illustrates the expansion phases of the Lima agglomeration between 1944 and 2007. This disorganised growth has led to the development of an unequal city plagued by issues such as transportation difficulties, environmental pollution, scarcity of public spaces, and citizen insecurity, among others (Vega Centeno, 2017). Figure 2 depicts the concentration of affluent households in the city centre, while the peripheries are characterised by lower socio-economic conditions. According to the most recent data from the National Institute of Statistics and Informatics of Peru (INEI), 52.1% of the population of Metropolitan Lima

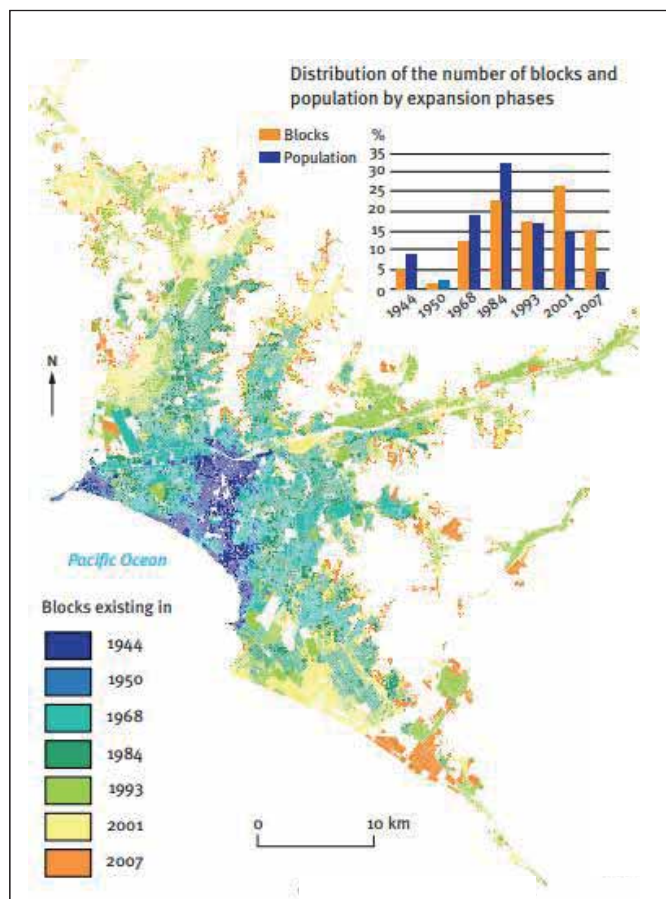


Figure 1. Expansion phases of Metropolitan Lima

Source: Mesclier et al., 2015

are women and 47.8% men; 64.9% are between 15 and 59 years old, 18.5% between 0 and 14, and 16.6% over 59 years of age; 48.9% have completed secondary education, 22.6% have higher university education, 16.7% have higher non-university education, 10.5% have primary education, and 1.4% have initial education or no education at all (INEI, 2022a).

4. The impact of the COVID-19 pandemic on Peru

The COVID-19 pandemic has had a profound impact on Peru. The government imposed a strict lockdown as one of the first in Latin America; however, the further spread of the disease throughout the country was inevitable (Schwalb, Seas, 2021). An excess in all-cause mortality was observed in several countries worldwide, including Peru (Karlinsky, Kobak, 2021; Sempé et al., 2021).

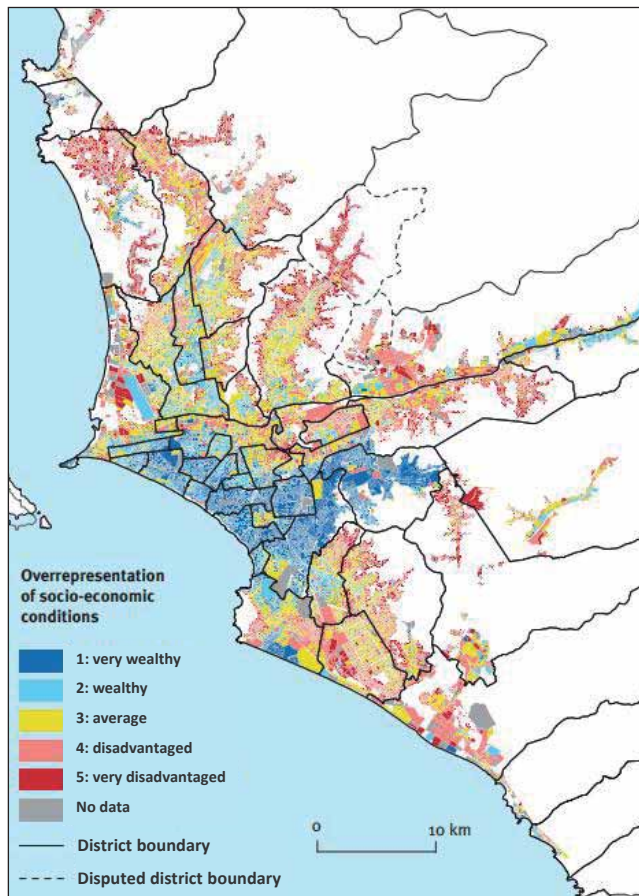


Figure 2. Socio-economic conditions of households in the Lima urban area

Source: Mesclier et al., 2015

This indicator in the working-age population was among the highest in the region (Benavides et al., 2022). Peru also became the country with the highest number of COVID-19 deaths per 100,000 inhabitants (Johns Hopkins Coronavirus Resource Center, 2022). Factors which contributed to that situation included Peru's low investment rates in healthcare (Neelsen, O'Donnell, 2017; Schwalb, Seas, 2021) and the absence of health insurance for many workers (Silva-Peñaherrera et al., 2022).

To curb the disease's spread during the initial months of the pandemic, the government formally restricted national and international transit and imposed confinement as a preventive measure. The lockdown measures and subsequent economic recession prompted at least 167,000 people to leave the capital and return to their hometowns and villages, where the healthcare system is less advanced and has limited capacity. This chaotic internal migration accelerated the spread of the virus (Rufino Trelles, 2020).

Government support for the Peruvian population during the pandemic was limited, compelling many individuals to disregard imposed measures and return to public spaces, particularly markets and public transportation, thereby exacerbating the pandemic. The most vulnerable segment of the population was disproportionately affected. For many inhabitants, relying on daily earnings and obtaining food every day was a necessity due to their living conditions; in fact, 41.8% of the population lacks a refrigerator and the capacity to store food (INEI, 2020a).

5. The labour market of Peru and its capital and the impact of the COVID-19 pandemic

Heterogeneity persists within the Peruvian production structure, with sectors displaying significant variation in labour productivity and employment absorption (Infante, Chacaltana, 2014). In 2019, high-productivity sectors (mining, financial services, electricity, gas, and water) accounted for only 2.4% of national employment; medium-productivity sectors (manufacturing, construction, and transport and storage) comprised 22.6% of employed labour force; while three-quarters of total employment was concentrated in low-productivity sectors (services, commerce, and agriculture) (Gamero, Pérez, 2020). This marked heterogeneity and limited productive diversification may explain why, in the short term, Peru was the most affected country in the Latin American region in terms of economic growth in 2020. Furthermore, sectors at high risk of job losses, such as trade, manufacturing, hotels, and restaurants, exhibited a high concentration of female (55.9%) and youth (30.4%) employees (Gamero, Pérez, 2020). Disparities in working conditions and wages in Lima are considerable, particularly between informal and formal sectors. According to ENAHO data from 2019, 80.8% of self-employed individuals in Metropolitan Lima were informally employed, reaching 98.2% across the entire country. On the other hand, informality among dependent workers was lower in Metropolitan Lima than at the national level, at 44.6% and 56.4%, respectively. Additionally, the income level of self-employed workers was nearly half that of dependent workers (IPE, 2020). The income of urban formal workers was 2.5 times higher than that of informal workers (INEI, 2019a).

The COVID-19 pandemic significantly impacted the labour market of Peru and its capital. The country exhibited one of the worst labour market performances in the Latin American region, with its employed population decreasing by 40% (Leyva, Urrutia, 2021). It is estimated that during the pandemic's first quarter, between April and June 2020, the number of informal jobs fell by 62% compared to the same period in 2019. Meanwhile, the year-on-year decline in employment among formal workers during the same quarter was 46% (IPE, 2020). In the second quarter of 2020, the decline in the employed population was most pronounced among the youngest people (14–24 years

of age), women (who took on a significant portion of the additional work that arose in households, involving childcare and eldercare), and the least qualified workers (with primary and secondary education). Gender disparities were substantial: women's total economic participation rate fell from 62.2% to 36.1% between the first and second quarters of 2020, while for men, these percentages were 78.3% and 54.7% (ILO, 2020d). According to ENAHO data, in the second quarter of 2020, the decline in the employed population in urban areas reached 49.0%. Additionally, the average level of real labour income regressed by approximately nine years (Gamero, Pérez, 2020).

Horn (2011) argues that informal economy should not be treated as a "cushion" for formal employees who lose their jobs during crises. However, in case of Peru, it played a significant role in sustaining the economy, generating around 33% of the country's GDP (Ohnsorge, Yu, 2021). Economically, during the second quarter of 2020, the country's GDP fell by 30.2%, with April experiencing the most substantial impact with a 40.5% decline (INEI, 2020b). The Peruvian government ordered the resumption of activities starting in May. The labour market proved to be highly dynamic, with adjustments occurring between employment and inactivity rather than between employment and unemployment (Chacaltana et al., 2021). According to data from the Institute of Peruvian Studies (IEP), employment recovery has been observed since June 2020. Approximately 45% of workers returned to their workplaces, of whom 19% were working from home, 17% going out to work with formal authorisation, and 8% venturing out to work out of necessity, despite lacking formal authorisation (Gamero, Pérez, 2020). During the stringent lockdown periods, the inability to reallocate employees between sectors, due to various restrictions, resulted in a temporary decline in informality, increasing unemployment and inactivity, but was later reversed during the partial confinement period when many individuals began to rejoin the labour force (Chacaltana et al., 2021). Overall, informality in Peru amounted to 76.1% in the rolling year from June 2021 to July 2022 (INEI, 2022b).

In examining labour market changes, it is also important to consider the presence of Venezuelan migrants and refugees (Cequea et al., 2020). The crisis in Venezuela prompted approximately 1.5 million migrants and refugees to enter Peru over the past decade, marking the largest migration influx in the country's history (UNHCR, 2022; Osorio, Phélan, 2020). Over one million of them settled in Peru's capital (Latin American and Caribbean Economic System, 2022), meaning that Venezuelan migrants and refugees constitute 10% of the inhabitants of Metropolitan Lima. The presence of Venezuelan migrants has significantly altered Lima's labour market in recent years, as the majority are economically active (Asencios, Castellares, 2020; Loayza, 2020). The COVID-19 pandemic and related measures have led to various adaptation strategies, with differential access to decent work disproportionately affecting vulnerable populations in Metropolitan Lima, including ethnic minorities, individuals from lower socio-economic backgrounds, immigrants, and women (Gamero, Pérez, 2020).

During the pandemic containment phase, government support to households constituted 4.81% of GDP, primarily targeting vulnerable groups through various instruments such as subsidies for those living in poverty, self-employed individuals, rural households, and vulnerable, low-income families. Financial measures related to public spending, including subsidies for work stoppages, bonuses for self-employed workers, temporary disability subsidies, and company payrolls, were intended to support both workers and companies (MEF, 2020).

Finally, considering the context described above, for the purpose of this study, the authors propose the following research questions concerning Metropolitan Lima: 1) How has the COVID-19 pandemic impacted household work income in the highly informal labour market? 2) Have workers' occupations, types of employment, and economic sectors changed during the COVID-19 pandemic? 3) How has informal employment evolved? 4) What were the primary adaptation strategies employed by households affected by the pandemic? 5) Are employment, unemployment, and inactivity rates exhibiting signs of recovery following the onset of the pandemic?

6. Methodology

Using annual secondary data from the National Household Survey (ENAH) for the period 2017–2021, collected by the National Institute of Statistics and Informatics (INEI), we conducted a descriptive quantitative exploratory study to analyse patterns and associations in variables related to household incomes and expenditures, as well as labour force characteristics before (2017–2019) and during (2020–2021) the COVID-19 pandemic.

The ENAH's sampling frame is based on information from the National Census of Population (INEI, 2017a). The resulting sample is probabilistic,

Table 1. Working-age population and households interviewed and total weighted in the ENAH national survey for Metropolitan Lima

Year	Population over the age of 14		Households	
	Number interviewed	Weighted	Number interviewed	Weighted
2017	12,038	8,088,414	4,058	2,719,949
2018	11,984	8,250,545	4,063	2,814,255
2019	11,752	8,362,433	4,030	2,883,764
2020	11,808	8,547,327	4,068	2,980,118
2021	11,094	8,728,856	4,023	3,199,374

Source: Own elaboration using data from the ENAH (2017–2021)

area-based, stratified, and independent for each region in Peru, with a 95% confidence level. Specifically, the survey sample allows for obtaining estimates of various sociodemographic variables at the level of inference for Metropolitan Lima.

The primary survey modules utilised in the analysis pertain to household member characteristics and expenditures, as well as labour force performance and monetary and non-monetary incomes derived from work, government relief, or other sources. To ensure comparability of monetary values across years, data on prices and incomes were adjusted for annual inflation. Moreover, the use of sampling weights proposed in the survey enabled us to aggregate the sampled number of working-age population and households to population values (see Table 1), facilitating the description of the variables presented in the subsequent section.

7. Findings: Workers' and households' adaptation strategies during the COVID-19 pandemic in Metropolitan Lima

In order to understand the various adaptation strategies employed by workers and households in response to the health and economic crisis precipitated by the COVID-19 pandemic, this section examines the evolution of distinct socio-economic variables with a particular focus on the labour market across years. We delineate two periods: 1) Before the COVID-19 pandemic, corresponding to the average annual results for the period 2017–2019; and 2) During the COVID-19 pandemic, encompassing the period of 2020–2021.

The COVID-19 pandemic profoundly affected households in Metropolitan Lima. While poverty rates in Peru, on average, regressed to levels observed a decade prior, Metropolitan Lima experienced a poverty level not seen in the previous 15 years (see Fig. 3). Notably, poverty in Lima nearly doubled between 2019 and 2020. Although poverty declined in the most recent year (2020–2021), approximately 10.7% of households (or 342,000) have still been unable to meet their most basic needs as they did prior to the onset of the COVID-19 pandemic.

On average, workers' income declined by 34% between 2019 and 2020 due to confinement measures that prevented workers from engaging in their economic activities and resulted in many businesses suspending or ceasing operations. Along these lines, while government relief transfers aimed to support households facing income loss, these funds were only incorporated into household budgets in 2021 (when they increased by 24% compared to 2020) (see Fig. 4). In fact, government relief allocated to households in Metropolitan Lima was minimal in comparison to the losses in workers' income. With respect to workers' income, a recovery was observed in 2021, showing a 13% increase relative to the previous year. Nevertheless, by the end of 2021, workers' income remained, on average, 26% lower than before the pandemic's outbreak (see Fig. 5).

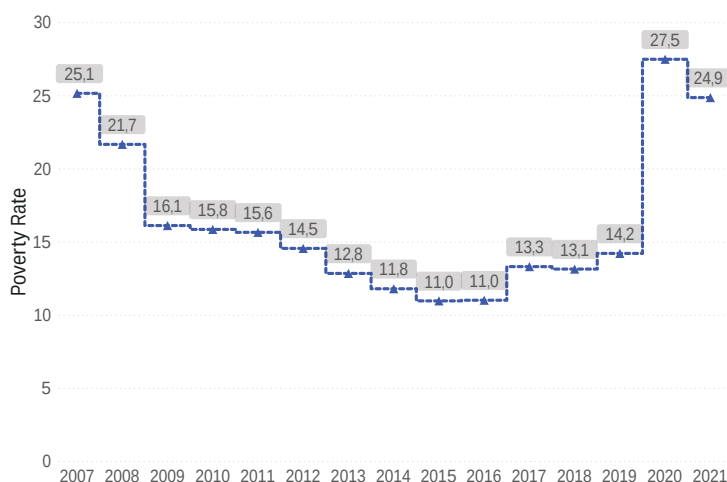


Figure 3. Poverty rate in Metropolitan Lima by year

Source: Own elaboration using data from the ENAHO (2007–2021)

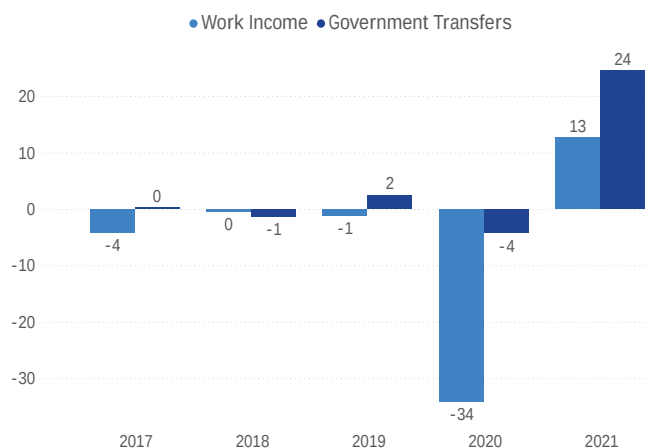


Figure 4. Annual change in monthly household income per capita by source in Metropolitan Lima (in %)

Source: Own elaboration using data from the ENAHO (2017–2021)

Several factors contributed to the deterioration of the average worker's income, three of which are particularly noteworthy. Firstly, by 2021, the proportion of employed working-age population had not yet returned to pre-pandemic levels; 59% of the working-age population was employed, compared to approximately 65% before the pandemic. Secondly, the unemployed working-age population actively seeking but unable to find employment remained 3.2 percentage points higher in 2021 (8.1%) than in 2019 (4.9%). Thirdly, a crucial yet often overlooked group is the inactive working-age population

not actively searching for employment. This group increased in both 2020 and 2021, rising from 30.3% in 2019 to 32.6% in 2020, and 32.7% in 2021 (see Fig. 6). While the share of employed and unemployed populations has exhibited some signs of recovery, this has not been the case for the share of the inactive population.



Figure 5. Monthly household income per capita (in PEN) by source in Metropolitan Lima (average)

Source: Own elaboration using data from the ENAHO (2017–2021)

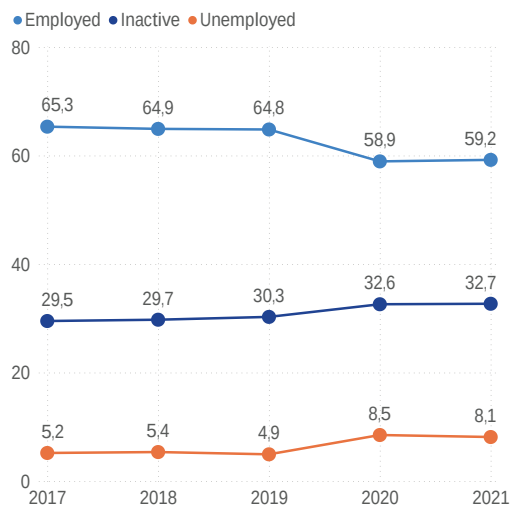


Figure 6. Working-age population distribution (in %)

Source: Own elaboration using data from the ENAHO (2017–2021)

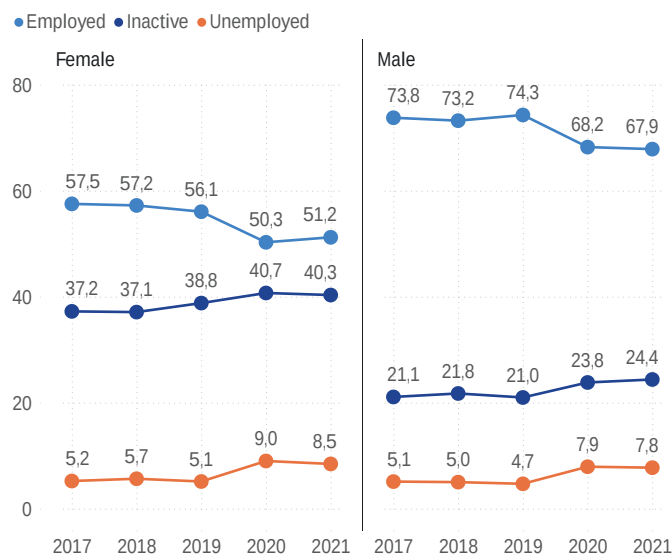


Figure 7. Working age population distribution by sex (in %)

Source: Own elaboration using data from the ENAHO (2017–2021)

The effects of the pandemic varied between the male and female populations. The unemployment rate (as a percentage of the total working-age population) increased more for female workers (by 3.9 pp.) than for their male counterparts (by 3.2 pp.) between 2019 and 2020. Conversely, the inactivity rate increased more for males (by 2.8 pp.) than for females (by 1.9 pp.) during the same period. Lastly, the employment rate declined more for male than for female workers. Based on the information presented in Figure 7, and considering the three aforementioned population groups – employed, inactive, and unemployed working-age individuals – one could argue that female workers are recovering more rapidly from the pandemic's shock than male workers. For the female population, both the unemployment and inactivity rates decreased while the employment rate increased between 2020 and 2021; for their male counterparts, the unemployment and employment rates slightly declined, whereas the inactivity rate rose.

Focusing on the analysis of the labour force (comprising both employed and unemployed populations), unemployment in Lima rose from 7.1% to 12.6% between 2019 and 2020. In other words, approximately 314,000 workers in Metropolitan Lima alone lost their jobs. In 2021, unemployment decreased by 0.5 pp. compared to 2020; however, it remained 5 pp. higher than the unemployment observed before the pandemic (see Fig. 8). Women lost relatively more jobs than men. Unemployment increased by 6.8 pp. among the female labour force, while it increased by 4.4 pp. among the male labour force between 2019 and 2020. In 2021, unemployment in the female labour force decreased by 1 pp., while it remained steady for the male labour force (see Fig. 9).

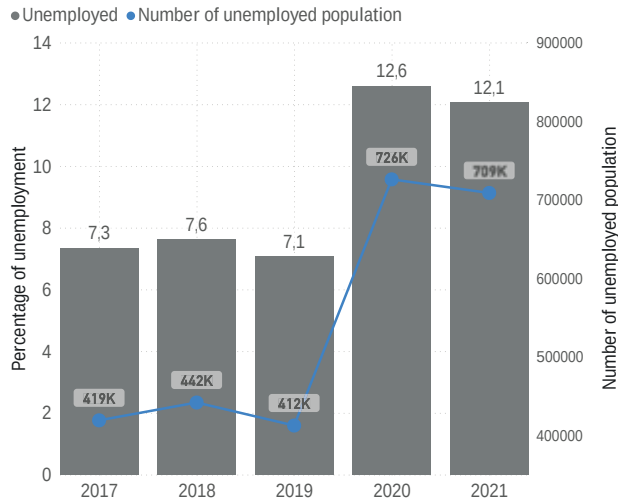


Figure 8. Unemployment in Metropolitan Lima

Source: Own elaboration using data from the ENAHO (2017–2021)

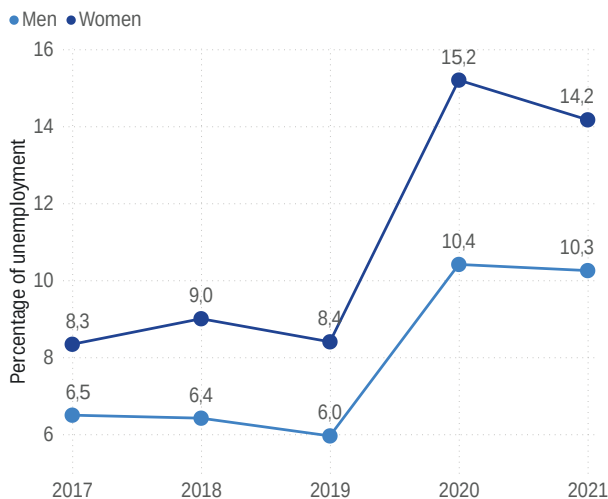


Figure 9. Unemployment in Metropolitan Lima by sex

Source: Own elaboration using data from the ENAHO (2017–2021)

To cope with the loss of income, households reduced their expenditures. Primarily, per capita monthly food expenditure experienced the most significant absolute decrease, falling from PEN 332 (USD 100.3) in 2019 to PEN 257 (USD 71.4) in 2020. All other categories of expenditures also faced a reduction during the same period, with the highest percentage decreases in clothing (44%), entertainment (41%), and transportation (26%). The imposed mobility

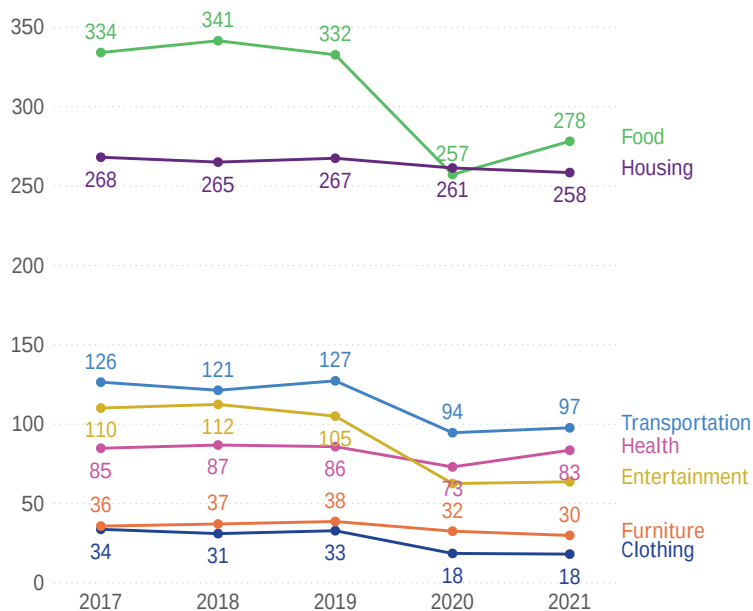


Figure 10. Monthly household expenditure per capita (in PEN) by category in Metropolitan Lima (average)

Source: Own elaboration using data from the ENAHO (2017–2021)

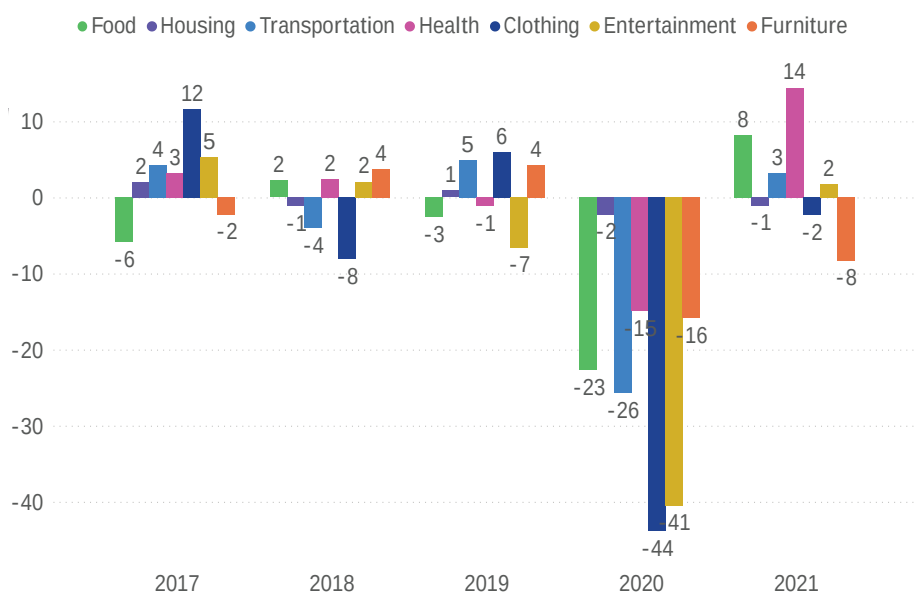


Figure 11. Annual change in monthly household expenditure per capita by category in Metropolitan Lima (in %)

Source: Own elaboration using data from the ENAHO (2017–2021)

restrictions, limitations on certain economic activities, and the increase in remote working help explain these reductions in spending, whose levels in 2021 have not yet returned to those observed before the pandemic. It is worth noting that families also faced a temporary reduction in health expenditure in 2020, which increased again in 2021. Food expenditure slightly recovered in 2021; however, its level remained substantially lower (by 16.3%) than the one observed before the pandemic's onset, as demonstrated in Figures 10 and 11.

Approximately 21% of households (around 635,000) in Metropolitan Lima experienced either a severe economic or health-related event in 2020. This result was 10 pp. higher than in 2017, when severe floods affected Lima and the country's northern regions due to the Niño Costero phenomenon. In 2021, the percentage of affected households was even higher, reaching 30%, or approximately 966,000. These percentages align with the number of cases and deaths reported in relation to the COVID-19 pandemic in 2020 and 2021. Specifically, results from the ENAHO in 2021 reveal that the number of households affected by a severe economic event, approximately 800,000, exceeded the number affected by a severe health-related event, approximately 275,000 (see Fig. 12).

Amid the COVID-19 pandemic, households and workers employed various strategies to confront the economic and health crises (see Fig. 13). One prominent strategy, employed to cope with the economic downturn, involved utilising savings and capital. In fact, 48% and 59% of severely affected households adopted this strategy in 2020 and 2021, respectively. These percentages represent a larger increase (from 6 to 25 pp.) compared to the pre-pandemic years of 2017–2019. Another significant strategy entailed reducing food consumption, which was implemented by 31% of affected households in 2020 and 33% in 2021. These percentages also exceeded those observed during the pre-pandemic period between 2017 and 2019.

A third approach to mitigate severe effects involved seeking additional employment opportunities. As anticipated, during 2020, when the lockdown impacted numerous economic activities, the percentage of households adopting this strategy remained at a level similar to the previous year. Nevertheless, in 2021, a considerable number of households pursued this strategy to alleviate income loss. Indeed, in 2021, 11.6% of the total employed population sought alternative employment and actively pursued a change in their current positions (see Fig. 14). This unprecedented percentage indicates that workers sought to generate new income sources and/or were dissatisfied with aspects of their current employment, such as occupation, working hours, salary, or other factors.

The fourth coping mechanism involved incurring debt, although the economic downturn resulted in a smaller percentage of households (11%–13%) adopting this strategy compared to previous years (16%–23%). Finally, a fifth approach entailed relying on government assistance. However, as previously demonstrated, the amount of assistance provided has been insufficient

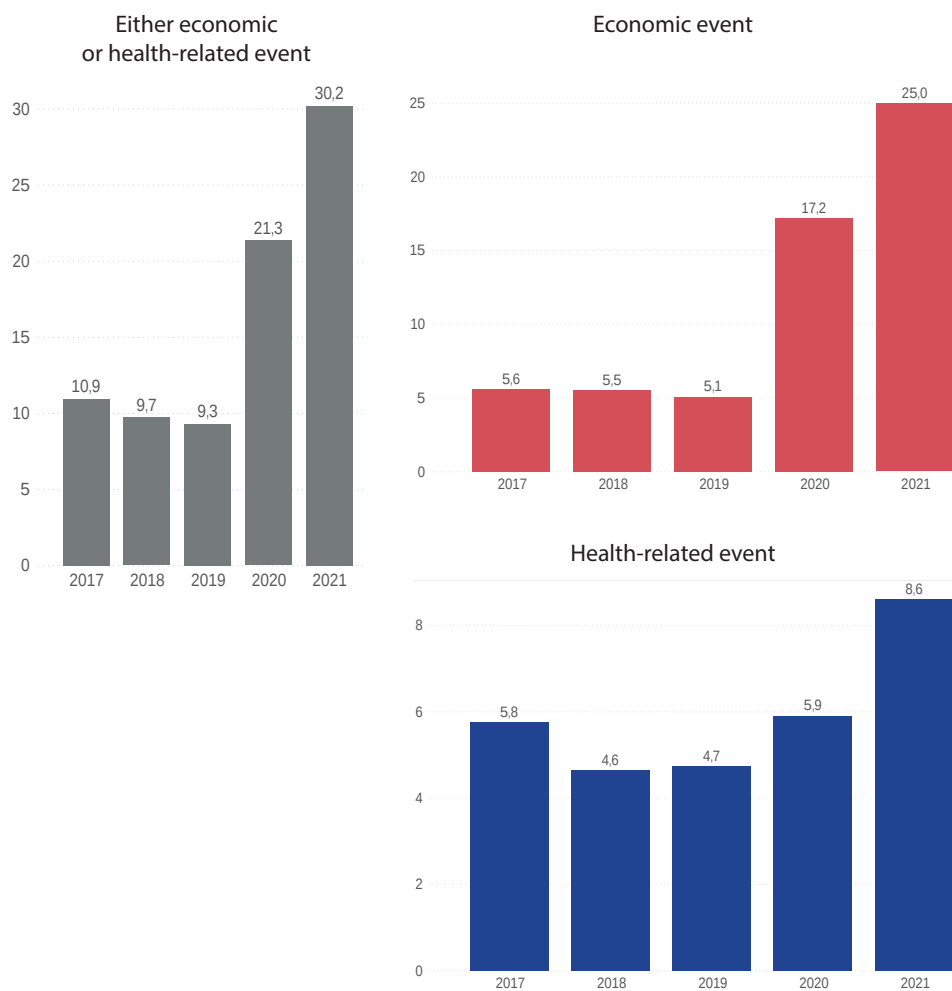


Figure 12. Percentage of households affected by a severe event (2017–2021)

Source: Own elaboration using data from the ENAHO (2017–2021)

Note: Economic events refer to a job loss from a family member or family's business bankruptcy, while health events refer to severe illness or accident of a household member

in compensating for the substantial income loss experienced by families. Indeed, the percentage of affected households that received government assistance during the COVID-19 pandemic (15%–24%) was markedly higher than the percentage observed during the pre-pandemic period (1%–2%).

Moreover, as noted by Heltberg et al. (2013), workers in developing countries tend to adapt during crises by increasing their working hours and transitioning to self-employment. However, in the case of Metropolitan Lima, workers were unable to do the former. In fact, the average number of hours worked per week during the pandemic (50.2 in 2020–2021) was 1.6 hours less

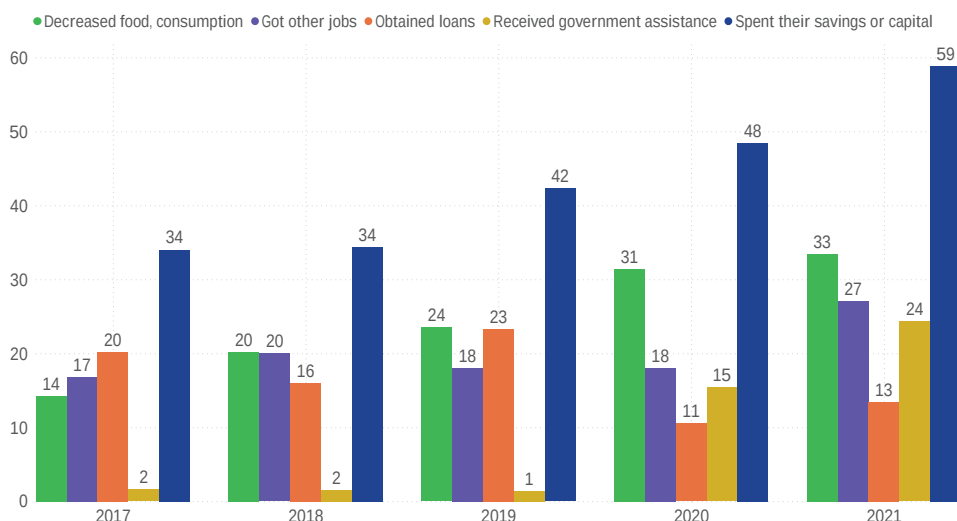


Figure 13. Households' strategies to cope with severe economic and health-related events (% of total affected households)

Source: Own elaboration using data from the ENAHO (2017–2021)

Note: Chart does not include results for pawned or sold assets (2.5% in 2021) or receiving support from relatives (2.3% in 2021)

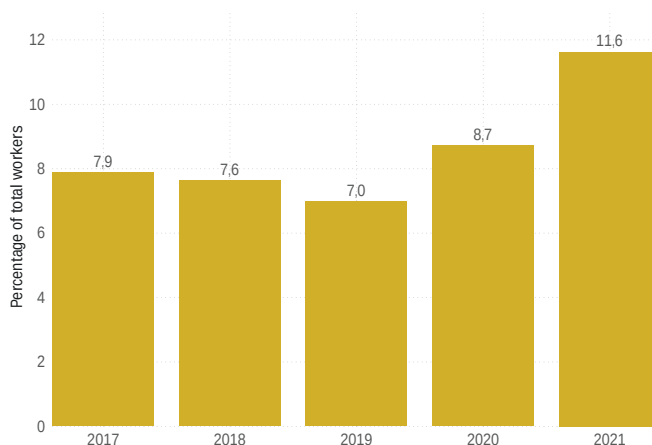


Figure 14. Percentage of workers who wanted to get another job and took steps to change their current employment

Source: Own elaboration using data from the ENAHO (2017–2021)

than the average number worked before the pandemic (51.8 between 2017 and 2019). Furthermore, while the number of self-employed workers did not decline when comparing yearly averages before and during the pandemic, as it did for the employer (-18.2%) and employee (-10.9%) categories, the number

Table 2. Workers' adaptation during COVID-19 by type of employment

Type of employment	Before COVID	During COVID		
	2017–2019 average	2020–2021 average	Absolute Change	Percentage Change
Employer	238,026	194,691	-13,335	-18.2%
Self-employed	1,556,214	1,566,814	10,600	0.7%
Employee	2,049,198	1,826,775	-222,423	-10.9%
Labourer (seasonal/non-skilled)	1,120,657	1,178,551	57,894	5.2%
Unpaid family worker	173,109	170,449	-2,660	-1.5%
Domestic worker	211,932	163,468	48,464	-22.9%

Source: Own elaboration using data from the ENAHO (2017–2021)

of workers in Metropolitan Lima did increase (5.2%) in the labourer category related to seasonal, manual, or unskilled labour (see Table 2).

The COVID-19 pandemic has also influenced workers' occupations, with many individuals compelled to take up lower-skilled positions. Utilising the International Labour Organization's (ILO) ISCO-8 job classification framework, we observe that while the employed population in most major occupation groups decreased compared to averages before and during the pandemic, workers in occupations from the Craft and Related Trades category increased by 6%. In general, higher-skilled occupations, defined by the ILO as those related to the categories of Managers and Professionals (skill levels between 3 and 4), experienced the most significant decline during the pandemic. Conversely, lower-skilled occupations such as Service and Sales Workers, Elementary Occupations, and Plant and Machine Operators and Assemblers (skill level of 2) decreased the least (see Table 3).

The pandemic has had varying effects on the number of workers employed depending on the economic sector. Five sectors demonstrated an increase or minimal loss in the number of workers when comparing the pre-pandemic and pandemic periods (see Table 4). Among them, the construction sector exhibited the highest increase in the number of workers, which aligns with the 15.3% increase in its GDP between 2019 and 2021 (INEI, 2022c). Despite having declined by 14.9% between 2019 and 2020, the construction sector fully recovered in 2021 with a 35.5% increase, driven by the growth of public works. Furthermore, in 2020, informal construction displayed a better dynamic than formal construction. That year, 49% of construction material sales belonged to informal firms, which was 11 pp. higher than the levels observed before the pandemic. Additionally, informality grew in the construction sector due to the drastic paralysis of economic activities at the pandemic's onset, prompting many workers to migrate to informal construction (CAPECO, 2021a, 2021b).

Table 3. Workers' adaptation during COVID-19 by type of occupation

Type of occupation	Before COVID	During COVID		
	2017–2019 average	2020–2021 average	Absolute Change	Percentage Change
Craft and Related Trades Workers	649,511	688,251	38,740	6.0%
Plant and Machine Operators and Assemblers	491,504	487,531	-3,973	-0.8%
Elementary Occupations	1,317,990	1,288,944	-29,046	-2.2%
Service and Sales Workers	1,064,562	1,035,592	-28,969	-2.7%
Technicians and Associate Professionals	570,893	527,807	-43,087	-7.5%
Clerical Support Workers	554,168	491,008	-63,159	-11.4%
Skilled Agricultural, Forestry, and Fishery Workers	19,638	16,433	-3,205	-16.3%
Professionals	591,583	494,125	-97,457	-16.5%
Managers	32,071	20,247	-11,824	-36.9%

Source: Own elaboration using data from the ENAHO (2017–2021)

Note: Table does not include occupations within the armed forces

Other sectors that did not experience significant job losses included: 1) Transportation and storage – one of the few sectors permitted by the government to continue operations to transport essential goods during the most severe lockdown stages, and which benefitted from new modalities of delivering goods to households; 2) Financial and insurance activities – another sector that was allowed to maintain operations and was responsible for distributing the majority of government support in monetary transfers to the population; 3) Human health and social work activities – a crucial sector in the health response to the pandemic, in which even new personnel from different specialties were recruited, including migrant (predominantly Venezuelan) health workers; 4) Wholesale and retail trade and repair of motor vehicles and motorcycles – joined by many people who lost their jobs in various sectors, primarily to become part of the informal economy (see Table 4).

The most significant job losses during the COVID-19 pandemic were observed among workers in large and medium-sized firms. In large firms (with more than 500 workers), approximately 91,000 jobs were lost. For medium-sized firms (with 51–500 workers), that number amounted to around 133,000. In contrast, the number of workers in firms with up to 20 employees remained similar to those before the onset of the pandemic (see Table 5).

Table 4. Workers' adaptation during COVID-19 by type of economic activity

Economic activity	Before COVID	During COVID		
	2017–2019 average	2020–2021 average	Absolute Change	Percentage Change
Construction	358,405	422,320	63,916	17.8%
Transportation and storage	498,111	506,771	8,660	1.7%
Financial and insurance activities	72,560	72,994	434	0.6%
Human health and social work activities	200,186	199,927	-259	-0.1%
Wholesale and retail trade; repair of motor vehicles and motorcycles	1,233,693	1,231,326	-2,367	-0.2%
Administrative and support service activities	296,128	290,797	-5,331	-1.8%
Manufacturing	699,858	681,676	-18,182	-2.6%
Public administration and defence; compulsory social security	258,201	239,495	-18,707	-7.2%
Other service activities	234,917	209,452	-25,466	-10.8%
Accommodation and food service activities	458,410	386,078	-72,331	-15.8%
Information and communication	90,307	75,737	-14,570	-16.1%
Education	302,725	246,746	-55,978	-18.5%
Professional, scientific, and technical activities	223,827	179,507	-44,319	-19.8%
Arts, entertainment, and recreation	84,647	53,034	-31,613	-37.3%

Source: Own elaboration using data from the ENAHO (2017–2021)

Table 5. Workers' adaptation during COVID-19 by company size

Company size	Before COVID	During COVID		
	2017–2019 average	2020–2021 average	Absolute Change	Percentage Change
Up to 20 workers	3,529,099	3,530,917	1,818	0.1%
From 21 to 50 workers	309,871	290,590	-19,281	-6.2%
From 51 to 100 workers	226,284	177,837	-48,447	-21.4%
From 101 to 500 workers	360,417	275,367	-85,050	-23.6%
More than 500 workers	863,435	772,755	-90,680	-10.5%

Source: Own elaboration using data from the ENAHO (2017–2021)

Utilising data on the district of residence (origin) and the district where employment takes place (destination) from the National Census of Population 2017 (our baseline) and the ENAHO (2018–2021), we estimated the proportion of the working population in each district of Metropolitan Lima that commuted to another district for their jobs. In this regard, workers' commuting patterns have also evolved over time, exhibiting a sustained reduction since 2017 (see Fig. 15). The percentage of workers commuting to other districts for their jobs declined by 4 pp. between 2019 and 2020. In addition to those who commuted less, many others lost their jobs or became inactive, ceasing to commute altogether.

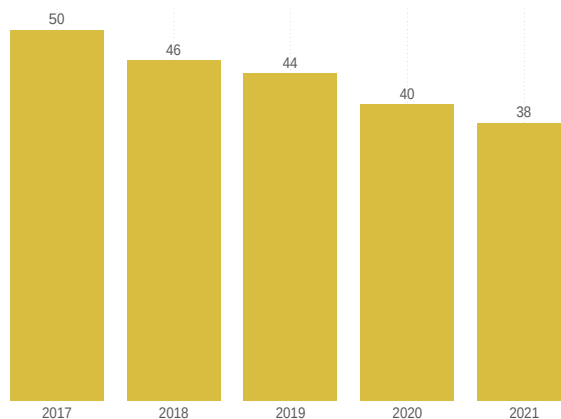


Figure 15. Percentage of workers that commuted to another district in Metropolitan Lima by year

Source: Own elaboration using data from the ENAHO (2018–2021)

Note: Survey questions regarding the district where workers carried out activities started to be incorporated into the ENAHO questionnaire in 2018. 2017 data on commuting was calculated using the National Census of Population 2017

The number of informal workers decreased between 2019 and 2020; however, while this figure declined by approximately 142,000, the number of formal workers decreased by approximately 241,000 during the same period. Moreover, although the number of informal workers by the end of 2021 had already surpassed that observed in 2020 and even prior to the pandemic, the number of formal workers in 2021 continued to decline compared to 2020. In fact, the number of formal workers in 2021 remained below the levels observed in 2017 (see Table 6).

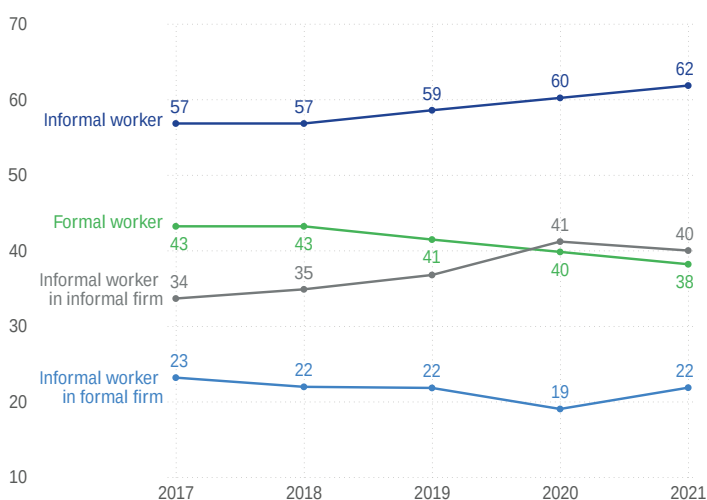
Upon examining informality rates, we discerned that informal employment increased by 5 pp. from 2017 to 2021, while formal employment decreased by the same amount. A significant portion of the increase in informal employment corresponds to a rise in informal employment within informal firms, which grew from 34% to 40%, whereas informal employment in formal firms declined from 23% to 22% (see Fig. 16).

Table 6. Number of formal and informal workers in the period 2017–2021

Informality	2017	2018	2019	2020	2021
Formal worker	2,281,889	2,313,273	2,245,348	2,004,676	1,972,629
Informal worker	3,000,991	3,042,108	3,173,325	3,031,164	3,194,747
<i>Informal worker in informal firm</i>	<i>1,777,093</i>	<i>1,866,642</i>	<i>1,991,748</i>	<i>2,073,402</i>	<i>2,066,313</i>
<i>Informal worker in formal firm</i>	<i>1,223,898</i>	<i>1,175,466</i>	<i>1,181,577</i>	<i>957,762</i>	<i>1,128,434</i>
Total Employed	5,282,880	5,355,381	5,419,173	5,035,840	5,167,376

Source: Own elaboration using data from the ENAHO (2017–2021)

Note: The informal worker classification corresponds to the one presented in the ENAHO dataset

**Figure 16.** Informal workers in Metropolitan Lima (percentage, 2017–2021)

Source: Own elaboration using data from the ENAHO (2017–2021)

Specifically, between 2019 and 2020, the percentage of informal workers within informal firms increased from 37% to 41% of total workers, while the percentage of informal workers in formal firms decreased from 22% to 19%. For the period between 2020 and 2021, these trends reversed. While the percentage of informal workers in formal firms increased (from 19% to 22%), the percentage of informal workers in informal firms decreased (from 41% to 40%).

Although the percentage of informal male workers increased by 2.3 pp. between 2019 and 2020, this increase was lower for informal female workers (0.9 pp.). However, between 2020 and 2021, the percentage of informal employment further increased for both males (2.5 pp.) and females (0.5 pp.). It is noteworthy that while the increase in the percentage of informal employment has tended to decrease for female workers, this trend has not been observed for male workers, where the percentage point increase has remained around 2.3 to 2.5 (see Table 7).

Table 7. Formal and informal workers by sex (in %) in the period 2017–2021

Informality	2017	2018	2019	2020	2021
Formal worker	43.2	43.2	41.4	39.8	38.2
<i>Men</i>	48.3	47.5	44.3	42.0	39.5
<i>Women</i>	37.2	38.1	37.9	37.0	36.5
Informal worker	56.8	56.8	58.6	60.2	61.8
<i>Men</i>	51.7	52.5	55.7	58.0	60.5
<i>Women</i>	62.8	61.9	62.1	63.0	63.5

Source: Own elaboration using data from the ENAHO (2017–2021)

The proportion of informal workers among those with secondary or lower education increased by 1.9 pp. between 2019 and 2020. This increase was more substantial than that observed for informal workers among those with postsecondary education (0.9 pp.). However, the results varied in 2021. Between 2020 and 2021, the proportion of informal workers among those with secondary or lower education further increased by 0.3 pp., while among informal workers with postsecondary education, there was an accelerated increase by 1.9 pp. (see Table 8). Certainly, a larger percentage of educated individuals entered the informal economy to cope with the loss of their incomes.

Table 8. Formal and informal workers by educational level (in %) in the period 2017–2021

Informality	2017	2018	2019	2020	2021
Formal worker	43.2	43.2	41.4	39.8	38.2
<i>Secondary or lower</i>	29.5	28.6	26.4	24.5	24.2
<i>Postsecondary</i>	61.1	61.6	59.9	59.0	57.1
Informal worker	56.8	56.8	58.6	60.2	61.8
<i>Secondary or lower</i>	70.5	71.4	73.6	75.5	75.8
<i>Postsecondary</i>	38.9	38.4	40.1	41.0	42.9

Source: Own elaboration using data from the ENAHO (2017–2021)

Workers not only had to adapt to new lower-skilled occupations, but were also compelled to engage in informal markets. Notably, the number of informal workers in occupations forming part of the Craft and Related Trades and Service and Sales categories increased during the COVID-19 pandemic on average by 48,000 and 37,000, respectively, compared to the situation prior to the pandemic. Other occupations that exhibited an increase in the number of informal workers, despite the severe impact of the COVID-19 pandemic on job losses, included Plant and Machine Operators and Assemblers, as well as Clerical Support Workers (see Fig. 17). According to the International Classification

of Occupations (ISCO) established by the International Labour Organization (ILO), all of these occupations are classified as requiring a skill level of 2 on a scale that goes up to 4.

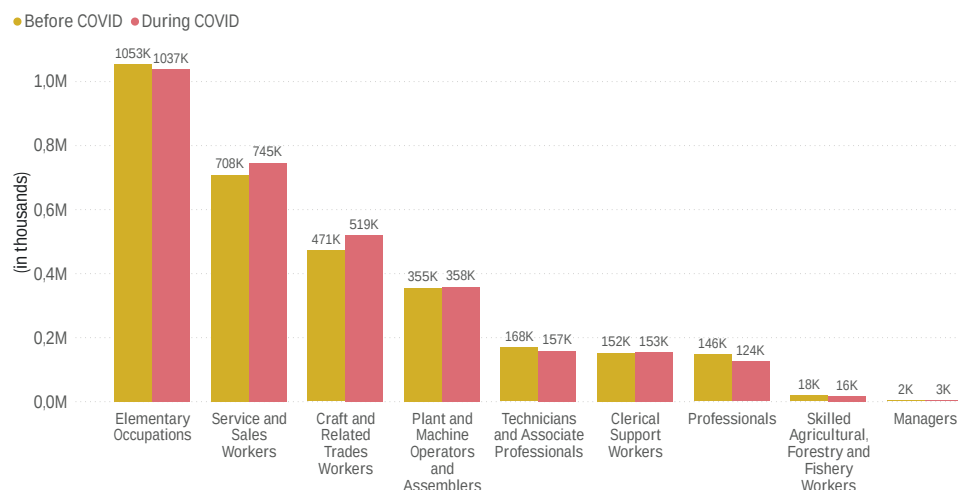


Figure 17. Informal employment (in thousands) by occupation in Metropolitan Lima by period (before and during the COVID-19 pandemic)

Source: Own elaboration using data from the ENAHO (2017–2021)

Note: ‘Before the COVID-19 pandemic’ refers to the average results for 2017–2019, and ‘During the COVID-19 pandemic’ refers to the average results between 2020–2021

8. Conclusions

The COVID-19 pandemic has profoundly impacted households in Metropolitan Lima. This region in Peru experienced the third-largest increase in poverty rates between 2019 and 2020 (13.3 pp.), returning to poverty levels observed 15 years ago. Specifically, households’ average work incomes were 26% lower in 2021 than in 2019, and despite unprecedented government monetary transfers aimed at alleviating income loss, the amounts ultimately constituted only a small proportion compared to the total income loss.

According to our estimates, 21% and 30% of households in Metropolitan Lima faced severe economic or health events in 2020 and 2021, respectively. These households implemented various adaptation strategies. The most frequently identified strategy was the expenditure of savings and capital, adopted by 48% and 59% of the total affected households in 2020 and 2021, respectively. Additionally, 31% and 33% of affected households in 2020 and 2021, respectively, resorted to reducing their food consumption. A third adaptation strategy that assisted families in recovering some of their regular incomes was securing alternative employment, particularly significant in 2021 with the

resumption of economic activities. Furthermore, we found no evidence that other adaptation strategies commonly cited in the literature during crises, such as increasing indebtedness or relying on assistance from relatives, were employed by affected households in Metropolitan Lima in different proportions than in pre-pandemic years.

In line with Gamero and Pérez (2020), we discovered that workers adapted by altering their occupations, with many shifting to lower-skilled jobs in craft and related trades. Also, consistent with Heltberg et al. (2013), who claimed that self-employment among workers tends to increase during crises, we found that self-employment among workers in Metropolitan Lima rose during the COVID-19 pandemic, albeit at a lower rate than the increase in the number of physical labourers. Additionally, while the total employed population decreased during the pandemic, the number of workers in construction, transportation, and storage sectors increased. In contrast, the accommodation and food services activities experienced the most significant reduction, aligning with the findings of Alon et al. (2021) for a set of advanced economies.

Moreover, despite an initial decrease (2019–2020) in the number of both informal workers (142,000) and formal workers (241,000), by the end of 2021, the number of informal workers had already surpassed pre-pandemic levels, while the number of formal workers remained below 2017 levels. Furthermore, informal employment in Metropolitan Lima accounted for 62% of the total employed population in 2021, 3 pp. higher than before the pandemic. Informal employment has particularly increased in low-skilled occupations, such as Service and Sales and Craft and Related Trades.

Lastly, considering Chacaltana et al. (2021) findings showing that labour market adaptation in Peru occurred primarily between employment and inactivity rather than between employment and unemployment, we observed the same pattern for Metropolitan Lima in 2020; however, this was not the case in 2021. In the latter year, we found that labour market adaptation occurred between employment (increased) and unemployment (decreased), thus indicating signs of labour market recovery. Nevertheless, the inactivity rate continued to rise in 2021, which could become a constraint for further labour market recovery.

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ABSTRACT

Workers' adaptation strategies in a highly informal labour market during the COVID-19 pandemic. The case of Metropolitan Lima

The COVID-19 pandemic has had a profound impact on labour markets worldwide. Peru emerged as one of the most severely affected countries globally, with its capital, Lima, experiencing even more substantial repercussions. In this study, we analyse the adaptation strategies of households and workers in Metropolitan Lima, focusing on those engaged in informal work before and during the COVID-19. We discovered that households in Metropolitan Lima primarily coped with income loss by reducing food consumption and depleting their savings. The COVID-19 pandemic not only led to rise in unemployment but also spurred an increase in inactivity among the working-age population, with no significant recovery noted by 2021. Workers began to engage in lower-skilled occupations within smaller firms. Ultimately, informal employment surged during the pandemic, driven mainly by an uptick in the number of workers participating in informal firms in low-skilled occupations.

Keywords: adaptation strategies, labour market, informal employment, COVID-19 pandemic

MEXICO AND SOCIAL VULNERABILITY TO FLOODS IN 2020

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1. Introduction

This paper discusses the municipal vulnerability to floods in Mexico calculated for 2020. It uses a methodology that integrates different indicators of socioeconomic and environmental factors based on a selection of population characteristics standard for the measurement of sustainability, collected from socioeconomic data provided by the last census, published in 2020.

The background for the study is the process taking place throughout the development of society, in which the human being is constantly subject to states of vulnerability. This is, firstly, because the human is yet another inhabitant of the Earth, whose dwellers are subject to geophysical and hydrometeorological phenomena and are defenceless and fragile in the face of the physical and natural forces of terrestrial dynamics, and, secondly, because the human being's ability to cope with the onset of such events defines the degree to which he or she may be damaged by a natural phenomenon and determines the recovery process after a disaster.

Since ancient times, all civilisations have been making efforts to address their vulnerability to natural or man-made phenomena in order to protect the population and the community's environment. Thanks to technological and scientific progress made with the intention of reducing these negative effects, it has been possible to predict, prevent, and reduce the degree of vulnerability (Cardona Arboleda, 2001), which has had a considerable impact on the living conditions and the quality of life in society.

With this perspective in mind, it needs to be noted that human settlements have been established in certain territories with disadvantageous geographical characteristics influencing urban areas (Ayala-Carcedo, Olcina, 2002). In such territories, in order to reduce the pre-existing vulnerability considered one of the main causes of damage to societies, it is necessary to propose strategies addressed to all actors in society with the aim of reducing and facing

the associated disturbances and socio-natural threats, and with it minimising the impact of circumstances which set back the least developed countries and hamper their growth (ECLAC, 2005).

From the above, it follows that vulnerability reflects the ability of humans to cope with socio-natural phenomena and depends on different physical and socioeconomic conditions associated with the damage to the population and the environment inflicted by certain natural phenomena. The degree of damage to communities is determined by the resources available to deal with such events. This is quantified and estimated as the vulnerability of an individual or a group at a given time, and this conditions the degree to which they are affected by forces of natural or physical origin.

Ruíz Rivera (2012) explains that vulnerability to hydrometeorological phenomena is an indicator conceptualised in various ways in different fields of study. The Intergovernmental Panel on Climate Change (IPCC, 2007) frames it as the degree to which a system is susceptible to and unable to cope with adverse effects of climate change. Beck (1998) considers it a part of risk associated with a natural disaster, which brings social, economic, and political threats to the system of the super-industrialised world society.

Alwang et al. (2001) present a description and analysis of vulnerability from the perspective of five major areas of knowledge. In the economic approach taken by Kanbur and Squire (1999), poverty is a factor resulting from the risk of income volatility, which is considered a state of vulnerability. Ravallion (1996) states that family standards of living are changing in unpredictable ways all the time and that statistically, they correlate with various factors which have to do with income generation. Moser and Holland (1997) look at vulnerability from a sociological perspective, analysing the efforts of people to maintain their living standard not only by reducing their expenses, but also by looking for other ways to generate income. However, despite all those adjustments made to reduce vulnerability and prevent the effects of crises, not all families succeed, and this can have negative effects on the family unit, its formation, and on social cohesion.

Kreimer and Arnold (2000) link the concept of vulnerability with disaster management, showing the determining relationship between human vulnerability and natural phenomena. Dinar et al. (1998) adopt the same line of thinking in their environmental approach, in which they conceptualise vulnerability as a crude relationship between the natural environment and the population resulting from the exposure of human settlements to the changes made and occurring in the environment and the damage they suffer as a result.

A number of methodologies for measuring vulnerability have been designed at the global level, for instance by the United Nations Development Program with its Global Assessment Report on Disaster Risk Reduction 2015 (GAR15), the Economic Commission for Latin America and the Caribbean (ECLAC), the World Meteorological Organisation (WMO), as well as the National Centre for Disaster Prevention in Mexico (CENAPRED). All of them have devised

their indicators with principal focus on socioeconomic and environmental dimensions.

Among the forms of measuring vulnerability in individual countries, combining various indicators results in a greater correlation, which helps more accurately portray social facts and phenomena. An example is looking at respiratory diseases in association with exposure to air pollution from vehicular traffic, which produces an environmental and a health-related indicator and unveils the relationship that exists between them, providing a more nuanced perspective on this socio-environmental problem (Briggs et al., 1996).

Various government institutions have adopted the measure of vulnerability proposed by Balbus (2013), which applies a multisectoral approach to develop an index taking into account many different indicators, whether social, economic, or environmental, and thus making it possible to determine vulnerability and other factors accurately, concisely, and appropriately to a given population. Aparicio Effen (2013) puts these theoretical premises into practice, arguing that the variables which contribute to climate change have become more evident, and the increase in the concentration of population also increases the vulnerability associated with climate change in urban and rural areas, because urbanisation exposes people to the impacts of climate variability, particularly to hydrometeorological phenomena. This is specifically due to the conditions of poverty, inequality, restriction of basic services, pollution, and lack of urban planning; as a result, society remains in a state of persistent and constant vulnerability which hampers progress and sustains underdevelopment.

Béné et al. (2018) argue that cities and urban centres are particularly vulnerable in the face of growing climate-related threats and the severity and frequency of the effects of climate change. ECLAC (2005) states that vulnerability is a parameter of the intensity of disasters, so it is essential to take into account the socioeconomic and environmental dimensions to identify the conditions which result in weakness and keep people in a vulnerable state. To identify this vulnerability, it is necessary to analyse these factors and explore the relationships between them. By selecting indicators of various socioeconomic and environmental aspects, it is possible to obtain information required to determine the degree of vulnerability of a community. ECLAC and similar organisations argue for the integration of different variables in vulnerability analysis.

In contrast to the previous conceptualisations, the Pan American Health Organization (PAHO, 2013) emphasises that the key factors of vulnerability are environmental justice, poverty, and lack of governance, so in order to mitigate it, focus should be put especially on low-income groups and places at risk of suffering from hydrometeorological phenomena.

Groups in a state of vulnerability suffer most severely when disasters occur, with their effects manifesting in the population through the loss of lives and spread of diseases, not to mention the destruction of the environment, infrastructure, transport, and services; another consequence is the loss of assets

such as housing, livestock, crops, and others. These losses have been quantified and estimated by the United Nations Office for Disaster Risk Reduction (UNISDR) with RAG 2015.¹

One way to solve this situation fits with the proposal of Briggs et al. (1996), who argue to measure vulnerability to environmental factors by integrating various indicators correlating environmental pollution with reports of respiratory diseases. This is done in order to assess whether a population is vulnerable to harmful environmental conditions resulting from high pollution levels, the susceptibility to which is manifested in the form of higher rates of respiratory diseases. Thus, by combining the issues of environmental pollution and social aspects of public health, it is possible to measure increased risk to the population. This method demonstrates that the study of vulnerability can be carried out through the integration of different variables and indicators, and the present research is based on this very premise.

With the above, it becomes clear that there is a relationship between the environment and the social aspect. For the former, it is proposed to consider floods as a variable represented by the flood hazard index, and for the latter – the socioeconomic characteristics of the population reflected by the marginalisation index expressing the social and economic situation at the municipal level. These two aspects will serve to define the degree of vulnerability of the population to natural phenomena, exposing a relationship which presents a disaster risk to an underdeveloped population.

Considering the above, this issue is discussed in the present paper with an integrative approach aimed at correlating socioeconomic and environmental indicators to represent the state of vulnerability to hydrometeorological phenomena in the current context of Mexico, taking into account the urbanisation processes that have shaped and defined the national territory with its social and territorial components.

2. Measuring vulnerability in Mexico

A problem that exists in Mexico is the slow pace of development of in-depth, complex research meant to address states of vulnerability and the resulting lack of a methodology to measure social vulnerability to floods in the country. This work intends to adapt a methodology modelled after the strategies adopted by high-income countries to measure vulnerability for the purposes of disaster risk reduction. The objective of such methodologies is to reduce the population's degree of vulnerability in the face of threats generated by climate, as expressed in the Sendai Framework for Disaster Risk Reduction 2015–2030 endorsed at the United Nations World Conference (UNISDR, 2015a), in which emphasis is placed on promoting and strengthening the analysis and study of

¹ Global Assessment Report on Disaster Risk Reduction.

all the variables contributing to vulnerability and, with it, significantly reducing the risk of disasters due to flood development.

The methodology for measuring vulnerability in Mexico is based on the work carried out by Gay García and Conde (2013), in which they make their assessment by establishing separate parameters for the social, economic, and environmental dimension, assigning a value to each of them and subsequently calculating their arithmetic sum. With this result, they determine equidistant ranges of the degree of vulnerability by dividing the data set into five equal parts. With this mechanic, the process is simplified, and the results may be adjusted by independently calculating the number of used indicators. What is characteristic of this methodology is that it only pertains to areas where floods occur; therefore, it is necessary to have an index that determines which areas are more vulnerable than others.

International strategies seek to reduce states of vulnerability because they generate economic losses incurred from disasters relief, which in low-income countries are equivalent to 22% of social spending, compared to the 1.45% allocated in high-income countries (UNISDR, 2015b). In Mexico, the occurrence of hydrometeorological phenomena results in an increased number of victims due to the high exposure of human settlements to vulnerability and risk. For example, the total damages suffered in the floods from 1980 to 2000 generated costs amounting to 227 million dollars (CENAPRED, 2014). Therefore, it is necessary to jointly consider the factors contributing to vulnerability to reduce excessive expenditure in such instances and to be able to redirect these funds to gradually solve various social problems.

Central to these analyses is the methodology used to measure vulnerability. In the Mexican case, one study used data on negative social phenomena such as poverty, marginalisation, overcrowding, and on the development of natural phenomena, particularly of geological nature, to research the impact of seismic movements and volcanoes on different sectors of society. With this, a team directed by Gay García and Conde (2013) developed a methodology for the calculation of vulnerability using 38 variables (<http://atlasclimatico.unam.mx/VulnerabilidadalCC/Vulnerabilidad/>).

The methodology can be found on the CENAPRED portal, elaborated with data from the National Atlas of Risks obtained from the Assessment of Physical and Social Vulnerability to Earthquakes and Wind. However, it does not provide methodology to measure municipal vulnerability associated with hydrometeorological phenomena. Specifically, the vulnerability to floods in Mexico must be calculated on the basis of socioeconomic and environmental indicators integrated through the use of an adequate statistical method.

The National Atlas of Risks prepared for Mexico in 2006 adopts a methodology for the calculation of vulnerability to earthquakes and wind which determines the areas most at risk from such events only on the basis of physical factors (wind and earthquakes) or type of housing. Independently, it assesses social vulnerability through a series of socioeconomic indicators. In both cases,

the degree of vulnerability, whether physical or social, is calculated, but these two indices are presented separately.

Consequently, it is proposed in this paper to expand this research by adding the context of the social and economic aspects of the city, relating them to the environmental phenomena that occur within the national territory. This can be done through the integration of these indicators in a methodology that incorporates the socioeconomic and environmental dimension for the calculation of a municipal vulnerability index to floods in Mexico. The calculations are performed through the analysis of the variables (socioeconomic and environmental characteristics), which are susceptible to change and apparently linked and related to each other (Lafuente Ibáñez, Marín Egoscózábal, 2008).

The CENAPRED methodology only measures vulnerability to earthquakes and wind. There is no such methodology for calculations reflecting the current degree of municipal vulnerability to floods, which would contribute to improving disaster risk management in Mexico in the face of the negative consequences of climate change.

There is an evident need for methodological proposals for the measurement of vulnerability to hydrometeorological phenomena. This is because large population centres are places where the adverse effects of climate change and unpredictable weather are felt to a greater extent. Additionally, these areas also include groups which are more vulnerable to such phenomena than others. These are identified using various socioeconomic indicators pertaining to the population and are, in principle, indispensable for calculating the degree of vulnerability. The method proposed in this study appears as an integrative approach taking into account different aspects of the population and its environment, which makes it possible to measure vulnerability in the current context of cities.

These types of methodologies correspond to the Sustainable Development Goals of the United Nations Development Program (2018), in which it is established that the most suitable resources must be used to contribute to the achievement of the proposed goals. This is particularly significant in the case of the objective number 13, called Climate Action, which refers to reducing vulnerability and puts greatest emphasis on the need to build and design clear, simple, and effective indicators for the calculation and measurement of vulnerability, as it will allow decision-makers to define the course of action to be followed in order to reduce the vulnerability of today's human settlements.

Given the risks faced by humanity in relation to climate change, regulations are established to minimise the associated threats and damages. One of these is the Climate Change Law, last amended in 2018 and published in the Official Gazette of the Federation of Mexico. The document reinforces the need to have tools for developing studies and analyses of vulnerability related to floods.

In this sense, emphasis is placed on the importance of studying vulnerability through the integration of different variables that directly affect its degree. The inclusion of interrelated aspects of socioeconomic and environmental nature in human settlements provides a more complete context for the existing state of vulnerability, which helps act to reduce the exposure of individuals and their property to disasters resulting in loss of life and damage to the population and its built environment.

3. Estimation of the index of social vulnerability to floods in Mexico

The present methodological proposal for calculating social vulnerability to floods in Mexico suggests combining different analysis variables and selected indicators and identifying the relationship that exists between them. It is based on the observations made by Mussetta et al. (2017), who conceptualise vulnerability as a function of the exposure of the population to natural phenomena, its sensitivity to their impact, and its adaptive capacity.

This paper presents the correlation between different socioeconomic indicators and floods as an environmental factor. Variables such as housing, population, education, and employment were selected to estimate the degree of sensitivity and adaptive capacity, and on the environmental side, the flood hazard index at the municipal level was used as a source of data related to exposure level. Together, the estimated correlation between all the indicators should help to obtain an index of municipal vulnerability to floods for Mexico in 2020.

To link the different variables with their set of indicators, those that are directly associated with the phenomenon of floods were identified in the study area, which included the socioeconomic dimension and the environmental aspect in which floods are considered. Selected first were indicators related to employment, housing, population, which were then combined with the risk of floods, that is, indicators of the marginalisation index were overlayed onto flood-prone areas using the municipal geostatistical framework.

In this way, the proposed methodology correlates socioeconomic aspects and floods to estimate municipal vulnerability through an integrative analysis of the different relevant variables.

The chosen indicators are ones which express conditions leading to states of vulnerability. They reflect sensitivity to floods in terms of goods, infrastructure, housing, and humans exposed to damage, as well as the society's strengths, attributes, and human resources which form its capacity to minimise or reduce the effects of floods. The final indicator is the level of exposure to floods. Together, these three factors determine the degree of damage inflicted by a natural disaster.

The selected socioeconomic indicators were obtained from statistical data published by the INEGI in the Population and Housing Census 2020. Identified

and chosen from among these were the variables used by the marginalisation index, as they are believed to reflect the socioeconomic characteristics of the most vulnerable population. They are the following:

- Total municipal population;
- Percentage of illiterate population aged 15 or over;
- Percentage of population aged 15 or over without complete primary education;
- Percentage of occupants in housing without drainage or toilet;
- Percentage of dwellings without electricity;
- Percentage of dwellings without piped water;
- Average number of occupants per dwelling;
- Percentage of dwellings with a dirt floor;
- Economically inactive population.

To account for the environmental aspect, the flood hazard index has been selected as the indicator. This is because combined with the above social factors, flooding becomes a threat by affecting housing, property, crops, and infrastructure. Data were collected from information provided by the National Civil Protection System through the National Centre for Disaster Prevention in 2016 in the form of records concerning precipitation, runoff, topography, soil science, vegetation, and land use, compiled with the support of the National Water Commission in the form of a hazard index. Thus, the indicator used in this study to reflect the environmental dimension is:

- The level of flood hazard.

Data indicating the flood hazard index by municipality provided us with the environmental indicator. Together with the nine socioeconomic indicators, a factor extraction analysis was carried out with the SPSS statistical programme by using the main components, and research results were obtained. It is important to note that this methodology can be used to measure vulnerability at any scale.

With the support of geostatistical tools provided by software for database management and the Geographic Information System, vulnerability was calculated, starting with the standardisation of the data in the SPSS to be able to perform factor extraction of the set of indicators. Once the data was normalised, a Principal Components Analysis was run, and the result was stratified with the Dalenius and Hodges method to generate five strata which represent the ranges in which municipalities are classified in terms of vulnerability.

When analysing the results, it was observed that most of the municipalities in Mexico represented a very low or low degree of vulnerability (Table 1 and Figure 1). The number of municipalities with a high degree of vulnerability in 2020 was 143, including 28 with very high vulnerability.

Table 1. Degree of social vulnerability to floods in Mexico in 2020

	Degree	Frequency	Percentage	Cumulative percentage
	Very low	2,084	84.4	84.4
	Low	242	9.8	94.2
	Medium	65	2.6	96.8
	High	50	2.1	98.9
	Very high	28	1.1	100.0
Total		2,469	100	

Source: Own elaboration

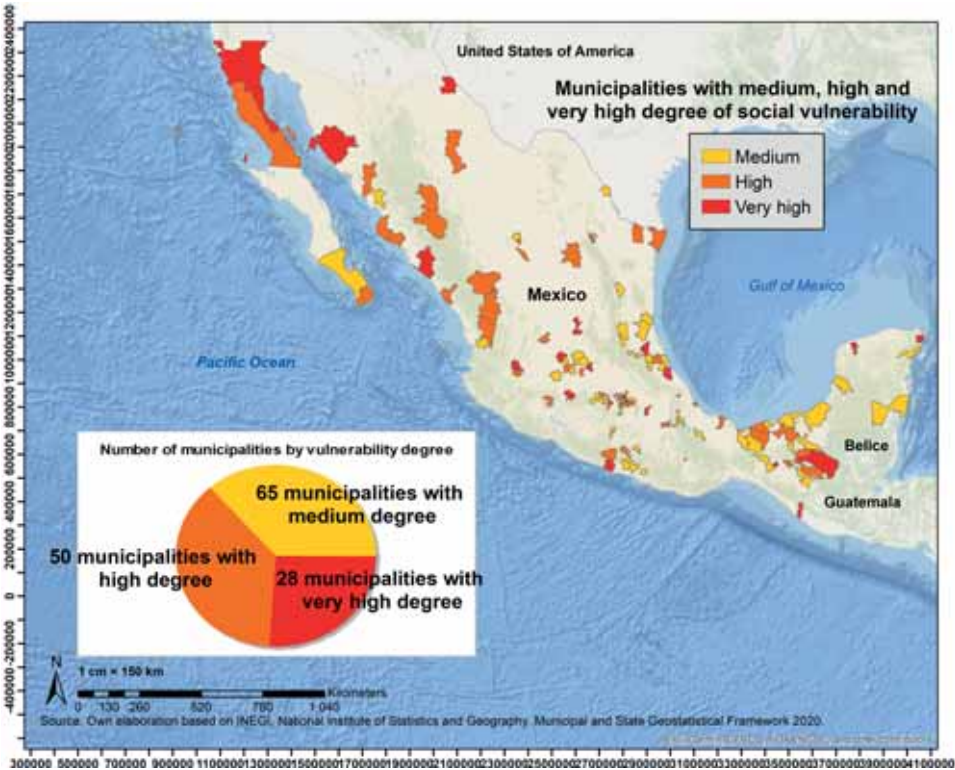


Figure 1. Municipalities with medium, high, and very high social vulnerability to floods in Mexico in 2020

Source: Own elaboration

The research shows that most of the municipalities in Mexico, despite experiencing floods, are not considered highly vulnerable to them. Although the development of hydrometeorological phenomena results in adverse environmental conditions, they are only one aspect in the sum of all the analysed

variables by which the degree of vulnerability of a given municipality is defined. For this reason, most of the Mexican territory has low and very low levels of vulnerability to flooding, as shown in Figure 2.

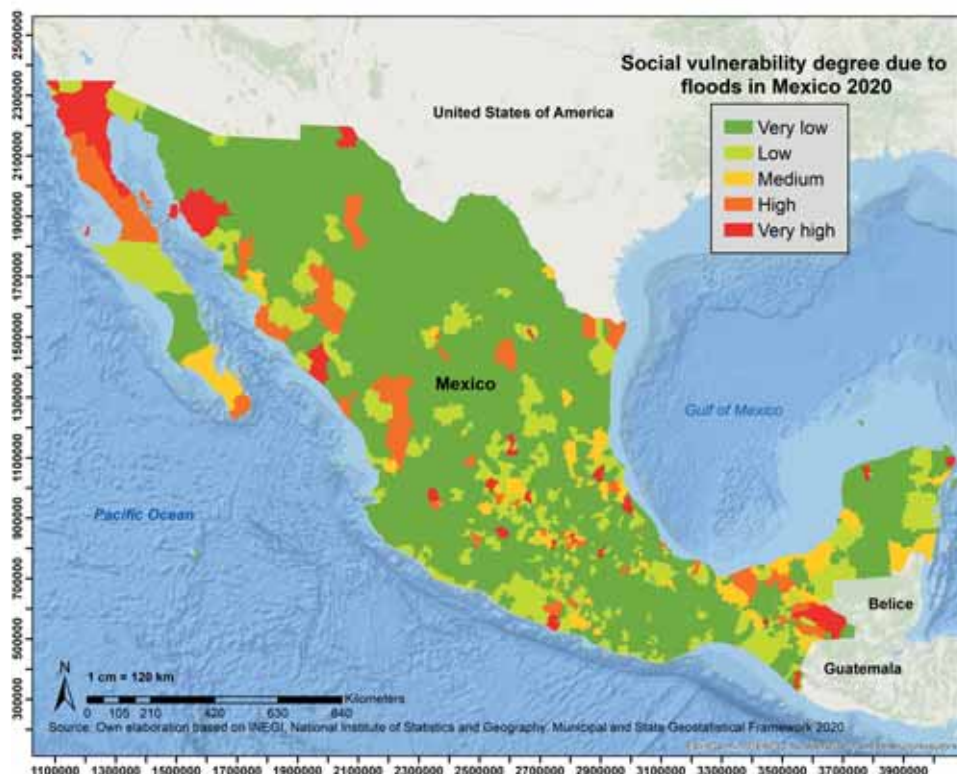


Figure 2. Degree of social vulnerability to floods in Mexico in 2020

Source: Own elaboration

The methodology proposed in this research uses information from public and official sources which compile sociodemographic characteristics of the population and data on the phenomenon of floods as an environmental factor. From these, a database was developed to calculate the index of municipal vulnerability to floods in Mexico.

4. Conclusions

Vulnerability is understood as a condition of being prone to damage in the event of a natural phenomenon disturbing the usual conditions of a given environment. It is measured by the most representative socioeconomic indicators and the environmental indicator. This paper presents a methodology of

measuring vulnerability which integrates the socioeconomic and environmental dimensions, correlating their indicators to obtain a flood vulnerability index with the use of the Main Components Analysis method.

Thanks to scientific and technological progress, society has reduced the natural and anthropic risks that are generated today, trying above all to minimise the impact of disasters resulting from natural phenomena. In this sense, the present study forms part of these efforts, presenting the index of social vulnerability to floods in Mexico in 2020. The research shows the feasibility of correlating various indicators to calculate social vulnerability to floods and thus supports the progress of studies and analyses of this issue, which may contribute to advancing solutions to the environmental problems which are recurrent in the rainy season.

The municipal flood vulnerability index is calculated from the correlation between socioeconomic indicators and the environmental threat associated with floods. The socioeconomic characteristics of the population, when interacting with environmental indicators, can increase the degree of vulnerability to floods. It is concluded that the degree of vulnerability of a given territory is determined by the socioeconomic aspects of the population associated with the environmental variable. With this methodological proposal for the estimation of the index of social vulnerability to floods, the socioeconomic and environmental characteristics of the population are reflected within the unit under analysis, which in this case is carried out at a municipal scale. This allows us to indicate the susceptibility of various sectors of the population to damage caused by floods and to measure the probable degree of such damage.

To design this index, socioeconomic and environmental indicators with the greatest relevance were identified. These reflect the most significant factors which in the event of floods increase or decrease the society's vulnerability. The correlation that exists between these indicators is estimated using the Principal Components Analysis method with which the variability of each indicator is calculated and correlated with others to generate a vulnerability model for the unit under analysis. This methodology demonstrates that the factor of exposure to floods is not the only one relevant for measuring vulnerability, and that the calculation of the index must include a set of variables.

Integrating the various indicators to measure vulnerability becomes a tool for understanding the problems that arise when floods occur. This helps develop studies and implement actions aimed at reducing the negative conditions which hamper progress in some areas of the country.

The results of the research allow us to deduce that the concentration of population and human settlements at the municipal level is one of the factors which increase vulnerability, since, as it has been demonstrated, it is more difficult to protect people in densely populated areas with insufficient equipment and infrastructure in the face of unexpected events generated by natural phenomena such as floods, which affect a large part of the population in both urban and rural areas.

With the necessary tools and adequate knowledge, the methodology of measuring municipal vulnerability to floods can contribute to and influence the field of knowledge of large-scale urbanism, since this model can be applied at different scales and used to cover various hydrometeorological phenomena (cyclones, hurricanes, torrential rains, storms, etc.), linking them with the socioeconomic situation of individual administrative units in Mexico to determine their degree of municipal vulnerability.

This multisectoral approach enriches individual measurements of vulnerability by combining socioeconomic and environmental dimensions and integrating them into the municipal flood vulnerability index. It helps carry out analyses used for the reduction of said vulnerability in disaster risk management in already existing centres as well as supports the planning process in the development of new territories or their urbanisation, a factor that would be very useful to prevent all the problems that are currently observed in cities.

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ABSTRACT

Mexico and social vulnerability to floods in 2020

The article proposes to calculate social vulnerability to floods in Mexico with a methodology that integrates different social, economic, and environmental variables and indicators. It uses the Principal Components Analysis, the stratification developed by Dalenius and Hodges, and the Geographic Information System. The objective is to put forward an integrative approach to measuring the vulnerability associated with floods. We start with a review of methodologies proposed so far to then identify the variables and indicators needed to calculate vulnerability index for 2020. The selected variables are associated with marginalisation and the environmental dimension of floods. The elaborated index is presented in the form of degrees of vulnerability and mapped over the municipalities of Mexico, representing the social vulnerability to this hydrometeorological phenomenon in individual areas. The results show that some municipalities, despite suffering floods, are less vulnerable than others and that this degree of vulnerability corresponds to their socioeconomic status and vice versa.

Keywords: vulnerability, methodology, indicators, floods

IMPACT OF INTERNAL ARMED CONFLICTS ON TOURISM IN URBAN CENTRES, A CONTEXT ANALYSIS

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1. Introduction

Given the importance of tourism in terms of sustainability, or even more, as a catalyst for regional development, the phenomenon has become a propelling force for many countries, in some cases transforming from an activity of secondary importance to the economy to its main driver. Thus, it is necessary to analyse the impact exerted on tourism by conflicts breaking out in a given area in order to have a greater understanding of the phenomenon, its changes, as well as the differentiators of the influence of armed activity on urban territories, which will provide initial context for understanding its subsequent impact on the tourism industry sector.

The present study is based on a review of multidisciplinary databases of scientific articles such as Jstor, Google Scholar, SpringerLink, texts published in academic journals, university repositories, publications of recognised world organisations, as well as books. This has allowed us to look at the analysed issue from various perspectives: from the global to the regional and local. Firstly, the phrases 'tourism' and 'internal armed conflict' were queried, with the concept of 'urban centres' later added as an element to visualise the change. The review included sources in Spanish and English in order to achieve a greater scope. The criterion used was the date of publication after 2010. The review excluded items such as memoirs, reports, manuals, and news stories; additionally, the search was limited to the academic disciplines of social sciences, education, psychology, administration, and business.

The bibliographic data was categorised with the use of quartiles (Ioannidis et al., 2020), where the focus of the analysis was the recurrence of citations

of research papers concerning tourism in urban centres and internal armed conflict, both on the global and regional and local scale (Aksnes et al., 2019). The metrics used in this procedure facilitated the construction of ranges to evaluate the topic, proposed here as follows: 0.38–0.5 (Q1), 0.26–0.38 (Q2) 0.14–0.25 (Q3), and 0–0.13 (Q4) (García-Villar, García-Santos, 2021), where the parameter Q1 determines the articles with the highest number of mentions, Q2–Q3 – the intermediate range, and Q4 – the lowest number of mentions.

Thus, the first step in the study was the search for thesauri in each of the databases indicated above. We began at the global level, later moving on to the regional level and ending at the local level. For each of these categories, a body of articles using the phrases ‘tourism’ and ‘internal armed conflict’ was determined. This was followed by a specific search in each item in order to establish which documents were relevant to the investigated axis. For this purpose, the following keywords were queried, separated by the conjunctions OR, NOT, AND, ALL: ‘urban centres’, ‘cultural tourism in Latin America’, ‘armed conflict’, ‘historical tourism’.

2. Global studies

The search for studies published worldwide initially comprised two items taken separately and was carried out in English and Spanish to collect a greater spectrum of publications. The two terms were ‘tourism’ and ‘internal armed conflict’. Through this query, the total number of articles was obtained for each item (Table 1). Subsequently, the operators AND, OR, NOT, and ALL were added to the search for both terms accompanied by the keywords: ‘culture’, ‘violence’, ‘insecurity’, ‘traveller’, and ‘cities’ in order to filter the search and obtain the desired parameter (specific articles).

Table 1. Consulted databases

Consulted Databases						
	Jstor		Google Scholar		SpringerLink	
Search parameters	Total Journals	Specific Journals	Total Journals	Specific Journals	Total Journals	Specific Journals
Tourism	2,118	2,343	2,000	94	911	313
Internal armed conflict	8,560	140	6,620	783	458	233
Tourism and internal armed conflict	684	53	1,380	87	200	34

Source: Own elaboration, 2022

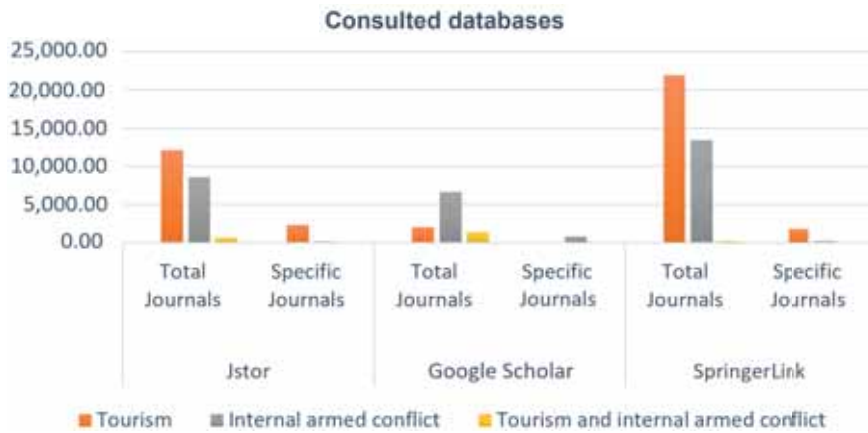


Figure 1. Average number of publications per database, studies worldwide

Source: Own elaboration, 2022

Table 2. Citation frequency index in databases consulted worldwide

Consulted Databases												
Search parameters	Keywords	Jstor		Google Scholar		Springer Link		Average	Quartile			
		Journal	Index	Journal	Index	Journal	Index					
Tourism	Culture	236	0.32	311	0.25	123	0.22	0.26	Q2	Q3	Q3	Q2
	Violence	125	0.25	98	0.32	56	0.26	0.28	Q3	Q2	Q2	Q2
	Insecurity	102	0.14	165	0.15	40	0.28	0.19	Q4	Q4	Q2	Q3
	Traveller	658	0.23	321	0.26	133	0.24	0.24	Q3	Q2	Q3	Q3
	Cities	354	0.18	296	0.28	103	0.20	0.22	Q3	Q2	Q3	Q3
Total		1,475	0.22	1191	0.25	455	0.24	0.24	Q3	Q3	Q3	Q3
Internal armed conflict	Culture	145	0.23	256	0.19	96	0.28	0.23	Q3	Q3	Q2	Q3
	Violence	123	0.26	212	0.17	65	0.27	0.23	Q2	Q3	Q2	Q3
	Insecurity	137	0.28	185	0.26	45	0.23	0.26	Q2	Q2	Q3	Q2
	Traveller	65	0.15	93	0.25	28	0.26	0.22	Q3	Q3	Q2	Q3
	Cities	163	0.31	73	0.22	46	0.25	0.26	Q2	Q3	Q3	Q2
Total		633	0.25	819	0.22	280	0.26	0.24	Q3	Q3	Q2	Q3

Source: Own elaboration, 2022

To obtain more detailed data, the terms ‘culture’, ‘cities’, ‘violence’, ‘insecurity’, and ‘traveller’ were subsequently added as key components, thus quantifying the frequency index of mentions and establishing a scale of quartiles (Liu, Fang, 2020; Leyva et al., 2021) in the search at the global, regional, and local levels. The number of articles consulted was taken from Table 1 and then calculated as follows: search for the term ‘tourism’ rendered 2,118 results in the Jstor database; when adding the word ‘insecurity’, the number of documents was reduced to 102 (Table 2), which gave us a ratio of $2,118/102 = 20.7$. This is within the range 0.14–0.25 (Q3). In this way, the quartiles for the three source databases were determined.

With the above, it is inferred that the publications on the topics of tourism and internal armed conflict, with the key components included, were abundantly represented worldwide, with a low impact indicator (Aksnes et al., 2019). This may be due to the nature of this field, which has dynamised in the recent decades and is conceived of as a nascent economic phenomenon, which is reflected in the pattern of the index cited.

3. Studies at the Latin American level

The second order of search focused on data concerning the region of Latin America, so the appropriate terms were incorporated, both in Spanish and English, keeping the keywords already included in the previous queries in order to find articles with the greatest number of mentions and to establish the previously introduced indicators.

Table 3. Citation frequency index in databases consulted for Latin America

Consulted Databases												
Search parameters	Keywords	Jstor		Google Scholar		Springer Link		Average	Quartile			
		Journal	Index	Journal	Index	Journal	Index					
Tourism Latin America	Culture	67	0.34	134	0.34	35	0.30	0.33	Q2	Q2	Q2	Q2
	Violence	24	0.20	38	0.25	12	0.10	0.18	Q3	Q3	Q4	Q3
	Insecurity	14	0.12	45	0.33	13	0.10	0.18	Q4	Q1	Q4	Q3
	Traveller	54	0.32	265	0.34	23	0.20	0.29	Q1	Q1	Q3	Q3
	Cities	89	0.33	79	0.34	18	0.20	0.29	Q1	Q1	Q3	Q2
Total		248	0.26	561	40.4	101	0.18	0.25	Q2	Q1	Q3	Q3

Internal armed conflict Latin America	Culture	32	0.15	98	0.26	22	0.22	0.21	Q3	Q2	Q3	Q3
	Violence	41	0.23	120	0.16	32	0.18	0.19	Q3	Q3	Q3	Q3
	Insecurity	12	0.21	35	0.22	9	0.30	0.24	Q3	Q3	Q2	Q3
	Traveller	25	0.24	45	0.12	13	0.26	0.21	Q3	Q4	Q2	Q3
	Cities	16	0.26	23	0.23	20	0.25	0.25	Q2	Q3	Q3	Q3
Total		126	0.22	321	0.198	96	0.24	0.22	Q3	Q3	Q3	Q3

Source: Own elaboration, 2022

4. Studies at the local level

With respect to country-oriented data, the term ‘Latin America’ was changed to ‘Colombia’, and the keywords already incorporated were maintained in order to identify the measurement indices discussed before. These keywords were ‘culture’, ‘violence’, ‘insecurity’, ‘traveller’, and ‘cities’.

Table 4. Citation frequency index in databases consulted for Colombia

Consulted Databases												
Search parameters	Keywords	Jstor		Google Scholar		Springer Link		Average	Quartile			
		Journal	Index	Journal	Index	Journal	Index					
Tourism Colombia	Culture	12	0.23	23	0.15	6	0.15	0.18	Q3	Q3	Q3	Q3
	Violence	23	0.14	18	0.17	7	0.24	0.18	Q3	Q3	Q3	Q3
	Insecurity	32	0.18	22	0.16	3	0.22	0.19	Q3	Q3	Q3	Q3
	Traveller	5	0.15	19	0.23	5	0.21	0.20	Q3	Q3	Q3	Q3
	Cities	10	0.26	4	0.26	2	0.19	0.24	Q2	Q2	Q3	Q3
Total		82	0.19	86	0.19	23	0.20	0.20	Q3	Q3	Q3	Q3
Internal armed conflict Colombia	Culture	15	0.18	33	0.14	14	0.20	0.18	Q3	Q4	Q3	Q3
	Violence	22	0.23	25	0.13	12	0.20	0.20	Q3	Q4	Q3	Q3
	Insecurity	16	0.12	20	0.08	11	0.16	0.12	Q4	Q4	Q3	Q4
	Traveller	6	0.05	7	0.23	3	0.30	0.19	Q4	Q3	Q2	Q3
	Cities	6	0.18	3	0.16	1	0.30	0.20	Q3	Q3	Q3	Q3
Total		65	0.15	88	0.15	41	0.23	0.18	Q3	Q3	Q3	Q3

Source: Own elaboration, 2022

5. Tourism

With regard to tourism, it is necessary to establish conceptual clarity, since it is perceived as an activity without a purely economic or recreational connotation and something as old as humanity itself, since people have always left their places of origin and travelled to new sites in search of food, knowledge, exploration, etc. (Morillo Moreno, 2011). It should be added that a new conceptualisation of tourism emerged in the aftermath of the world wars and subsequent humanitarian reconstruction, becoming a branch of the world economy hand in hand with the development of naturalist, ecological, and philosophical movements (Amin, 2020). Tourism began to take advantage of the potential of using spaces for leisure, historical memory, recognition of cultures, gastronomy, landscapes, etc.

It should be mentioned that urban centres have always been a destination for travellers, and as such have experienced new dynamics in all the aspects of their functioning, from the political to the physical. Efforts have been made to preserve the unique structures, histories, and heritage of urban centres in order to monopolise the growing rate of mass tourism (Novy, Colomb, 2019).

The tourism process as defined by Knafo (1996) involves different actors, such as tourists and their practices, companies, the market, governments, the local population, and their various interactions. It is there, in this bundle of interrelations in a given territory, where the visitor can be affected. Travellers often face various negative experiences when staying in a certain city; they are constantly exposed to various types of theft (Malleka et al., 2022), deception, misinformation, and this is in the best of cases. There are cities in which conflict transcends the level of daily life, starting with losing one's mobile phone and ending with more impactful events, such as the loss of life, kidnapping, extortion, or social disputes in the streets (Barker, Page, 2002).

6. Internal armed conflict

Studies on armed conflicts have focused on trying to describe and classify the phenomenon by type and trend. The research carried out in this area by Small and Singer (1979) has provided a clear and powerful concept of internal war, which is based on four basic premises:

- 1) One of the primary agents must be the national government that is in power when hostilities begin;
- 2) Both sides must have the capacity to inflict death on the other;
- 3) Some form of significant military action must occur, implying a fatality rate of at least one thousand civilian or military deaths in battle per year; and
- 4) War must be internal to a country, occur within the borders of a state, and its main antagonists must be the citizens of the state.

To sum it up, the main difference between civil war (internal or intra-state) and interstate or extra-state (colonial or imperial) war is the containment of hostilities within the territory of a sovereign state and the necessary participation of the government as one of the belligerents. The factor distinguishing civil war from other forms of internal armed conflict is the sustained and reciprocal nature of state violence which must exceed a certain threshold of deaths, namely 1,000 annual fatalities (Small, Singer, 1979, p. 32).

In line with these theoretical considerations, databases of various international and internal conflicts that humanity has gone through have been established through continuous studies taking place since 1972 to 2019, allowing for an evaluation of these historical events. In addition, researchers in the same line of studies (Siverson, King, 1979) have found a direct link between the commitments among nations, their alliances, and the propensity to war (Ostrom, Hoole, 1978). Used in this research were rigorous analysis tests and indicators similar to those discussed above. Continuous research analysis of internal, proxy, and international wars has been carried out by Pet et al. (2002), Pettersson and Wallensteen (2015), or Wallensteen and Sollenberg (1997), rendering results similar to those presented by Small and Singer (1979).

Among the new research methodologies (Gurr, 1993; Tilly, 2003), different typologies of collective violence have been developed alongside the existing ones, defining acts of violence as “events of coordinated destruction, opportunism and brawls” (Tilly, 2003, p. 26). Furthermore, various studies have sought to categorise the evolution of conflicts, including Holsti’s (1996) division into institutionalised wars, total wars, and third-type (internal) wars. Similar typologies are presented by Calleja (2015), Münkler (2011), and Montealegre Torres et al. (2023).

A comprehensive review of global studies reveals that the intersection of tourism and internal armed conflicts has attracted substantial attention. This phenomenon has been studied using keywords like ‘culture’, ‘violence’, ‘insecurity’, ‘traveller’, and ‘cities’. The frequency index of mentions in various databases reflects the abundance of publications in this field. The impact index of these studies falls within specific quartiles, indicating their significance and distribution across the academic landscape. This proliferation of research reflects the field’s dynamic growth and its recognition as a distinct economic phenomenon.

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ABSTRACT**Impact of internal armed conflicts on tourism in urban centres,
a context analysis**

The constant regional and local conflicts erupting around the world have had a direct impact on tourism, as marked social instability is a factor greatly influencing the safety, accessibility, and image of cities. The outbreak of an internal conflict directly impacts any efforts towards maintaining the sustainability of regions. The paper presents a context analysis allowing to determine the direct relationship between the condition of traditional or emerging tourist destinations and the presence of internal armed conflicts. The developed methodology can be used as a dynamic tool for the resolution of the clash between these phenomena.

Keywords: tourism, internal armed conflict, culture, violence, insecurity, travellers, cities

COVID-19 PANDEMIC AND GEOGRAPHIC SPACE IN MEXICO. A PERSPECTIVE OF DIFFERENCES IN COMORBIDITIES BY SEX

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1. Introduction

The world has experienced a deadly pandemic, marked by the immense damage it has caused as well as the rapid spread and mutation of the virus that has generated it. The SARS-CoV-2, which stands for Severe Acute Respiratory Syndrome, has taken its toll on the world in a variety of ways, depending on various socioeconomic, epidemiological, political, and cultural factors. According to the *World in Data* website, as of 14 August 2023, 70.48% of the world's population has received at least one dose of COVID-19 vaccine. A total of 13,495,802,007 jabs have been administered worldwide, and 47,617 are being administered every day. Among the populations of low-income countries, 32.53% of people have received at least one dose (Mathieu et al., 2020).

COVID-19 has been such an important phenomenon that numerous organisations have contributed in different ways to the efforts to combat and control the disease. The World Health Organisation (WHO), in cooperation with the Pan-American Health Organisation (PAHO), has addressed it in the form of the Sustainable Development Goals (SDG) for 2030. Both bodies (PAHO/WHO) have identified goals and indicators in a list of 17 SDGs. "The SDG [...] targets [are] related to child stunting and obesity, drinking water and sanitation, clean energy for all, and air pollution, as well as knowledge sharing and networking [...]" (PAHO, 2022a).

A comprehensive understanding of comorbidity provides a complete picture of human health by recognising that people often suffer from multiple medical conditions at the same time. According to Blanco Aspiazú et al. (2017,

p. 12), it is a “relationship between diseases that can be explained by associations of clear pathogenic dependence or by coincidence in the patient with no direct pathogenic relationship”. In this sense, the concept of comorbidity is defined as a list of diseases where one is more important, as is the case with the COVID-19 disease, and the others are associated with it – for COVID-19, nine diseases are considered comorbid. The current research of this correlation is a part of the geography of health, which has been developed as an area of knowledge focused on aspects related to differences in terms of health resulting from territorial aspects, including the analysis of the distribution of diseases.

As for methodology, researchers within the field carry out statistical operations consisting in relating cases of contagion and the sites within federal administrative units in which the cases occur. Produced as a result are graphs and maps reflecting the occurrence of each of the nine comorbidities in the country. Against this background, the objective of the present work will be to analyse the geographical distribution of data accumulated from the beginning of the pandemic in February 2020 to May 2022 in order to identify variations according to territorial unit and the differentiated impact of comorbidities by sex.

2. Methodology

In a study by Plasencia-Urizarri et al. (2020), an odds ratio with a 95% confidence interval was used to assess the association between the clinical severity of COVID-19 and the presence of comorbidities. In this particular case, the data on deaths from COVID-19 and the nine main comorbidities was analysed in the Mexican context at the state level. Information on comorbidities was obtained from the records of the Ministry of Health of the Government of Mexico, accumulated daily from February 2020 to May 2022. This research focuses on the United Mexican States. According to the 2020 Population and Housing Census of the National Institute of Statistics and Geography (INEGI, 2020), the country has a population of 130,262,220 people, of which 51% are women.

According to the same source, the most populated states are the State of Mexico, Mexico City, and Jalisco, with 16,992,418, 9,209,944, and 8,348,151 inhabitants, respectively. The least populated are: Colima with 731,391; Baja California Sur with 798,447; and Campeche with 928,363 inhabitants.

The methods of analysis are based on information and databases from institutions such as the Ministry of Health of Mexico. The geographic representations are based on the INEGI, depicting the country according to its state political division. The presentation of graphs and thematic maps required the use of QGIS, free-access Geographic Information Systems (GIS) software. This tool allowed us to map out the data on deaths from COVID-19 and the nine comorbidities analysed, which are: asthma, cardiovascular disease, diabetes, chronic obstructive pulmonary disease (COPD), chronic kidney disease, arterial hypertension, immunosuppression, obesity, and smoking.

Fatality is an indicator that depends on the ability to identify cases and deaths, and therefore synthesises two crucial elements of an epidemic process: magnitude and impact (Medeiros et al., 2021). Thus, the classic definition of fatality rate considers the proportion of cases of a specific condition, in this case of COVID-19, which result in death within a specific time (Muñoz et al., 2020). The index used for this research was fatality rate generally expressed in percentages and calculated as the number of deaths from COVID-19. It was considered in the period from the start of the pandemic to May 2022 in each state of Mexico, divided by the number of diagnosed cases of the same disease in the same period of time and in the same geographical space and multiplied by 100 (accounting for the difference between men and women).

In addition to fatality, a ratio is calculated, which is defined as “any index obtained by dividing two quantities where the numerator is not included in the denominator. It may or may not have dimensions” (Fuentes, Prado, 2013, p. 346). In this case, it is calculated by dividing the cases or deaths among women by the cases or deaths among men and multiplying the result by a factor of 100. For example, if there are 80 cases or deaths of women, and 90 cases or deaths of men, divide 80/90 and multiply by 100. The resulting value, which in this case is 88.8, means that for every 100 men, 88.8 women fall ill or die.

The sources of information are the Daily Technical Communications on COVID-19 of the Government of Mexico, published by the Ministry of Health; data from the National Institute of Statistics and Geography (INEGI); and data from the *Geosalud México* webpage (2023).

In terms of thematic cartography, a map of the fatality percentages was elaborated. The data was classified in five ranges by equal intervals: very high, high, medium, medium low, and low, through the following operation: percentages = (maximum value – minimum value) /5.

3. Development

3.1. General information on COVID-19 and comorbidities

In Mexico, conditions such as asthma, cardiovascular disease, diabetes, chronic kidney disease, chronic obstructive pulmonary disease, immunosuppressive diseases, hypertension, obesity, and smoking are some of the comorbidities which pose the greatest risk to health. They occur more frequently among patients with COVID-19, and because of this they represent a greater challenge for the public health sector.

3.1.1. Asthma

Asthma is a chronic disease in which the bronchial tubes in the lungs become narrow and swollen, making it difficult to breathe. Symptoms include wheezing, coughing, chest tightness, shortness of breath, and rapid breathing. An asthma

attack can be triggered by the presence of pet hair, dust, smoke, pollen, mould, exercise, cold air, or stress (DINC, 2022). At present, the concept of asthma “seems to have changed, partially due to the assessment of inflammation as a pathogenic basis, as well as the description of different phenotypes, the manifestation of which is due to bronchial hyperactivity that can be genetic or acquired. However, other mechanisms that distinguish exercise asthma should not be forgotten” (Muñoz, 2015, p. 140).

3.1.2. Cardiovascular diseases

In accordance with the World Health Organisation (WHO), the Ministry of Health of Mexico defines cardiovascular diseases (CVD) as disorders of the heart and blood vessels, which have become the main cause of death throughout the world (SSA, 2022a). The risk of various cardiopathies, represented by the type of disease that affects the heart or blood vessels, is increased by the use of tobacco products, high blood pressure, high cholesterol, unhealthy eating, lack of exercise, and obesity. The most common heart disease is coronary heart disease (narrowed or blocked coronary arteries), which sometimes causes chest pain, heart attack, or stroke, according to the Dictionary of the National Cancer Institute (DINC, 2022).

3.1.3. Diabetes

Diabetes insipidus and diabetes mellitus are considered to be two large groups of diabetes. According to the DINC, diabetes insipidus is a condition in which a person is very thirsty and produces large amounts of urine. Diabetes insipidus is not related to diabetes mellitus. The latter is more common and relevant for the present research, since it is a disease in which the body does not control the amount of glucose (a type of sugar) in the blood and kidneys, which produce a large amount of urine. The disease occurs when the body does not produce enough insulin or does not use it the way it should (DINC, 2022).

The studies by Guo et al. (2021) carried out for the WHO have concluded that patients with diabetes mellitus who contract COVID-19 are vulnerable to severe course of the disease, especially in the case of women. High levels of glycosylated haemoglobin (HbA1c) and proteinuria could be potential risk factors for severe COVID-19 in patients with diabetes mellitus. The PAHO calls for improved diabetes control to prevent complications and severe COVID-19. Anselm Hennis, director of the Department of Non-Communicable Diseases and Mental Health of the Pan-American Health Organisation (PAHO, 2020) stated that “many people may not be receiving their diabetes medication or may not be accessing the care they need to control their disease, something that is very worrying, given that those who live with diabetes have a greater risk of developing severe forms of COVID-19”.

3.1.4. Chronic obstructive pulmonary disease

The genetic risk factor for the chronic obstructive pulmonary disease (COPD) is alpha 1 antitrypsin deficiency. It is rare and present in only 1–2% of COPD patients. Its severe deficiency is associated with premature and accelerated development of COPD among both smokers and non-smokers, although the rate of decline in lung function is accelerated among the former (Félix Hinojosa, 2009). Francisco Navarro Reynoso, a member of the National Academy of Medicine and the Mexican Academy of Surgery, comments that the primary factor that causes the condition is smoking cigarettes, pipes, cigars, and currently also ‘vaping’ (‘electronic’ cigarettes), due to the inhalation of derivatives of substances associated with benzene, an industrial solvent related to gasoline (UNAM, 2021).

3.1.5. Chronic kidney disease

Otero (2002) defines chronic kidney disease as kidney damage persisting for more than three months, defined as a structural or functional abnormality of the kidney. The Ministry of Health conceptualises the disease as the permanent loss of kidney functions. The cause of the disorder are various non-communicable chronic diseases, the most common being diabetes mellitus and arterial hypertension (SSA, 2022b).

3.1.6. Hypertension

Hypertension, according to the DINC (2022), is a state in which a person has blood pressure of 140/90 or higher. Hypertension usually has no symptoms. It can damage arteries and increase the risk of stroke, heart attack, kidney failure, and blindness. In a study conducted at the Wuhan Pulmonary Hospital, Hubei Province, China, between 25 December 2019 and 7 February 2020 to identify factors associated with the death of patients with COVID-19 pneumonia, more deaths were noted in the group that suffered from hypertension (García et al., 2020).

3.1.7. Immunosuppression

The immunosuppressive disease, also called immunosuppression (DINC, 2022) is described as a weakening of the immune system and its ability to fight infections and other diseases. It is sometimes intentional, such as when medications are used to prepare a patient to receive a bone marrow or organ transplant and prevent the rejection of the donor tissue. It is also possible that immunosuppression is a consequence of certain diseases, such as acquired immunodeficiency syndrome (AIDS) or lymphoma, or is induced by treatment with anticancer drugs.

3.1.8. Obesity

Obesity refers to a common chronic disease that is characterised by an abnormal accumulation of fat in the body, which is unhealthy. Obesity can lead to

many health problems, including heart disease, stroke, high blood pressure, diabetes, sleep apnoea, arthritis, kidney disease, and certain types of cancer. It is also called adiposis (DINC, 2022).

A simple way to measure obesity is the body mass index (BMI). It is calculated by dividing a person's weight in kilograms by the square of their height in metres. In the case of adults, a person with a BMI equal to or greater than 30 is considered obese, while that with a BMI equal to or greater than 25 is considered overweight. Furthermore, overweight children are at increased risk of being overweight or obese in adulthood (PAHO, 2022b).

3.1.9. Smoking

According to Lugones et al. (2016), smoking constitutes one of the most serious public health problems worldwide. It has been defined as the great silent epidemic of the twentieth century. Its emergence was clearly associated with societal development and industrialisation. It is now the cause of three million deaths a year, with a growing trend. Cardentey (2016) affirms that smoking is a scourge of humanity, and in accordance with the World Health Organisation (WHO), has classified smoking as a non-communicable and addictive chronic disease, with possibilities of treatment and cure. Therefore, the health promotion and prevention actions carried out in communities must be aimed at mitigating this universal scourge.

3.2. COVID-19 and comorbidities in Mexico: fatality and reasons

Since the beginning of the COVID-19 pandemic until 28 May 2022, the total number of COVID-19 cases in Mexico reached 1,753,512, and researchers registered comorbidities in the form of asthma, cardiovascular disease, diabetes, COPD, chronic kidney disease, immunosuppression, arterial hypertension, obesity, and smoking. The first three are mentioned below in order of highest fatality among COVID-19 patients (Table 1).

The fatality rates associated with individual comorbidities were different from the absolute values. Fatality is a measure of the severity of a disease. In this case, patients with COVID-19 registered variations in fatality according to the type of comorbidity, sex, and state. Mortality among men was higher than among women in the case of all comorbidities. The most serious diseases were chronic kidney disease, COPD, and cardiovascular diseases (Table 1).

The above-mentioned data indicate that each comorbidity affected people differently. That is to say, despite the fact that there were more cases of patients with comorbidities such as arterial hypertension, diabetes, obesity, smoking or asthma, the highest fatality was found among patients with chronic kidney disease, COPD, followed by others, such as cardiovascular disease (Table 1).

The differences in the fatality of comorbidities between sexes were greater in case of immunosuppression, smoking, cardiovascular disease, diabetes, and

Table 1. Mexico. COVID-19 and comorbidities, 2022

Comorbidities	Accumulated cases			Accumulated deaths			Fatality			Difference
	Total	Women	Men	Total	Women	Men	General	Women	Men	
Arterial hypertension	406,429	204,078	202,351	108,995	47,600	61,395	26.8	23.3	30.3	7.0
Obesity	326,762	170,343	156,419	53,386	24,189	29,197	16.3	14.2	18.7	4.5
Diabetes	315,706	154,877	160,829	90,445	38,576	51,869	28.6	24.9	32.3	7.3
Smoking	149,234	48,227	101,007	18,497	3,426	15,071	12.4	7.1	14.9	7.8
Asthma	51,164	32,013	19,151	4,419	2,477	1,942	8.6	7.7	10.1	2.4
Chronic kidney disease	38,881	16,900	21,981	16,682	6,759	9,923	42.9	40.0	45.1	5.1
Cardiovascular disease	38,031	16,851	21,180	12,401	4,792	7,609	32.6	28.4	35.9	7.5
COPD	27,681	13,701	13,980	10,751	4,864	5,887	38.8	35.5	42.1	6.6
Immunosuppression	20,572	11,041	9,531	5,430	2,499	2,931	26.4	22.6	30.8	8.1
Totals	2,278,941	1,143,131	1,135,810	245,485	93,549	151,936	10.8	8.2	13.4	5.2

Source: Own elaboration based on the Government of Mexico, Ministry of Health (SSA, 2022c)

Table 2. Mexican states: cases, deaths, and fatality from COVID-19, 2022

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men × 100	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Aguascalientes	28,148	14,474	13,674	2,596	1,053	1,543	9.2	7.3	11.3	106	68
Baja California	57,969	30,161	27,808	10,219	4,079	6,140	17.6	13.5	22.1	108	66
Baja California Sur	32,861	16,627	16,234	1,964	776	1,188	6.0	4.7	7.3	102	65
Campeche	16,728	7,804	8,924	2,067	786	1,281	12.4	10.1	14.4	87	61
Chiapas	17,279	8,100	9,179	2,060	715	1,345	11.9	8.8	14.7	106	73
Chihuahua	52,997	26,833	26,164	6,840	2,811	4,029	12.9	10.5	15.4	95	61
Mexico City	368,230	188,631	179,599	28,062	10,159	17,903	7.6	5.4	10.0	88	53
Coahuila	73,089	37,659	35,430	7,397	3,122	4,275	10.1	8.3	12.1	103	70
Colima	12,293	5,993	6,300	1,762	668	1,094	14.3	11.1	17.4	105	57
Durango	42,671	23,088	19,583	3,036	1,236	1,800	7.1	5.4	9.2	118	69
State of Mexico	187,666	88,729	98,937	32,466	11,529	20,937	17.3	13.0	21.2	112	64
Guanajuato	149,887	79,114	70,773	12,554	4,913	7,641	8.4	6.2	10.8	96	58
Guerrero	38,682	18,911	19,771	4,689	1,730	2,959	12.1	9.1	15.0	93	57
Hidalgo	42,261	20,331	21,930	7,212	2,610	4,602	17.1	12.8	21.0	101	61
Jalisco	98,299	49,400	48,899	15,109	5,704	9,405	15.4	11.5	19.2	90	55
Michoacán	49,348	24,495	24,853	6,788	2,588	4,200	13.8	10.6	16.9	99	62
Morelos	18,499	8,522	9,977	3,650	1,264	2,386	19.7	14.8	23.9	85	53

Table 2. cont.

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men $\times 100$	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Nayarit	11,228	5,440	5,788	1,962	727	1,235	17.5	13.4	21.3	94	59
Nuevo León	141,737	70,430	71,307	13,358	5,289	8,069	9.4	7.5	11.3	99	66
Oaxaca	49,572	23,752	25,820	3,997	1,431	2,566	8.1	6.0	9.9	92	56
Puebla	95,967	45,824	50,143	12,094	4,412	7,682	12.6	9.6	15.3	91	57
Querétaro	67,780	35,368	32,412	4,242	1,540	2,702	6.3	4.4	8.3	109	57
Quintana Roo	26,536	12,490	14,046	3,704	1,312	2,392	14.0	10.5	17.0	89	55
San Luis Potosí	78,556	39,518	39,038	5,483	2,153	3,330	7.0	5.4	8.5	101	65
Sinaloa	45,203	23,278	21,925	7,539	3,144	4,395	16.7	13.5	20.0	106	72
Sonora	62,769	32,931	29,838	7,156	3,019	4,137	11.4	9.2	13.9	110	73
Tabasco	143,095	74,557	68,538	5,489	2,181	3,308	3.8	2.9	4.8	109	66
Tamaulipas	80,181	38,948	41,233	6,282	2,554	3,728	7.8	6.6	9.0	94	69
Tlaxcala	24,829	12,136	12,693	2,830	1,050	1,780	11.4	8.7	14.0	96	59
Veracruz	76,647	35,654	40,993	13,377	5,241	8,136	17.5	14.7	19.8	87	64
Yucatán	47,401	22,844	24,557	6,007	2,338	3,669	12.7	10.2	14.9	93	64
Zacatecas	40,533	21,089	19,444	3,494	1,415	2,079	8.6	6.7	10.7	108	68
Mexico	2,278,941	1,143,131	1,135,810	245,485	93,549	151,936	10.8	8.2	13.4	101	62

Source: Own elaboration based on the Government of Mexico, Ministry of Health (SSA, 2022c)

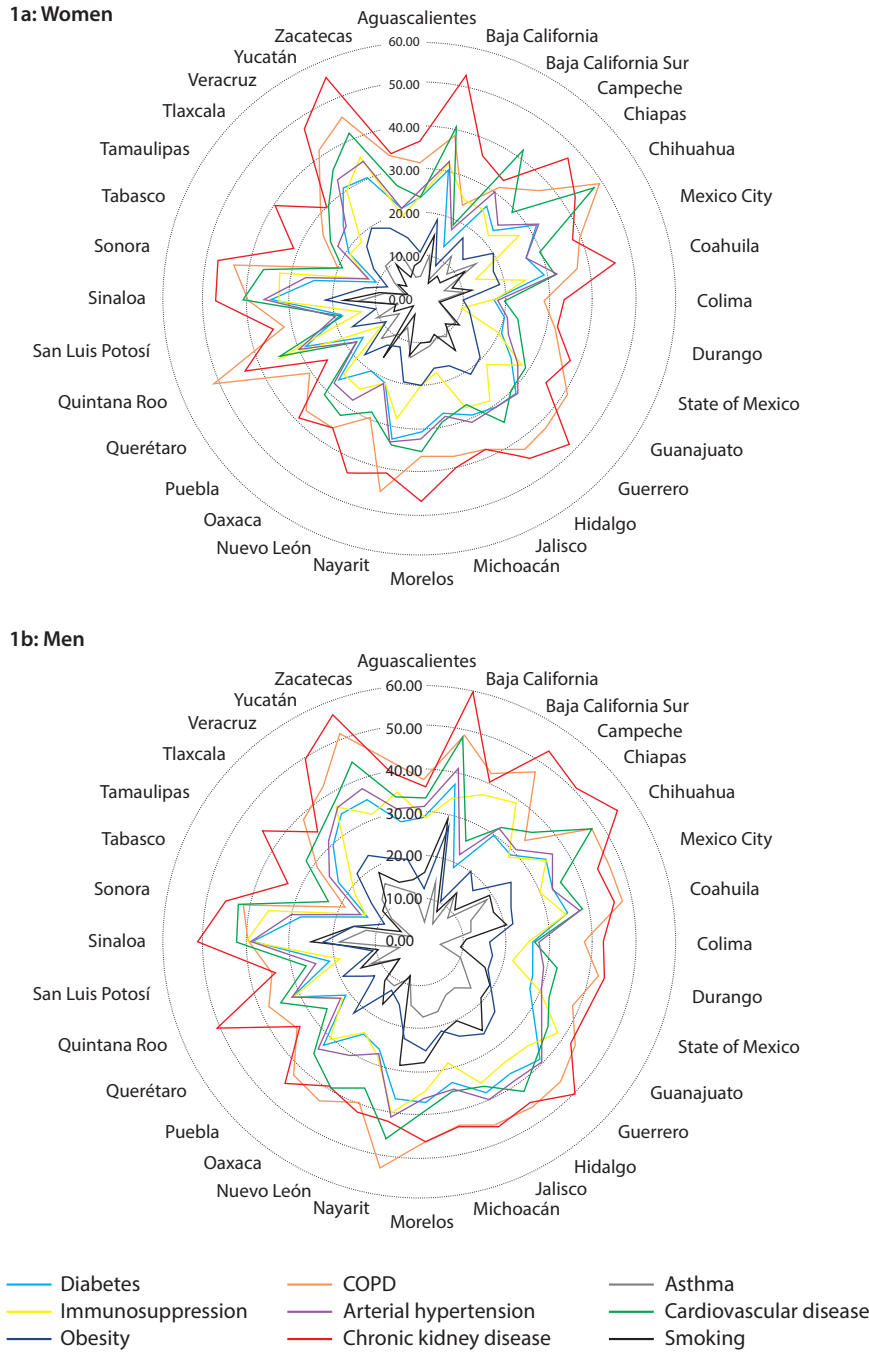


Figure 1. Mexican states: fatality among women and men and comorbidities due to COVID-19, 2022

Source: Own elaboration based on the Government of Mexico, Ministry of Health (SSA, 2022c)

arterial hypertension, with values exceeding 7 percentage points. The comorbidities that showed little difference by sex were asthma and obesity.

In general terms, the fatality rate for Mexico in the study period was 10.8. Among women, the value of 8.2 was registered, while for men it was greater by over 5 pp., reaching 13.4. The states that registered the most cases were Mexico City, State of Mexico, and Guanajuato. The administrative units standing out in terms of highest fatality were Morelos, Baja California, and Nayarit. In addition to this, the states that represented a particularly considerable difference in terms of fatality between men and women were the same as mentioned above, including State of Mexico (Table 2 and Fig. 1).

Regarding the calculations for the ratio between women and men, a homogeneous pattern was observed across different states in terms of the data on accumulated cases and deaths. However, for every 100 men who have fallen ill from COVID-19, almost as many women have as well, in contrast to deaths, where for every 100 deceased men there were between 53 and 73 women, placing men in a situation of greater vulnerability (Table 2).

3.3. Mexico: COVID-19 and main comorbidities by sex

Although the comorbidities for which the greatest number of cases and deaths was registered were arterial hypertension, obesity, and diabetes (Table 1), those that had the greatest impact due to their fatality were chronic kidney disease, COPD, and cardiovascular disease in both men and women. The latter will be discussed below.

3.3.1. Chronic kidney disease

Out of the total number of deaths from COVID-19 in Mexico in the period studied, the highest fatality rate was registered for the comorbidity of chronic kidney disease. Among the most affected states were Baja California and Yucatán, with fatality rate exceeding 56 and a general difference of 5 pp. between men and women, the former being more affected. The pattern of fatality among women shows that the states which were most affected were the same as mentioned above. For men, the states of Chihuahua, Campeche, and Sinaloa also stand out.

The most significant difference between high fatality rates among men and lower values among women were found in the States of Campeche, Chihuahua, and Durango, with more than 12 pp., in contrast to the states of Nuevo León, Aguascalientes, and Morelos, where fatality was slightly higher among women.

The states with the highest value of the ratio indicator turned out to be Campeche and Tamaulipas, which shows that they are the most balanced in terms of cases by sex. For every 100 men with chronic kidney disease who got sick from COVID-19, a more or less equal number of women fell ill; in contrast, the states of Chihuahua, Morelos, and Tlaxcala were those where males

Table 3. Mexico: COVID-19 and chronic kidney disease, 2022

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men × 100	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Aguascalientes	753	296	457	275	110	165	36.5	37.2	36.1	65	67
Baja California	1,312	579	733	745	309	436	56.8	53.4	59.5	79	71
Baja California Sur	328	154	174	126	56	70	38.4	36.4	40.2	89	80
Campeche	281	146	135	121	49	72	43.1	33.6	53.3	108	68
Chiapas	1,158	561	597	564	262	302	48.7	46.7	50.6	94	87
Chihuahua	411	145	266	207	61	146	50.4	42.1	54.9	55	42
Mexico City	451	180	271	187	67	120	41.5	37.2	44.3	66	56
Coahuila	952	427	525	433	192	241	45.5	45.0	45.9	81	80
Colima	4,530	2,001	2,529	1,728	650	1,078	38.1	32.5	42.6	79	60
Durango	414	199	215	157	63	94	37.9	31.7	43.7	93	67
State of Mexico	2,332	997	1,335	922	366	556	39.5	36.7	41.6	75	66
Guanajuato	781	337	444	302	115	187	38.7	34.1	42.1	76	61
Guerrero	1,041	443	598	510	210	300	49.0	47.4	50.2	74	70
Hidalgo	3,395	1,357	2,038	1,520	601	919	44.8	44.3	45.1	67	65
Jalisco	3,882	1,599	2,283	1,658	600	1,058	42.7	37.5	46.3	70	57
Michoacán	1,044	465	579	439	185	254	42.0	39.8	43.9	80	73
Morelos	633	238	395	296	112	184	46.8	47.1	46.6	60	61

Table 3. cont.

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men × 100	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Nayarit	340	137	203	143	56	87	42.1	40.9	42.9	67	64
Nuevo León	2,037	967	1,070	878	423	455	43.1	43.7	42.5	90	93
Oaxaca	650	263	387	252	95	157	38.8	36.1	40.6	68	61
Puebla	1,615	650	965	705	253	452	43.7	38.9	46.8	67	56
Querétaro	831	358	473	260	91	169	31.3	25.4	35.7	76	54
Quintana Roo	546	262	284	264	113	151	48.4	43.1	53.2	92	75
San Luis Potosí	1,177	527	650	414	179	235	35.2	34.0	36.2	81	76
Sinaloa	900	400	500	453	185	268	50.3	46.3	53.6	80	69
Sonora	886	421	465	421	197	224	47.5	46.8	48.2	91	88
Tabasco	1,172	538	634	390	168	222	33.3	31.2	35.0	85	76
Tamaulipas	1,157	595	562	496	236	260	42.9	39.7	46.3	106	91
Tlaxcala	586	222	364	198	67	131	33.8	30.2	36.0	61	51
Veracruz	1,808	765	1,043	893	364	529	49.4	47.6	50.7	73	69
Yucatán	875	421	454	496	237	259	56.7	56.3	57.0	93	92
Zacatecas	603	250	353	229	87	142	38.0	34.8	40.2	71	61
Mexico	38,881	16,900	21,981	16,682	6,759	9,923	42.9	40.0	45.1	77	68

Source: Own elaboration based on the Government of Mexico, Ministry of Health (SSA, 2022c)

were the most disproportionately affected, because for every 100 men who became ill, the number of women was half as big.

With regard to the causes of death, chronic kidney disease was recorded more frequently among males across all states, with the greatest impact noted in Chihuahua, Tlaxcala, and Querétaro, where less than 55% were women (Table 3).

3.3.2. Chronic obstructive pulmonary disease (COPD)

Of the total number of deaths from COVID-19 in Mexico in the analysed period, the second comorbidity with the greatest impact in terms of fatality was COPD. Among the most affected states were Nayarit, Yucatán, and Chihuahua, with a fatality rate exceeding 45 and a general difference of 6 pp. between men and women, the former being more affected. The pattern of fatality among women shows that the most affected state was, in addition to the afore-mentioned, Quintana Roo. For men, particularly high fatality was also recorded in the states of Baja California, Coahuila, and Campeche.

The most significant differences in the mortality rates between the sexes, with a lower value noted for women, were found in the states of Baja California, Campeche, and Coahuila, with more than 12 pp., in contrast to the states of Quintana Roo, Chiapas, and Chihuahua, where fatality was slightly higher among women.

With respect to the ratio indicator, the states with values close to 100 – that is the most homogeneous in terms of cases by sex – were Colima, Mexico City, and Nuevo León. Conversely, the states where the highest proportion of women became ill were Morelos, Tabasco, and Yucatán. The opposite pattern, where males got sick the most, was observed in the states of Sonora, Sinaloa, and Quintana Roo.

The states which registered a similar proportion between sexes in the cause of death were Veracruz, Chihuahua, and Morelos. The state where more women died was Tabasco, while the opposite was registered for Baja California Sur and Coahuila, where the proportion was closer to 50% (Table 4).

3.3.3. Cardiovascular disease

Out of the total number of deaths from COVID-19 in Mexico in the period studied, this comorbidity was the third in terms of the highest impact, with a general fatality rate of 32.6. Among the most affected states were Chihuahua, Baja California, and Yucatán, with fatality rate exceeding 43. Less affected were the states of Baja California Sur, Tabasco, and Colima, with a rate under 23. In general, a difference of 7 pp. was registered between men and women. Men were the more affected sex.

The fatality pattern among women shows that the most affected state, in addition to those mentioned, was Campeche. For men, it was the state of Nayarit.

Table 4. Mexico: COVID-19 and COPD, 2022

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men $\times 100$	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Aguascalientes	402	205	197	140	66	74	34.8	32.2	37.6	104	89
Baja California	1,092	504	588	486	197	289	44.5	39.1	49.1	86	68
Baja California Sur	158	75	83	53	18	35	33.5	24.0	42.2	90	51
Campeche	213	114	99	83	36	47	39.0	31.6	47.5	115	77
Chiapas	420	182	238	146	66	80	34.8	36.3	33.6	76	83
Chihuahua	190	93	97	91	45	46	47.9	48.4	47.4	96	98
Mexico City	229	115	114	99	45	54	43.2	39.1	47.4	101	83
Coahuila	634	274	360	272	99	173	42.9	36.1	48.1	76	57
Colima	3,660	1,826	1,834	1,205	513	692	32.9	28.1	37.7	100	74
Durango	451	209	242	167	65	102	37.0	31.1	42.1	86	64
State of Mexico	2,279	1,232	1,047	828	427	401	36.3	34.7	38.3	118	106
Guanajuato	502	240	262	208	96	112	41.4	40.0	42.7	92	86
Guerrero	916	495	421	396	203	193	43.2	41.0	45.8	118	105
Hidalgo	2,390	1,149	1,241	1,059	485	574	44.3	42.2	46.3	93	84
Jalisco	2,886	1,405	1,481	1,206	525	681	41.8	37.4	46.0	95	77
Michoacán	1,197	611	586	482	227	255	40.3	37.2	43.5	104	89
Morelos	375	208	167	154	76	78	41.1	36.5	46.7	125	97

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men × 100	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Nayarit	296	128	168	148	58	90	50.0	45.3	53.6	76	64
Nuevo León	819	411	408	288	123	165	35.2	29.9	40.4	101	75
Oaxaca	401	197	204	162	71	91	40.4	36.0	44.6	97	78
Puebla	1,056	534	522	423	194	229	40.1	36.3	43.9	102	85
Queretaro	458	232	226	152	70	82	33.2	30.2	36.3	103	85
Quintana Roo	248	101	147	110	51	59	44.4	50.5	40.1	69	86
San Luis Potosí	1,062	553	509	362	174	188	34.1	31.5	36.9	109	93
Sinaloa	675	274	401	276	107	169	40.9	39.1	42.1	68	63
Sonora	701	280	421	306	121	185	43.7	43.2	43.9	67	65
Tabasco	519	288	231	105	58	47	20.2	20.1	20.3	125	123
Tamaulipas	711	338	373	203	89	114	28.6	26.3	30.6	91	78
Tlaxcala	425	228	197	153	74	79	36.0	32.5	40.1	116	94
Veracruz	1,073	555	518	455	230	225	42.4	41.4	43.4	107	102
Yucatán	525	288	237	257	133	124	49.0	46.2	52.3	122	107
Zacatecas	718	357	361	276	122	154	38.4	34.2	42.7	99	79
Mexico	27,681	13,701	13,980	10,751	4,864	5,887	38.8	35.5	42.1	98	83

Source: Own elaboration based on the Government of Mexico, Ministry of Health (SSA, 2022c)

Table 5. Mexico: COVID-19 and cardiovascular disease, 2022

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men × 100	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Aguascalientes	514	222	292	150	53	97	29.2	23.9	33.2	76	55
Baja California	1,852	839	1,013	838	344	494	45.2	41.0	48.8	83	70
Baja California Sur	426	219	207	93	41	52	21.8	18.7	25.1	106	79
Campeche	291	119	172	105	50	55	36.1	42.0	32.0	69	91
Chiapas	989	460	529	323	134	189	32.7	29.1	35.7	87	71
Chihuahua	247	112	135	117	53	64	47.4	47.3	47.4	83	83
Mexico City	282	103	179	92	30	62	32.6	29.1	34.6	58	48
Coahuila	1,236	581	655	432	180	252	35.0	31.0	38.5	89	71
Colima	5,769	2,624	3,145	1,322	499	823	22.9	19.0	26.2	83	61
Durango	460	193	267	129	43	86	28.0	22.3	32.2	72	50
State of Mexico	2,026	935	1,091	583	234	349	28.8	25.0	32.0	86	67
Guanajuato	592	258	334	191	74	117	32.3	28.7	35.0	77	63
Guerrero	902	382	520	310	112	198	34.4	29.3	38.1	73	57
Hidalgo	2,722	1,164	1,558	1,052	397	655	38.6	34.1	42.0	75	61
Jalisco	3,155	1,334	1,821	1,020	354	666	32.3	26.5	36.6	73	53
Michoacán	1,153	512	641	373	144	229	32.4	28.1	35.7	80	63
Morelos	428	173	255	163	61	102	38.1	35.3	40.0	68	60

State	Accumulated cases			Accumulated deaths			Fatality			Ratio women / men × 100	
	Total	Women	Men	Total	Women	Men	General	Women	Men	Cases	Deaths
Nayarit	346	154	192	143	53	90	41.3	34.4	46.9	80	59
Nuevo León	2,222	1,055	1,167	729	299	430	32.8	28.3	36.8	90	70
Oaxaca	536	216	320	200	70	130	37.3	32.4	40.6	68	54
Puebla	1,413	581	832	486	179	307	34.4	30.8	36.9	70	58
Queretaro	616	271	345	143	47	96	23.2	17.3	27.8	79	49
Quintana Roo	446	184	262	159	62	97	35.7	33.7	37.0	70	64
San Luis Potosí	1,075	516	559	256	96	160	23.8	18.6	28.6	92	60
Sinaloa	1,202	514	688	515	207	308	42.8	40.3	44.8	75	67
Sonora	1,636	722	914	678	264	414	41.4	36.6	45.3	79	64
Tabasco	1,097	504	593	241	97	144	22.0	19.2	24.3	85	67
Tamaulipas	1,315	570	745	394	142	252	30.0	24.9	33.8	77	56
Tlaxcala	307	139	168	101	41	60	32.9	29.5	35.7	83	68
Veracruz	1,318	553	765	497	200	297	37.7	36.2	38.8	72	67
Yucatán	882	387	495	386	163	223	43.8	42.1	45.1	78	73
Zacatecas	576	255	321	180	69	111	31.3	27.1	34.6	79	62
Mexico	38,031	16,851	21,180	12,401	4,792	7,609	32.6	28.4	35.9	80	63

Source: Own elaboration based on the Government of Mexico, Ministry of Health (SSA, 2022c)

The most significant difference in fatality rates, where men were more affected than women, were found in the states of Nayarit, Querétaro, and Jalisco, with a difference of more than 10 pp. Conversely, the mortality rate was slightly higher for women in the state of Campeche.

The states with the most balanced ratio, where the indicator had values close to 100, were Baja California Sur and San Luis Potosí. The states where a lower proportion of women fell ill were Mexico City, Morelos, and Oaxaca. The greatest disparity in terms of fatality between sexes, where more deaths were noted among males, was recorded in Mexico City, Querétaro, and Durango, with less than half of the deaths occurring among women (Table 5).

4. Discussion

Data from Mexico show clear patterns of differences between males and females for each type of comorbidity and across the country's territory; these contrasts are observed in terms of general fatality by sex and of the ratio indicator.

The present study concludes that the highest fatality occurs for the comorbidity of chronic kidney disease. This stands in contrast to the statements made by PAHO (2022c) and Brettler et al. (2020), according to whom the main cause of fatality and mortality for the region of the Americas are cardiovascular diseases (CVD). On the other hand, UNAM (2021) has used data from the INEGI to conclude that in July 2021, 1,086,094 deaths were registered over the course of the previous year, out of which 21,972 were due to COPD. Therefore, the disease was positioned as the fourth major cause of death from COVID-19, with a fatality rate of 38.6. Currently, by May 2022, it is ranking second, only below chronic kidney disease (Table 1).

The fatality ratio between men and women has revealed great contrasts across Mexico – while there are states with very high disparities, there are also some where they are very low. Men were generally more affected, although with different intensity depending on the comorbidity – while chronic kidney disease displayed values between 31 and 57, COPD and cardiovascular disease were between 20 and 50. There was a greater impact among males but differentiated by comorbidity.

Regarding the fatality data for the comorbidity of chronic kidney disease, there were states where the difference between men and women was very significant (19 pp.). In other regions, the fatality rate among females reached a minimum of 25 and a maximum of 56, while among males, the respective lowest value was 10 percentage points smaller, that is 35, while the highest was 60. This shows that comorbidity affected the sexes differently, considering that the minimum rate was not the same for men and women. On the other hand, there were also states where the difference between the fatality rates was minimal, which means that the number of deaths of men and women was homogeneous and very similar for this comorbidity.

As for the data on fatality associated with COPD, the minimum and maximum values between men and women were similar (20–54), with differences within each state. There were states that presented values of 24, 31, or 36 among women, while the values for men were higher – 42, 47, and 48, respectively, which gave a difference of more than 12 percentage points. In contrast, the state of Quintana Roo registered values of 50 and 40 for women and men, respectively.

The pattern for cardiovascular disease was similar to that for COPD. However, the states that registered the greatest disparities between sexes were not the same. The greatest difference between women and men amounted to around 10 percentage points of difference with the values of 34, 17, 26 and 47, 28, 37, respectively. In this case, the state of Campeche registered a greater difference between the fatality rates in women and men, with the value for the former higher by 10 percentage points than that for the latter.

The calculated ratio indicator for chronic kidney disease reveals that it was the comorbidity which showed the most significant differences between the proportions of women and men who contracted COVID-19. Therefore, each territorial unit and each comorbidity displayed a different pattern. The states in which chronic kidney disease affected women to the greatest degree were Campeche and Tamaulipas. On the other hand, COPD affected more women in almost half of the states, which is a different pattern to those of the other two comorbidities studied. As for cardiovascular disease, it affected women to a greater degree in the State of Baja California Sur. In general, the comorbidities mainly affected men, but there were states in which women were more affected, mainly by COPD.

The ratio indicator for deaths showed a different pattern than that for cases. Chronic kidney failure was a comorbidity which mainly affected men. COPD, meanwhile, affected more women than men in certain states; only in a few states were the rates between sexes similar. Cardiovascular disease affected mainly men in all states of the Mexican territory.

This panorama of COVID-19 and comorbidities in Mexico reveals public health problems at the state level and indicates that policies should focus on reducing the comorbidities which have the highest fatality rates for COVID-19. The adopted solutions should also consider the aspect of sex and must be developed individually in each state.

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ABSTRACT

COVID-19 pandemic and geographic space in Mexico. A perspective of differences in comorbidities by sex

Given the international importance of the SARS-CoV-2 pandemic, different efforts have been taken by various sectors to combat it. Contributions have also been made to analysing the spatial and temporal distribution of this disease based on the contributions converging in a single geographical area. This research analyses the role of comorbidities as factors having a differential influence on deaths from COVID-19 in a given territory and which reveal certain particularities in terms of sex. This work also analyses the geographical distribution of the data accumulated from the start of the pandemic until May 2022 in order to identify territorial disparities and differences in the impact of comorbidities by sex. The study area is Mexico, with individual states used as the spatial disaggregation scale, rendering 32 spatial units. The results are an important input for decision-makers, who can make use of them to directly affect the public health of each spatial unit.

Keywords: COVID-19, sex, comorbidities, spatial distribution

The authors of this monograph delve into an analysis of the impacts and consequences of diverse crises on cities, exploring the responses and adaptive mechanisms crucial for navigating challenges and fostering development, even in crisis conditions. The publication specifically addresses such issues as the spatial ramifications of the COVID-19 pandemic (e.g. effects on urban spatial policies, the informational layer of cities, resident behaviour, and the informal labour market), cities' strategies in addressing the climate crisis (e.g. urban agriculture, the creation of green urban spaces), contemporary concepts of city development aimed at enhancing the quality of life (e.g. functional mix, walkable city, New Urbanism), and crises from a regional perspective (e.g. flood threats). The authors present diverse viewpoints and employ various research methods, exploring cities in Europe and the Americas to highlight both differences and universal challenges.

This monograph is the culmination of extensive collaboration among scholars from the University of Warsaw and universities in Latin America, including Universidad Autónoma del Estado de México, Universidad Mexiquense del Bicentenario, Universidad Autónoma de Nuevo León in Mexico, and Universidad de los Llanos in Colombia. Some articles were co-authored by teams comprising researchers from both Poland and Latin America.

The monograph introduces an innovative perspective on urban issues within the context of Polish geographical literature, focusing on both Polish and Latin American cities. A notable strength lies in the methodological aspect [and] the balanced proportion between a thorough analysis of the examined problems and the presentation of practical solutions. The monograph is poised to capture the interest of a diverse readership, including geographers, researchers from various disciplines in social sciences and related fields, doctoral students, as well as individuals intrigued by contemporary urban development issues.

from the review by Wioletta Kalamucka

Many studies [featured in this monograph] stand out for their exploration and testing of unique methodological proposals, encompassing variables, indicators, and data. The evolutionary approach taken towards the examined issues is particularly intriguing. Numerous phenomena studied within urban issues are intricately linked to their current developmental paths. Altering these paths necessitates robust external stimuli, such as the introduction of tourism into traditional agricultural or rural communities. However, this is not always beneficial for the traditional life of local communities, despite stimulating economic development. This could potentially be a valuable avenue for future research initiatives.

from the review by Andrzej Matczak